AN EXAMINATION OF READER RESPONSES TO GRAWLIXES

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Jay Stout

Thesis Committee:
Amy Hubbard, Chairperson
R. Kelly Aune
Jessica Gasiorek
ABSTRACT

Using taboo words is often perceived negatively in polite conversation, and methods are used to substitute for taboo words in media messages to protect vulnerable populations, such as children. Grawlixes are the nonsense symbols (e.g., #$%*!) used to replace taboo words in written messages. Despite their popularity and common use, there has been a lack of empirical research examining their relation to taboo words. It was found that although participants were able to associate grawlix symbols with taboo word referents, messages with taboo words, grawlixes, or non-taboo words did not differ significantly in perceived negative emotional valence or emotional intensity. The study found limited support that grawlixes have higher recall than non-taboo words, but also found that contrary to predictions, non-taboo words had higher recall than taboo words.
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"Fuck!" There are many times one might use this taboo word. For example, if a person is cut off by another driver, when one is in a verbal disagreement, if a person stubs a toe, or when one breaks something valuable. When people use taboo words they can be perceived as powerful or aggressive or seen as releasing strong emotion because taboo words often function to intensify the emotional component of messages (Beebe, 2005; de Klerk, 1991; Jay, 1992; 1999; Pinker, 2007). These perceptions may result in messages with taboo words being considered inappropriate, vulgar, indecent, or even dangerous for vulnerable populations, such as children, and thus need to be censored (e.g., Kaye & Sapolsky, 2001; Rojas, Shah, & Faber, 1996). For example, a parent might ask their children to cover their ears when a bad word is said. A television program might incorporate a 1 kilohertz tone to bleep out the bad words spoken by the characters. One form of written censorship is the use of grawlixes. Grawlixes are the nonsense symbols, e.g., “#@%$*!,” originally used to censor written taboo words in comics or signal a character’s potentially taboo worded frustration (Walker, 1975; Zimmer, 2013). The popularity of grawlixes led to their use beyond their original comic-based implementation to any written messages.

Despite their popularity, the ways messages that contain grawlixes are processed have largely been ignored by researchers. Thus, this investigation aims to study the impact of grawlixes in written messages by examining if there is a functional distinction between messages that use grawlixes and those without. This investigation will begin with addressing terminological issues, providing background on taboo words, discussing perceptions and functions of taboo word use, then introducing grawlixes and how they are understood given the fundamentals of communication, and finally covering the emotional component of taboo words.
Selection of Terminology and Definition of Taboo Words

There are several terms used to describe the lexicon of words considered inappropriate and obscene in polite conversation within the English language (Jay, 1992; 1999; 2009; Kaye & Sapolsky, 2001; McEnery, 2006). No singular term's definition fully encompasses all of these words. This has led to researchers who study taboo words to use broad umbrella terms (Jay, 1992; McEnery, 2006). Jay (1992) used words such as taboo words, cursing, and swear words, with the aim of covering all words considered offensive to "the person on the street," (p.1) or offensive emotional language (Jay, 2009). Jay and associates defined taboo words as, "emotionally arousing references with respect to body parts, sexual acts, ethnic or racial insults, profanity, vulgarity, slang, and scatology," (Jay, Caldwell-Harris, & King, 2008, p. 1). McEnery (2006) chose to use the term "bad language words" (p. 36) to explain all words that may be considered offensive. Rassin and Muris (2005) claimed swearing was, "the use of taboo words" (p. 1669). These general terms may be considered imprecise by language scholars, but previous researchers have commented on their applicability and well understood meaning with the everyday individual (e.g., Jay, 1992). Thus for the purposes of this study, the term taboo words will be used.

Background on Taboo Words

Ubiquity of taboo words. The use of taboo words is ubiquitous across and within cultures (Jay, 2009; Heins, 2007; McEnery, 2006; Mehl, & Pennebaker, 2003; Stephens, Atkins, & Kingston, 2009). Taboo words are found in many languages such as, English (Jay, 1992), French (Léard, 1997) Spanish, (Anooshian & Hertel, 1994), Japanese (Toya & Kodis, 1996), and even in sign language (Lang, Consky, & Sandor, 1993). Jay and Janscheitwz (2008) argued that taboo words are deeply engrained in a culture's psychology and native speakers of all cultures
learn how to use them. Even children have been observed using taboo words. Jay (1992) argued that taboo word use is acquired from as early as age two through name calling. Several scholars have found the taboo words and insults children use are based on a variety of sources, such as mocking someone's name (e.g., "Zankovic" might become "Stinkyshits", "Shelly Cooper is a Smelly Pooper," and "John Lynch is a Mean Grinch"), toilet and bodily fluid related comments (e.g., "shithead" and "bed wetter"), weakness related insults (e.g., "chicken shit" and "pussy") to name a few (Jay, 1989; Winslow, 1969; Wolfstein; 1957).

Given that taboo words are prevalent and acquired at an early age, there is likely an evolutionary basis to the use of taboo words. For example, Patrick (1901) postulated that taboo word use is analogous to a primitive growl, where the taboo word is meant to be threatening. Other scholars have shown that taboo word usage has an adaptive nature. For instance, taboo words used when experiencing pain have been linked to inducing a hypoalgesic effect, minimizing pain responses (Stephens, Atkins, & Kingston, 2009; Stephens & Umland, 2011). Stephens and associates argued that taboo word use is not a cognitive distraction from pain, but triggers one's flight or fight response to a threat (Stephens, Atkins, & Kingston, 2009). To support this claim, the researchers found evidence that using taboo words when experiencing pain also produces an increased heart rate not seen otherwise.

Other authors have suggested there is a neurological basis in using taboo words (Jay, 2003; Pinker, 2007; Van Lacker & Cummings, 1999), which may explain the evolutionary link. The regions of the brain associated with taboo word use are considered older in evolutionary development and occur earlier in human maturation (Casey, Tottenham, Liston, & Durston, 2005; Pinker, 2007). Pinker (2007) argued this is likely due to the two primary regions associated with taboo word use, the basal ganglia and the limbic system, governing human
emotion. The two areas that govern higher order language are the Wernicke's and Broca's areas (Casey, Tottenham, Liston, & Dusrston, 2005), both of which develop after the basal ganglia and the limbic system. Research on several neurological disorders suggests that taboo word use is controlled by the basal ganglia and limbic system and not the areas that govern normal speech. These neurological disorders are striking due to the persistence of taboo word use although other higher order cognitive functions are impaired. For example, studies on patients with aphasia, (Jay, 2003; 2009; Jackson, 1878; Van Lacker & Cummings, 1999; Werny, 2013) Alzheimer's (Jay, 2003), and coprolalia's in Tourrette's syndrome (Van Lacker & Cummings, 1999) have provided evidence for taboo word use being linked to the primitive neurological structures which are associated with human emotion.

**Individual differences in taboo word use.** Although taboo word use is prevalent in society, not everyone uses taboo words to the same degree. Individual differences in taboo word use can be attributed to several variables including: social rank (McEnery, 2006), gender (Jay, 1992; 2009; McEnery, 2006; Mehl & Pennebaker, 2003; Thelwall, 2008), and personality factors such as religiosity (Janschiewtz, 2008), hostility (Jay, 1992; 2009), and extroversion (Dewaele, 2004; Dewaele & Regan, 2001). For instance, McEnery (2006) found that socially low ranking speakers were more likely to use taboo words than socially high ranking speakers. Mehl and Pennebaker (2003) found evidence to suggest that men use taboo word more than women, but noted that the disparity in frequency has been narrowing since the early 2000s. These researchers also found that men and women use taboo words in different ways, with men using more words that are perceived as offensive than women. Jay (1992; 2009) associated Type A personalities with using taboo words more than Type B personality types. People who scored higher in religiosity were found to be less likely to use taboo words than those who scored lower in
religiosity (Janschiewtz, 2008; Jay, 1992). Dewaele (2004) found bilinguals who were highly extroverted used more second language taboo words than those highly introverted.

**Perceptions and Functions of Taboo Word Use**

Not only are there individual differences among people in their use of taboo words, but not all taboo words are perceived similarly. People determine which words are highly offensive and which words are not as offensive (Jay, 2009). Several researchers have argued that some taboo words are considered highly offensive, e.g., "cunt," "nigger," "cocksucker," "motherfucker," and "fuck," (Jay, 2009; Kaye & Sapolsky, 2001; Mabry 1974). Mabry (1974) posited that many of the perceived highly offensive taboo words are sexual and discriminatory slang words. Mabry (1974) also found data to suggest that there are less offensive words, such as euphemisms or technical terms, e.g., "vagina" and "penis."

Social perceptions of how offensive certain taboo words are also changes over time. For instance, Kaye and Sapolsky (2001) noted that cable networks became more tolerant of taboo word use in the early 2000s than in the 1950s. In 1950, Author Godfrey encountered public controversy for using the words "damn" and "hell" on live television (MacDonald, 1994). However, Polskin (1989) observed that by 1988 the phrase "goddamn" was being scripted into episodes of the television drama *LA Law*, and considered acceptable for public broadcast. Network television still maintains strict broadcast standards on highly offensive language and prohibits their use, but again what constitutes highly offensive language changes over time (Kaye & Sapolsky, 2001).

Even though taboo words can be perceived as offensive, there is evidence of using taboo words for pro-social goals. Taboo words can be used to foster perceptions of social harmony, e.g., "You're a fucking great cook!" and may be used in comedy and storytelling (Jay, 2009).
Daly and associates (Daly, Holmes, Newton, & Stubbe, 2004) found evidence that using "fuck" between friends and coworkers led to increased perceptions of solidarity between speakers and listeners. These researchers postulated this is due to a, I-know-you-so-well-I-can-be-this-rude-to-you, effect. McLeod (2011) found similar results of increased rapport between Australian trades people when using taboo words to insult and joke with one another. Thelwall (2008) suggest that using taboo words is generally more positively evaluated when used in same-sex crowds and more negatively evaluated in mixed-sex crowds. This is supported by research done by Wells (1989) whose findings suggest that the more offensive a taboo word is perceived, the more likely the word would be used in same-sex crowds. Taboo words that were perceived as less offensive were used for mixed-sex crowds and acquaintances.

Despite some positive evaluations for using taboo words, their use is generally considered unacceptable in polite conversation (Coyne, Callister, Stockdale, Nelson, & Wells, 2012; McEnery, 2006). In their examination of workplace settings, Johnson and colleagues found that using taboo words was associated with the speaker being perceived as less competent as a professional (Johnson & Lewis, 2010; Johnson 2012). In Young's (2004) analysis of using taboo words in conflict, the researcher found using taboo words cathartically in conflict with romantic partners backfired and was negatively perceived by romantic partners. Researchers observed that taboo words are often used to harm others in hateful speech such as, racist and discriminatory comments and insults, sexually harassing verbal advances, and abusive language targeted at domestic partners and children (Infante & Wigley, 1986; Jay, King, & Duncan, 2006). Some scholars have argued that using taboo words for antisocial purposes is perceived negatively as verbal aggression. Jay (1999) described verbal aggression as an act of hostility that is often targeted at someone. For example, most people would not utter taboo words at a lamp by
calling it a "shithead," but would use the same taboo word at a driver who cuts them off on the road. DeKlerk (1991) argued that using taboo words in verbal aggression serves to show contempt for another or to emotionally surprise them. For example, it is rarely socially acceptable to say, "I hope you fucking die," without expressing contempt for another individual. This level of contempt is also unparalleled by non-taboo words (Jay, 2009; Potts 2007).

Given the notion that verbal aggression is targeted hostility, Jay and colleagues commented on society's attitude of caution in exposing children to verbal aggression (Jay, King, & Duncan, 2006), and other researchers have posited that heavy exposure to verbal aggression is a societal concern (Infante & Wigley, 1986; Lakoff, 1989). Indeed, there is also unease about children being repeatedly exposed to taboo words due to a possible desensitization effect (Condry, 1989; Jay, King, & Duncan, 2006). Some scholars argued that a result of desensitization is the increased tolerance for and likelihood of engaging in verbally aggressive behaviors and other antisocial behaviors (Condry, 1989; Jay, 1992). Coyne and associates (2012) explained that the desire to prevent minors from engaging in verbally aggressive acts is due to perceptions of this behavior being problematic.

**Censorship of Taboo Words in Media**

Although there are situations where using taboo words can be positively evaluated, the overall social perception of taboo word usage is negative. As such taboo words are discouraged in the media. In media messages taboo words are subject to censorship. Jansen (1991) defined censorship as "all socially structured proscriptions or prescriptions which inhibit or prohibit dissemination of ideas, information, images, and other messages through a society’s channels of communication whether these obstructions are secured by political, economic, religious, or other systems of authority" (p. 221). Dority (1989) defined censorship as the mindset that seeks to
protect individuals from the harmful effects of messages (as cited in Rojas, Shah, & Faber, 1996). Censorship agencies, such as the Federal Communications Commission (FCC), explained their actions as designed to protect the public (Ang & Nadarajan, 1996; Rojas, Shah, & Faber, 1996).

In order to protect the public, taboo words are either prohibited or regulated in many forms of media such as, television, novels/books, radio, music, the internet, and comics. Various notable legal cases have resulted in the current regulation of taboo words. Several early cases protected the use of taboo words to some degree under the First Amendment (see Cohen vs. California, 1971; Miller vs. California, 1964). The landmark case of FCC vs. Pacifica Foundation (1978) resulted in the Supreme Court endorsing the FCC’s standards on language use for broadcasting. The case involved George Carlin's monologue on public radio and his use of taboo words that were not permitted by the FCC. Calvert (2004) mentioned the impact of the case led to many media content providers to self-censor their language and reduce taboo word use on their programs to avoid FCC penalties. In 1996, the Telecommunications Act was introduced (Kremar & Sohn, 2010). The act mandated that television programs include age and content ratings to further aid individuals' viewership decisions. For example, adult content and language use must be labeled before the program airs, along with a rating to indicate maturity level of the content being aired. These content ratings include warnings of strong language use for taboo words that are not censored.

To adhere to the standards enforced by the FCC and other censorship agencies, media content providers use a wide variety of methods to censor taboo words (see Andrychuk, 2004; Kremar & Sohn, 2010; Paul & Shcwartz, 1957; Scandura, 2004). Word substitution is a commonly used technique and involves changing a taboo word to a neutral word, e.g., changing
"asshole" to "rascal" (Scandura, 2004). Bleep censors are common in many messages heard on television and radio, where either a 1 kilohertz tone or some other sound is used to mask the taboo word (Kremar & Sohn, 2010). Scandura (2004) found that methods used to censor oral messages are also used for subtitles of oral messages. Occasionally, content with taboo words will be removed completely. Several authors recounted some examples of removing content with taboo words include asking performers not to sing songs which contain taboo word laced lyrics on live television or removal of scenes from television shows and movies to lower viewer advisory ratings (Berry & Wolin, 1986; Inglis, 2006). Public libraries and school curriculum attempt to ban books that use taboo words heavily. *The Catcher in the Rye* is an example of one of these controversial books, which faced many censorship campaigns (Andrychuk, 2004). These censorship campaigns were primarily motivated due to the book being used in school literature courses, and attempting to protect youth readers from the heavy use of taboo words in the book.

Internet websites have several additional methods such as, restricted access to content and censorship technologies used to mask and delete taboo word laced content (Ang & Nadarajan, 1996).

Despite the seemingly aggressive campaigns to censor taboo words, there are some domains of media relatively free of censorship. The FCC has established a "safe harbor" for programs to air unedited (Kaye & Sapolsky, 2001). The safe harbor allows networks to air taboo words in programming between the hours between 10 pm – 6 am, when child viewership is unlikely (Kaye & Sapolsky, 2001). In 2006, there was controversy over satellite radio and the lack of the FCC's ability to regulate satellite radio's content (Phillips, 2006). The lack of FCC regulations allowed satellite radio stations to broadcast content that would otherwise be prohibited on terrestrial radio. Phillips (2006) drew attention to how premium cable television
channels, e.g., HBO, are allowed freedom from the *Pacifica* ruling and freely air characters using taboo words. Finally, several scholars (Ang & Nadarajan, 1996; Phillips, 2006) noted the relative lack of institutional regulations on the internet. They commented that this is a result of strong negative pushback from the internet community regarding censorship of content. Instead, individual services censor content to their own standards.

**Grawlixes**

One method of censoring taboo words in written messages is to use grawlixes. The term grawlix first appeared in a 1964 article written to the National Cartoonist Society called *Let's Get Down to Grawlixes* by Mort Walker (1975). Walker (1975) dubbed the term grawlix to represent the nonsense typographical symbols (e.g., "#@$%!*") used to replace taboo words in various forms of written and typed media (Zimmer, 2013). Zimmer (2013) explained that grawlixes serve to visually symbolize the negative emotion of characters in a non offensive way. Gay (1937) claimed the use of grawlixes is one of the few instances where the reader determines the exact content of the message themselves. The use of grawlixes to replace taboo words became so popular in comic print that Yannicopoulou (2004) claimed they now serve as a frozen metaphor.

As a result of their popularity, grawlixes expanded into many forms of written communication. Websites that seek to be safe for children employ the use of grawlixes to regulate taboo word use in message boards, forums, and chatrooms (Yoo, n.d.). Several websites and software creators developed patents for detection systems that automatically replace taboo words with some form of a grawlix (Chalmers, Cheaz, Ivory, & Stecher, 2011). For example, a web page commenter may use nonsense symbols to replace or misspell taboo words to avoid censorship or negative responses from other active contributors to the web page (e.g., "@ss" "f*ck" "@$$").

10
Inferring Meaning from Grawlixes

Symbol and referent relationship. Although grawlixes are used to censor taboo words, the way they are interpreted by the reader remains unclear. The relationship between the symbol and the referent can offer insight into this issue. According to DeLoache, de Mendoza, and Anderson (1999), the term symbol is often considered in many disciplines as internal or external representations of information and experience. DeLoache (1995) further refined this definition of a symbol as, "something that someone intends to stand for or represent something other than itself," (p. 313). Nieder (2009) defined a symbol as an arbitrary link between a signifier and the signified in human language. Symbols are most extensively researched in relation to language and communication (DeLoache, 1995). In Harnad's (1987) research on symbols in language, symbols were used to specifically refer to words. In language, words are symbolic artifacts created to serve a representational purpose (DeLoache, 1995). Several authors asserted that the associations made from symbolic artifacts are social constructs and tools essential for human communication (Cangelosi, 1999; DeLoache, 2004; Peirce, Hartshorne, & Weiss, 1931; Tomasello, 1999). Nieder (2009) further asserted that symbols are the basis for human language. Deacon (1997) proclaimed humans as "the symbolic species," highlighting the essential need for symbols for the development of the human language.

Symbols' utility in language derives from its role of referring to or representing other things. Symbols are not simply associated with their referents (DeLoache, 2004). Symbols are intended to represent something for some purpose. As DeLoache (2004) asserted, "Nothing is inherently a symbol; only as a result of someone using it with the goal of denoting or referring does it take on a symbolic role" (p. 67). When words are used in language as symbols, receivers are able to understand the word as symbol for the referent it represents. For example, when one
utters the word, "pig," one understands that the physical organism is being represented and referred to by the use of this symbol. Preissler and Carey (2004) found that children as young as 18 months old could understand the relationship between symbols and referents by pairing novel words with drawings of unfamiliar objects representing the novel word. The children then were asked to obtain the object and were found to bring back the actual, unfamiliar object. The researchers concluded this was due to the children interpreting the word symbolically. Similarly, Iverson, Capirci, and Caselli (1994) found that 16 month old infants used symbolic gestures and words to name objects.

Given that symbols are used to represent another entity, symbols have an inherent dual nature. Several authors have made the argument that a symbol is both seen as itself and as something entirely different (Gibson, 1979; Gregory, 1970; Ittelson, 1996). According to DeLoache and associates (1999), to understand and use a symbol, dual representation must be acquired. DeLoache and colleagues (1999) elaborated that dual representation is the ability to mentally represent both, the concrete symbol and its referent at the same time. Several studies done by DeLoache and colleagues (1995; 1999; 2004) provided evidence that although very young children struggle with dual representation, children around age five begin to grasp this concept and the relationship between symbols and referents.

Social context and symbolic experience are important for dual representation. The amount of information given about the relationship between a symbol and its referent is directly related to the success of fully maximizing the relationship. In a series of studies (DeLoache, 1987; 1991; Dow & Pick, 1992; Marzolf & DeLoache, 1994), three year olds were tasked with finding where a doll was hidden in a room. The researchers showed the children the location of the doll on a model of the room. The more information the three year olds were given on the
model, the better their overall performance in locating the toy in the room. The researchers concluded this was due to the three year olds understanding the relationship between the referent room and symbol model. Symbolic experience was also demonstrated in these studies by the researchers experimentally manipulating the similarity of the symbol to the referent. Three year olds who were in the low similarity to the actual room conditions had a much more difficult time locating the doll than those in the high similarity condition. Furthermore, 30 month old children also fared worse than three year olds, which the researchers explained as primarily due to lack of symbolic experience.

**Conversational maxims and implicature.** Symbolic representations are not the only way to discern meaning in communication. Individuals can determine meaning from messages through context and by observing the rules of communication. One rule that communicators generally follow is the cooperative principle. The cooperative principle was proposed by Grice (1975) and describes the general agreement of communicators to cooperate in establishing shared understanding in a communicative event (Agbedoi, Alyebo, Uchendum 2012; Davies, 2007; Grice, 1975; 1981). The cooperative principle is the belief that communicators will implicitly adhere to various rules inherent to communication, which Grice referred to as conversational maxims (Grice, 1975).

Grice (1975; 1981; Agbedoi, Alyebo, & Uchendum 2012; Davies, 2007) coined that four supermaxims are central to creating and sharing meaning in communicative events. The four maxims are: quality, quantity, relation, and manner. The quality maxim emphasizes the need to speak truth and avoid saying false information by having enough evidence to support what you say. If someone says only what is necessary to be informative, not more or less, then they have followed the quantity maxim. When communicators make relevant and on topic contributions
then one will have correctly followed the relation maxim. Finally, the manner maxim
necessitates being perspicuous, to avoid ambiguity and obscurity.

Despite these four maxims being important to activating meaning, according to Grice
(1975; 1981), participants in conversation may fail to fulfill the maxims in several ways.
Communicators may intentionally violate a maxim. For example, a speaker may violate the
quality maxim by speaking untruthful information. Speakers may also opt out of adhering to a
maxim by choosing to remain silent or not disclose pertinent information, e.g., a doctor claiming
invoking confidentiality to refuse answering a question about a patient. One may be forced with
a clash between two maxims, where a speaker is cannot fulfill one maxim without violating
another. Lastly, a speaker may flout a maxim by blatantly failing to fulfill the maxim. Grice
(1981) viewed flouting a maxim as exploiting the maxim.

Despite communicators occasionally failing to adhere to a maxim, receivers are still able
to infer meaning through contextual cues. For instance, inferring meaning can be demonstrated
in either the flouting of a maxim or clash of two maxims. To illustrate, a mother might flout the
manner maxim by telling her husband, "Take the kids to the 'special place' today for their annual
checkup." Here the mother is being obscure intentionally to avoid alerting the children that
they're on the way to the dentist, but the husband is able to infer the meaning of her message.
The quality maxim may be flouted in several ways. For instance, irony, metaphors, hyperboles,
and meioses are all common examples of the quality maxim being flouted in everyday speech.
These messages usually entail some untruthful information being conveyed or exaggerated for
stylistic purposes. An example of irony would be a host of a talent competition saying, "Future
superstar right there," after a contestant fails to perform their act properly. An instance of
inferring meaning from a violation of the relation manner is shown in the following example.
Person A says something inappropriate to Person B. After a moment Person B says, "How about them Yankees?" to change the topic and let Person A know that Person A's inappropriate remark was not worth responding to. An example of a clash of two maxims may been observed in the following exchange between Person A and Person B, "Where is the tire shop?" "Somewhere downtown." Here, B is failing to adequately meet the quantity maxim to avoid violating the quality maxim. This is due to B being unsure the exact location and does not want to give unreliable or untrue information.

The act of inferring meaning when a communicator fails to adhere to a maxim is called conversational implicature. Grice (1975) maintained that conversational implicature is the act of discerning meaning of a message not from the literal components of the message. Implicature occurs when a receiver has inferred the meaning of a message from what a speaker has implied, but not directly stated in a communicative act (Karttunen, 1975). The act of implicature allows a speaker to be understood without the meaning being said (Horn, 2006). According to Grice (1975; 1981), a receiver implicates meaning from several variables working together such as: the context, conventional meaning of the words, the cooperative principle and its maxims, and other background knowledge. It is important for both communicators to be aware of their shared knowledge to avoid confusion and potential misinterpretations when attempting to infer meaning.

**Communicative function of grawlixes.** Due to the ability to infer meaning in non-explicit message, people may be able to establish and understand the grawlix and taboo word relationship. Grawlixes meet the definitional requirements of a symbol provided by DeLoache (1995) where a symbol serves to represent something other than itself. Grawlixes are used to replace a taboo word but can still represent the negative emotion and content of the message
(Zimmer, 2013). Grawlixes are therefore symbolic artifacts of their taboo word referents. Receivers are also likely capable of understanding the relationship between grawlix symbols and their taboo word referents.

This relationship is likely understood because previous research has established age, exposure, and social context to be the primary variables in successfully achieving dual representation of a symbol and referent (DeLoache, 1987; 1991; Dow & Pick, 1992; Marzolf & DeLoache, 1994). Several researchers found evidence that dual representation is more easily achieved as an individual cognitively matures over time. As DeLoache and colleagues found (1995; 1999; 2004), children under the age of three have difficulty with dual representation, but are able to form the links proficiently between the ages of three to five. According to Griffin, Burns, and Snow (1998) many children do not begin reading until they are older than age three and enter primary school. Thus, by the time children are able to read messages that contain grawlixes, they should be proficient in dual representation. This can further be assumed due to evidence that children are exposed to and use taboo words at an early age using them proficiently at around ages five or six (Jay, 1989; Winslow, 1969; Wolfstein; 1957). Due to grawlixes popularity and status as a frozen metaphor (Yannicopoulou, 2004), exposure to grawlixes is likely common, along with an understanding of their function and purpose. Social context can be determined from grawlix use due to their typical function. Grawlixes are typically not used for happy or sad expressions of emotion in messages (Zimmer, 2013). Grawlixes singular use to censor taboo words and negative emotion results in an individual’s ability to determine the meaning and context of the symbol easily if one has been exposed to the relationship previously.

Through implicature individuals can infer the meaning of grawlixes in messages. The use of a grawlix is flouting the manner maxim (Grice, 1975). Readers should still be able to infer the
meaning of the grawlix as a symbol for a taboo word referent. Although the grawlix does not literally say a taboo word, readers are capable of determining the meaning of the grawlix through various contextual cues within the message. Since readers are capable of understanding symbol-referent relationships, they would likely understand and have knowledge of the relationship between grawlix symbols and taboo word referents. Given this reasoning the following hypothesis is proposed.

H1: More people will correctly than incorrectly identify the taboo word associated with a grawlix.

**Emotional Intensity and Memory Recall of Taboo Words**

*Emotional component of taboo words.* If the relationship between a grawlix symbol and taboo word referent is understood, the interpretation and reactions to the grawlix require examination. Taboo words impact listeners emotionally (Jay, 1999). Pinker (2007) argued the primary function of a taboo word is to add emotional meaning to a message. In de Klerk's (1991) examination into taboo words, the author concluded that taboo words, "serve an overriding emotive or expressive function, being used most often to get rid of nervous energy when under stress, especially when one is angry, frustrated, or surprised," (p. 157). This viewpoint is shared by Jay (2009) who argued taboo words serve their most utility in their connotative and emotional definitions.

One way the emotional component of taboo words is seen is the emotional release associated with using taboo words. Jay (1992; 2009) further explained that using taboo words serves as a coping mechanism to reduce stress. Fine and Johnson (1984) noted that expressing and managing anger are the primary reason to use taboo words. This was supported in Jay's
research on taboo word use (1999; 2009). The author found that using taboo words as a manifestation of anger accounted for two thirds of the overall data.

**Memory Recall.** Additionally, scholars have found that some words are emotionally arousing (Jay, Caldwell-Harris, King, 2008; LaBar & Phelps, 1998; Manning & Melchiori, 1974). The arousal a word elicits can vary in degree from either calming (e.g., sunset) to arousing (e.g., fire) which is correlated with responses in individuals (Jay, Caldwell-Harris, King, 2008; Manning & Melchiori, 1974). Researchers have found emotionally arousing words are better remembered than calming words, with taboo words having an exaggeration of this effect (Jay, Caldwell-Harris, King, 2008; LaBar & Phelps, 1998). The emotion-memory link has been tested by LaBar and Phelps (1998) who compared patients with temporal lobectomies and participants who did not have lobectomies. Patients who had the lobectomies had part of their amygdala removed reducing the patients’ ability to be emotionally aroused by the stimuli. The researchers found that the participants who did not have lobectomies were emotionally aroused by the taboo words and were able to recall more of the taboo words they were exposed to compared to the patients who had lobectomies.

Emotional content may also influence the levels of processing involved in memory. In one study, Jay and colleagues exposed participants to process word prompts at shallow (visual) or deep (semantic) levels (Jay, Caldwell-Harris, King, 2008). The researchers aimed to examine the effects of deep and shallow levels of processing and recall with taboo words. Within each prompt an emotionally arousing word (e.g., friend, love), neutral (e.g., note, page), or taboo word (e.g., nigger, bitch) was included. Participants were then given an unanticipated recall test and taboo words had the highest level of recall. The researchers also found that emotionally arousing and taboo words did not benefit from deep level of processing prompts in recall, but neutral
words did. This effect was explained by the already enhanced ease in recall of, and lack of need to process deeply, emotionally arousing and taboo words due to their emotional content. To test this explanation a second experiment was conducted with an added galvanic skin response measure. The results indicated that taboo words elicited more frequent skin conduction responses compared to both other emotionally arousing words and non-taboo words regardless of the level of processing, highlighting the increased emotionally arousing aspect of taboo words.

**Emotional intensity and memory recall of grawlixes.** If the relationship between grawlixes and taboo words is understood by readers, grawlixes should elicit similar responses as taboo words do in readers despite their use in censoring. Due to the emotional component of using taboo words (deKlerk, 1991; Jay, 2009, Pinker, 2007) and grawlixes serving to express a character's negative emotion (Zimmer, 2013), it is likely that grawlixes function as emotionally arousing stimuli. Although there is a lack of empirical evidence supporting this assumption, theoretically if the symbol-referent relationship is fully understood by readers, grawlixes should elicit similar responses as taboo words. Several researchers have found that taboo words are perceived negatively (Coyne, Callister, Stockdale, Nelson, & Wells, 2012; Infante & Wigley, 1986; Jay, King, & Duncan, 2006; Johnson & Lewis, 2010; Johnson 2012; McEnery, 2006), that hearing or reading taboo words leads to heightened states of emotional arousal (Jay, Caldwell-Harris, & King, 2008; Labar & Phelps, 1998; Manning & Melchiori, 1974; Mathews & McLeod, 1985), and that taboo words are better remembered than non-taboo words (Jay, Caldwell-Harris, King, 2008; LaBar & Phelps, 1998; Manning & Melchiori, 1974). Therefore, given this reasoning the following hypotheses are proposed:
H2: Readers' perceptions of negative emotional valence when communicators use grawlixes and taboo words will be similar to each other, and greater than when communicators use non-taboo words.

H3: Readers' perceptions of emotional intensity when communicators use grawlixes and taboo words will be similar to each other, and greater than when communicators use non-taboo words.

H4: Readers' ability to recall messages when communicators use grawlixes and taboo words will be similar to each other, and greater than when communicators use non-taboo words.
CHAPTER 2. METHODS

Participants

Participants \((N = 135)\) were recruited from undergraduate Communicology courses at a large university in the Pacific by using SONA, an online participant recruitment website. Participants were given course credit toward their research participation requirement or extra credit for their course. Participation was strictly voluntary, and most participants took 25 minutes to complete the study. Of the participants, 47 (35\%) reported to be male, 85 (63\%) reported to be female, and 2 (2\%) preferred to not disclose their gender. Ages ranged from 18 years to 37 years old \((M = 22, SD = 3.31)\). One hundred seventeen (87\%) participants responded that English was their first language, 106 (69\%) responded that they were completely fluent in English, and 128 (96\%) responded that they had seen grawlixes used in the past.

Procedure

Participants were given a link to a survey created on Qualtrics, an online survey creation website. Once participants accessed the survey, they were first informed by a notice that they would not be provided a back button, and should read each page carefully before continuing to the consent page. When participants clicked next from the notice page, participants were presented with their consent form. After participants finished reading through the consent form (Appendix A), they were presented with the experimental stimuli of screenshots of transcripts of online forum discussion. Screenshots of transcripts of online forum discussions were used to have the appearance that these were real conversations that happened, and to provide an appropriate context for using grawlixes and taboo words. Participants read three screenshots of transcripts that were all of a disagreement (i.e., two friends disagreeing on a baseball call, someone seeking help with their laptop and receiving a rude and unhelpful response, and two
men arguing over speeding on a neighborhood street) between two male communicators (i.e., Roger and Ian, Nelson and Zack, and Peter and Alan). In the screenshots of transcripts, the final communicator’s final line of each conversation had one word that was manipulated to be either a taboo word (e.g., fuck; n = 42), grawlix (e.g., #@!$; n = 44), or non-taboo word (e.g., heck; n = 49). Participants were instructed to read each conversation carefully.

After reading through each conversation, participants were given a distraction task in the form of asking them to describe the events of their past 24 hours (Appendix B). Participants were instructed to spend ten minutes on the distraction task, however not all participants spent the entire ten minutes on the distraction task. On average participants spent about eight minutes completing the distraction task (M = 8.23, SD = 2.63). When participants finished the distraction task, they were given a surprise recall test. The recall test asked participants to recall the content of the all three conversations and to judge if various non-taboo, grawlix, and taboo words were present in the transcripts they had read earlier. Participants only in the grawlix condition were also given a grawlix identification test following the recall test, asking them to specify what word the grawlix is replacing in the transcripts. Participants were instructed to be as explicit as they needed to be.

Upon completion of the recall test and grawlix identification test, if applicable, participants were shown the screenshots of transcripts of forum posts again to refresh their memory. After each conversation, participants saw a same set of scales that asked them to rate perceived negative emotional valence and perceived emotional intensity. When participants finished, they were asked to rate the authenticity and realism of the conversations, and at what age they would allow someone to read the conversations. Additionally, items measuring behaviors and feelings regarding using taboo words and participants' tendency to be verbally
aggressive were completed afterwards. Demographic information on participants' sex, if they spoke English as their first language, how fluent they are in English, and supplemental questions on participants' previous exposure and understanding of grawlixes, perceived offensiveness of the words used in the stimuli were collected at the end of the study (Appendix C). Once participants completed the study, they were debriefed on the true purpose of the study (i.e., examining how grawlixes are processed and function in communicative messages).

**Stimuli**

Three types of conversations were used as stimuli. The conversations were of disagreements between the two communicators in each conversation. Male communicators were chosen due to research suggesting males are more likely to use taboo words and more likely to use offensive taboo words in same sex situations (Mehl & Pennebaker, 2006; Wells, 1989). Participants rated how offensive the taboo words, grawlixes, and non-taboo words used in the conversations were on a 7-point scale. The average overall offensiveness was 5.54 for the taboo words ($SD = 1.21$), 4.00 for the grawlixes ($SD = 1.67$), and 1.91 for the non-taboo words ($SD = 0.90$).

Conversation A was about two men watching their favorite baseball teams compete and disagreeing over an umpire’s call, Conversation B was about someone attempting to find tech help on a forum and instead received a sarcastic remark, and Conversation C was about two men arguing over speeding drivers on a neighborhood forum. In every conversation, the primary, first and final, communicator (Roger, Nelson, and Peter) used the word manipulated to be either a taboo (Appendix D), grawlix (Appendix E), or non-taboo word (Appendix F). The realism for each conversation was measured and a significant difference among the three conversations was found. Although all conversations were rated as realistic, Conversation A ($M = 5.94, SD = 1.23$)
and Conversation C ($M = 5.85, SD = 1.19$) were rated as more realistic than Conversation B ($M = 5.60, SD = 1.39$), $F(2, 133) = 8.19, p < .05, \eta^2 = .06$. Realism was tested by condition and no significant differences were found among the taboo word ($M = 5.87, SD = 1.08$), grawlix ($M = 5.59, SD = 1.26$), and non-taboo word ($M = 5.92, SD = 1.07$) conditions, $F(2, 133) = 1.14, p = .32, \eta^2 = .02$ (see Table 2). The overall average minimum age participants would let someone read the conversations they read was 13 years old ($SD = 3.55$). The average minimum age participants reported they would allow someone to read the conversations for each condition was, 15.59 years old for the taboo word condition ($SD = 3.55$), 12.75 years old for the grawlix condition ($SD = 3.38$), and 12.20 years of age for the non-taboo word condition ($SD = 3.98$). The average minimum age reported by participants in the grawlix and non-taboo word condition differed significantly from those in the taboo word condition, but did not differ significantly from one another, $F(2, 133) = 13.38, p < .05, \eta^2 = .17$ (see Table 2). All participants saw the conversation in the following order: Conversation A, Conversation B, then Conversation C.

**Primary Instruments and Measures by Order of Occurrence in Procedure**

The means, standard deviations, and correlations for all relevant variables is provided in Table 1.

**Recall test.** Participants were tasked with a surprise recall test (Appendix G). The recall test was divided into two sections, one that measured recall of content and one that measured the recognition of words from the screenshots of transcripts. The content portion of the recall test consisted of participants responding to three open-ended questions regarding the reasons why the primary communicator was upset. For Conversation A, responses that were considered correct included general comments that mentioned baseball, to specific responses that mentioned arguing over “balls and strikes.” For Conversation B correct responses included any comments
about, “laptop help,” or that “someone gave Nelson a rude/sarcastic response.” Correct responses for Conversation C included any mention of, “speed limit,” “speeding on roads,” and “almost getting killed by a car.” Each participant was given a score out of three points, one point for each correct answer, and higher scores were interpreted as higher levels of recall. Scores ranged from 0, for no responses being considered correct, to 3, for all responses considered correct. The overall average of correct content responses for participants was 2.11 ($SD = 1.06$).

The recognition of words from the screenshots of transcripts section asked participants to respond yes or no to determine if they saw a series of taboo words, grawlixes, and non-taboo words. Participants were presented with 18 words in total, with only 3 that were actually present in each condition. Participants were instructed to respond as quickly as possible and participants spent on average one minute ($SD = 1.38$) completing this portion of the survey. Three scores were calculated for each participant. The first score ranged from 0 to 3 for correctly identifying the words present in their condition’s conversations, with an average participant score of 2.10 words correctly identified ($SD = 0.82$). Participants received a second score ranging from 0 to 15 for correctly identifying that they did not see the words not present in their condition. For correctly identifying words that they did not see words present in their condition, participants' overall average score was 4.44 ($SD = 2.49$). Due to the high proportion of words not present in the condition’s screenshots of transcripts, a total recognition score was not calculated. Instead recognition of words present was equally weighted with recognition of words not present by taking the percentage correct of word present and percentage of words that were not present, and dividing by two. The average weighted total recognition percent of participants was .50 ($SD = .15$).
**Grawlix identification test.** To test the grawlix symbol and taboo word referent link, participants completed a grawlix identification test with three questions provided for participants in the grawlix condition only. The grawlix identification test (Appendix H) showed participants a message used in the experimental stimuli and asked participants to write in the word being replaced by the grawlix. To earn a correct score, participants had to fill in the entire correct taboo-word (either, fuck for #@!$, fucking assholes for #@!$ing @$$holes, or motherfucker for mother#@!$er). Spelling did not count, (e.g., “fucking asswholes”) but words that were partially incorrect were considered wrong (e.g., “motherdoer”). Participants received a score ranging from 0 to 3, with higher scores being interpreted as more correct identification. The average score for participants who took the grawlix identification test was 2.84 ($SD = 0.57$).

**Negative emotional valence.** To measure perceptions of the emotional valence of the primary communicator's final message, participants were asked to complete the Positive and Negative Affective Schedule - X (PANAS - X) developed by Watson and Clark (1994). The PANAS - X questionnaire is a 60 item inventory, with 11 items representing both the hostility (e.g., “angry”) and general negative affect subscales (e.g., “afraid”). Only the general negative affect and hostility subscales were used in this study due to the goals of this investigation. Participants were asked to rate if these descriptors were accurate representations of how the primary communicator (i.e., Roger, Nelson, or Peter) felt when saying the taboo words, grawlixes, or non-taboo words in the context of the conversations the participants read. All items were rated on 7-point scales with 1 being *not at all at this moment* and 7 being *very much at this moment*. The average perceived negative emotional valence for all conditions was 4.56 ($SD = 0.92$), suggesting the messages containing taboo words, grawlixes, or non-taboo words were perceived as moderately negative in emotional valence. Reliability for the negative emotional
valence scale for each conversation was calculated, and achieved an acceptable level, $\alpha$ ranging from .80 to .83. Reliability for negative emotional valence was also calculated for each word condition with $\alpha$ ranging from .64 to .90.

**Emotional intensity.** Emotional intensity of the primary communicator's final message was measured using the Perceived Arousal Scale by Anderson, Deuser, and DeNeve (1995; Appendix J). The scale is composed of 28 items, with only the 10 most intense descriptions (e.g., “forceful,” and “vigorous”) used due to concerns regarding the length of the survey. All items were rated on 7-point scales from 1 being *not at all at this moment* and 7 being *very much at this moment*. The scale was adapted to ask participants to rate how the primary communicator felt after using the taboo words, grawlixes, or non-taboo words in the context of the conversations the participants read. The overall mean score for emotional intensity was 4.31 ($SD = 1.28$) suggesting the messages containing taboo words, grawlixes, or non-taboo words were perceived to be moderately emotionally intense. Reliability for the emotional intensity scale was calculated for each conversation, and achieved an acceptable level, $\alpha$ ranging from .85 to .90. Reliability for emotional intensity was also calculated for each word condition and achieved an acceptable level, $\alpha$ ranging from .82 to .92.

**Supplementary Instruments and Measures**

**Verbal aggressiveness tendency.** Participants' verbal aggressiveness tendency was measured using Infante and Wigley's (1986) Verbal Aggression Scale. Only the 10 items that were most associated with verbal aggressiveness and identified as the verbally aggressive subscale were included (Appendix K; Levine et al., 2004). Participants were asked to what extent they agreed or disagreed with statements, such as, "When individuals are very stubborn, I use insults to soften the stubbornness" and "When individuals insult me, I get a lot of pleasure out of
really telling them off." All items were rated on 7-point Likert-type scales with 1 being *strongly disagree* and 7 being *strongly agree*. Participants reported that on average they somewhat disagreed that they have verbal aggressive tendencies \((M = 2.99, SD = 1.27)\). Verbal aggressive tendencies did not differ significantly among the taboo word \((M = 2.89, SD = 1.22)\), grawlix \((M = 3.12, SD = 1.34)\), and non-taboo word \((M = 2.94, SD = 1.26)\) conditions, \(F(2, 133) = 0.41, p = .66, \eta^2 = .01\) (see Table 2). Overall reliability of the Verbal Aggression Scale reached an acceptable level, \(\alpha = .89\). Additionally, reliability for the Verbal Aggression Scale was calculated for each word condition and reached an acceptable level, \(\alpha\) ranging from .87 to .92.

**Swearing Behaviors scale.** Created by Copen-Mielitz (2004), the Swearing Behaviors scale (Appendix L) measures behaviors and feelings regarding using and being exposed to taboo words. The 29 item inventory was intended to determine participants' overall perceptions and comfort with the use of taboo words. Participants were asked to what extent they agreed or disagreed with statements, such as, "I feel empowered when I swear." and "I do not believe swearing is a bad habit." All items were rated using 7-point Likert-type scales with 1 being *strongly disagree* and 7 being *strongly agree*. The average overall response for participants on the scale was 4.14 suggesting that they neither agreed nor disagreed using and being exposed to taboo words \((SD = 0.92)\). Feelings and attitudes regarding using and being exposed to taboo words did not differ significantly among participants in the taboo word \((M = 3.93, SD = 0.94)\), grawlix \((M = 4.25, SD = 0.88)\), and non-taboo word \((M = 4.21, SD = 0.94)\) conditions, \(F(2, 133) = 1.55, p = .22, \eta^2 = .02\) (see Table 2). Overall reliability for the Swearing Behaviors Scale reached an acceptable level, \(\alpha = .89\). Reliability for the Swearing Behaviors Scale was also calculated for each word condition and reached an acceptable level, \(\alpha\) ranging from .88 to .90.
CHAPTER 3. RESULTS

Hypothesis 1

Hypothesis 1 was a prediction that readers would be more correct, than incorrect in identifying the taboo word that the grawlix replaces. To examine the prediction of Hypothesis 1, the participants grawlix identification scores were analyzed. Out of 43 participants: 39 achieved a perfect score (91%), two participants received a score of two (5%), one participant had a score of one (2%), and one participant had a score of zero (2%). To examine where participants were incorrect in more detail, each conversation was examined independently. Conversation A’s “#&*%” received the most incorrect scores \( n = 4 \), followed by Conversation C’s “mother#&*%er” \( n = 2 \), then Conversation B’s “#&*%ing @$holes” \( n = 1 \). These results provide support for Hypothesis 1.

Hypothesis 2

Hypothesis 2 was a prediction that using a grawlix would result in higher perceptions of negative emotion, which would be more similar to using a taboo word and less similar to using a non-taboo word. A planned comparison test was conducted comparing conditions on overall perceived negative emotion. The result of the ANOVA showed no significant difference, \( F(2, 130) = 0.22, p = .80, \eta^2 = .003 \), among the taboo word \( (M = 4.52, SD = 0.84) \), grawlix \( (M = 4.52, SD = 1.12) \), and non-taboo word \( (M = 4.63, SD = 0.83) \) conditions (see Table 2). The result of the planned comparison test showed that the perceptions of negative emotion did not vary if participants saw a taboo word, grawlix, or non-taboo word in the context of the conversation, \( t(130) = -0.24, p = .81 \).

To further probe the results, several one-way ANOVAs were conducted to examine if significant differences existed within each conversation. The one-way ANOVA for Conversation
A did not yield a significant result, $F(2, 131) = 0.72, p = .93, \eta^2 = .001$. Therefore in Conversation A there was no significant difference in perceived negative emotion among the taboo word ($M = 4.34, SD = 1.00$), grawlix ($M = 4.26, SD = 1.20$), and non-taboo word ($M = 4.32, SD = 0.90$) conditions. For Conversation B, the result of a one-way ANOVA, $F(2, 132) = 0.93, p = .40, \eta^2 = .01$, showed there was no significant difference among the taboo word ($M = 4.28, SD = 0.95$), grawlix ($M = 4.46, SD = 1.13$), and non-taboo word ($M = 4.55, SD = 0.75$) conditions with perceived negative emotion. The result of the one-way ANOVA for Conversation C, $F(2, 131) = 0.38, p = .69, \eta^2 = .01$, also showed no significant difference in perceived negative emotion among the taboo word ($M = 4.88, SD = 0.94$), grawlix ($M = 4.85, SD = 1.26$), or non-taboo word ($M = 4.97, SD = 1.08$) conditions. These results show no support for Hypothesis 2.

**Hypothesis 3**

Hypothesis 3 was a prediction that readers would perceive higher emotional intensity for people using a grawlix, and would be more similar to people using taboo words than using non-taboo words. A planned comparison test comparing conditions on overall perceived emotional intensity was conducted. The result of the ANOVA indicated no significant difference among the taboo word ($M = 4.30, SD = 1.44$), grawlix ($M = 4.29, SD = 1.24$), and non-taboo word ($M = 4.35, SD = 1.20$) conditions in perceived emotional intensity, $F(2, 130) = 0.03, p = .97, \eta^2 = .005$ (see Table 2). The result of the planned comparison test also showed the perceptions of emotional intensity did not vary if participants saw a taboo word, grawlix, or non-taboo word in the context of the conversation, $t(130) = -.66, p = .51$.

To further probe these results, a series of one-way ANOVAs were used to examine each conversation independently. For Conversation A, the result of the one-way ANOVA, $F(2, 131) =
0.18, \( p = .84 \), \( \eta^2 = .003 \) suggest there were no significant difference in perceived emotional intensity among the taboo word (\( M = 4.63, SD = 1.37 \)), grawlix (\( M = 4.68, SD = 1.26 \)), and non-taboo word (\( M = 4.64, SD = 1.21 \)) conditions. The result of a one-way ANOVA for Conversation B, \( F(2, 132) = 0.03, p = .97, \eta^2 = .001 \), showed no significant differences in perceived emotional intensity among the taboo word (\( M = 3.64 SD = 1.58 \)), grawlix (\( M = 3.72, SD = 1.28 \)), and non-taboo word (\( M = 3.67, SD = 1.44 \)) conditions. Similarly, the result of the one-way ANOVA used to test Conversation C, \( F(2, 131) = 0.07, p = .98, \eta^2 = .001 \), showed no significant differences in perceived emotional intensity among the taboo word (\( M = 4.56, SD = 1.57 \)), grawlix (\( M = 4.49, SD = 1.47 \)), and non-taboo word (\( M = 4.60, SD = 1.44 \)) conditions. These results showed that Hypothesis 3 was not supported.

**Hypothesis 4**

Hypothesis 4 was a prediction that people will have a higher level of recall for messages with either a grawlix or taboo word than messages with a non-taboo word. The four measures used to assess participants’ recall (participants’ scores for correct identification of the content of the conversations, correct recognition of words present, correct recognition words not present, and weighted total recognition percentage) were tested by using a series of planned comparisons testing condition on the measures. The result of the ANOVA for correct content of the conversations showed no significant difference in content recall among the taboo word (\( M = 2.05, SD = 1.13 \)), grawlix (\( M = 2.18, SD = 0.97 \)), and non-taboo word (\( M = 2.10, SD = 1.08 \)) conditions, \( F(2, 132) = 0.17, p = .84, \eta^2 = .003 \) (see Table 2). The result of the planned comparison test showed that content recall did not differ from participants seeing a taboo word, grawlix, or non-taboo word, \( t(132) = 0.07, p = .95 \).
The scores for participants correctly identifying words present in the screenshots of the transcripts of forum comments they read were tested with a planned comparison test. The result of the ANOVA showed a significant difference in recall among the taboo word (\(M = 1.76, SD = 0.93\)), grawlix (\(M = 2.17, SD = 0.79\)), and non-taboo word (\(M = 2.36, SD = 0.61\)) conditions, \(F(2, 128) = 6.70, p < .05, \eta^2 = .09\). The result of the planned comparison test was significant, but not in the predicted direction, \(t(128) = -2.79, p < .05\). The results showed that the non-taboo word condition had significantly higher correct identification of words present in the conversations scores than the grawlix condition, and the grawlix condition had significantly higher scores than the taboo word condition (see Table 2).

Participants’ scores for correctly identifying words not present in the screenshots of the transcripts of forum comments were analyzed using a planned comparison test. The result of the ANOVA showed a significant difference among the three conditions, \(F(2, 123) = 3.68, p < .05, \eta^2 = .06\). The planned comparison test was not significant, \(t(123) = 1.67, p = .09\). To further investigate the results a Tukey’s B post hoc test showed that the non-taboo word (\(M = 3.93, SD = 2.03\)) and grawlix condition (\(M = 5.26, SD = 2.46\)) differed significantly, with the grawlix conditions having higher levels of correctly identifying words not present than non-taboo word conditions. However, both the non-taboo and grawlix conditions did not differ from the taboo word condition (\(M = 4.12, SD = 2.78\)) significantly (see Table 2). These results showed that people in the grawlix condition had higher scores for correctly identifying words that were not present than people in the non-taboo word condition.

The final measure of recall for participants was a weighted total recognition percentage for the correct recognition of words present and those that were not present in the screenshots of transcripts of forum discussions. The weighted total recognition percentage was tested with a
planned comparison test. The result of the ANOVA showed a significant difference, $F(2, 122) = 5.47, p < .05, \eta^2 = .09$. The planned comparison test was not significant in the predicted direction, $t(122) = -1.32, p = .19$. To further examine the differences among the taboo word ($M = .44, SD = .20$), grawlix ($M = .54, SD = .11$), and non-taboo word ($M = .52, SD = .10$) conditions, Tukey B’s post hoc test was used. The test showed that the taboo word condition differed significantly from both the non-taboo word and grawlix conditions. The grawlix and non-taboo word conditions did not differ significantly (see Table 2). These results suggest that the grawlix and non-taboo word conditions had a higher percent word recognition recall than taboo words.

The results of these tests offer very limited support to the prediction made in Hypothesis 4. Participants who read messages with grawlixes had higher levels of recall than participants who read messages with non-taboo words. Although, this was only in case for recalling words not present in the conversations.
CHAPTER 4. DISCUSSION

This study was undertaken to examine if individuals understand the relationship between grawlixes and taboo words and to see how individuals respond to grawlixes in written messages. It was argued by the researcher in this study that grawlixes serve as a symbol with a taboo word referent and therefore people interpret them similarly by being negative in emotional valence, by being more emotionally intense, and by being better recalled when compared to non-taboo words.

As predicted, participants were able to accurately infer what taboo words were being replaced by the grawlixes. When asked what word the grawlix was replacing in the conversation, a large majority of participants were able to correctly state the taboo word being replaced. There was limited support that participants had a higher level of recall in word recognition for messages with grawlixes than messages with non-taboo words, consistent with the predictions made in the investigation. Participants who saw messages with grawlixes were better at recalling what words were not present in messages than those who saw messages with non-taboo words.

Contrary to the predictions made, participants did not perceive any differences in taboo words, grawlixes, or non-taboo words in negative emotional valence or emotional intensity. There was also no support for differences in the recall of content of messages with either taboo words, grawlixes, or non-taboo words. Also contrary to what was predicted, participants were best able to recall the non-taboo words present in the conversations, followed by the grawlixes present in the conversations, and lastly the taboo words present in the conversations. Overall, it was found that taboo words in messages were not associated with greater recall than non-taboo words in messages by readers.
The findings from this study support the notion that when college aged readers read a message with a grawlix they are able to associate it with the intended taboo word. This is likely due to the context the grawlix is used in and prior exposure to grawlixes and other forms of euphemisms by college aged individuals. This reasoning can potentially explain why the grawlix that participants got incorrect most frequently was also the most ambiguous (#&*%). Because the conversations were designed to replicate actual conversations context would provide participants with enough detail to accurately infer what the grawlix was replacing.

The lack of significant differences in negative emotional valence and emotional intensity among the three conditions may be explained by the nature of the conversations. Because all three conversations were of a disagreement they were contextually the same across the three conditions other than one word being changed. The punctuation used can also add to this effect. Multiple exclamation marks and question marks are possibly interpreted by readers as nonverbal cues indicating the speaker's emotional state. These cues may provide additional context and minimize the emotional impact of a single word in the conversation. Therefore, it is possible that for college students the overall context of a message determines the perceived negativity and emotional intensity and not a specific word in the message. It may be the case that, when contextual cues are taken into consideration by a reader, the offensiveness of taboo words and grawlixes can be diminished and/or the offensiveness of non-taboo words can be increased.

Another explanation may be that for college students, messages with taboo words or grawlixes are not perceived as emotionally negative or intense. Although when explicitly asked in the survey, the college student participants responded that they perceive taboo words to be most offensive, they may implicitly perceive no significant difference among taboo words, grawlixes, or non-taboo words. This could be because college students may have prior exposure
to similar forum comments like those used for the present study's stimuli. College students were found to use the internet and online forums heavily for communication, especially when compared to the general population (Subrahmanyam, Reich, Waechter, & Espinoza, 2008). College students' familiarity to similar stimuli may have led them to view using taboo words and grawlixes in the online forum context as normative. These results may also be explained by participants not seeing the disagreements between the two speakers as extraordinarily negative. To the participants, the disagreements may have been ordinary and mild in nature regardless of what words were used. A final explanation may be the way the taboo words, grawlixes, and non-taboo words were used. In the conversations there was only one explicit instance where the taboo word was used as a direct insult (“Don’t give me that motherfucker”), but even in this situation the communicator, Peter, does not use any secondary pronouns to make the insult seem more directed at and insulting Alan, the other communicator (e.g., “…you motherfucker”).

The findings regarding recall are perplexing. Grawlixes and non-taboo words may have benefited from increased recall due to their presence being perceived as unusual by participants. Given that the sample was of college students, it is possible that disagreements without taboo words is more novel and were attended to in more detail than messages with taboo words. Grawlixes may trigger more granular processing rather than gestalt interpretation. This may explain why grawlixes had a higher recall score in recognition of words not present in the conversations. However, the present study also found that recognition of words not present in the conversations was fairly low, even among those participants who were in the grawlix condition. This may be due to either the effects of the distraction task, participants failing to read the conversations as carefully as instructed, or an effect similar to that found in Loftus and Palmer's (1975) study, where participant memory was susceptible to influence during experimental
probing. Taboo words may have also suffered from decreased recall due to their taboo nature. Participants may have felt uncomfortable reading the taboo words and attended to the words or messages less than in the grawlix and non-taboo word conditions. Content-wise, it is possible that individuals are better at remembering general themes in a narrative of events than instances or phrases from the events.

**Implications and Future Directions**

The findings of this study provide evidence to support the notion that when people read a grawlix they understand what word is being censored. However, this study is unable to draw conclusions on if individuals instantly recognize the word being censored or if individuals need to process the message beforehand. Grawlixes may force the reader to spend more time processing the message and to infer what the grawlix is replacing or potentially require the reader to stop to decipher the grawlix. If this is the case grawlixes may be useful to mask taboo words by not being explicit for long enough for a reader to move on to a new message and overlook the grawlix. Future studies could examine how quickly individuals associate a grawlix symbol with its taboo word referent.

This study seemed to provide contradicting evidence to previous studies (see deKlerk, 1991; Jay, 2009, Jay, Caldwell-Harris, King, 2008; LaBar & Phelps, 1998; Manning & Melchiori, 1974) that suggest taboo words are more negative, emotionally intense, and better remembered than non-taboo words. The current study examined the effects of changing one word in a message and recall. Similar research was done examining the effect of changing one word in a message on eye witness testimony (e.g., Loftus & Palmer, 1975). In Loftus and Palmer's (1975) study, participants' episodic memory recall differed depending on the word the confederate used when questioning the participants. The current study found a similar effect, but
only in word recognition and not in message content. It is important to consider that the methodologies of the two studies differed in several significant ways. Firstly, Loftus and Palmer placed the word manipulation in a question, directly influencing participants' responses. The current study exposed participants to the word manipulation prior to questioning. Secondly, verbs were manipulated in Loftus and Palmer's study, whereas adjectives were manipulated in the current study. It is possible that verbs are somehow more influential to recall than adjectives are. This would be consistent with grammar in the English language where verbs and subjects are most important to form a sentence (Quirk, Greenbaum, Leech, & Svartvik, 1985).

If the results of this study are valid, the findings suggest that for college students, grawlixes and non-taboo words may be objectively worse than taboo words as a replacement. The findings in this study may suggest that although the taboo word is being substituted, it does little to impact the perceived meaning of the message. For the majority of readers, grawlixes were ineffective in concealing the taboo words, suggesting that grawlixes fail to accomplish the primary reason that individuals might use them. Furthermore, the results of this study suggest using a taboo word, grawlix, or non-taboo word makes no difference to readers in perceived emotional intensity and negative emotional valence. Based on these findings, the benefit of replacing taboo words in censorship efforts is questionable. These results conflict with participants reporting that taboo words were most offensive, and non-taboo words were least offensive. This may suggest that although participants have perceptions regarding specific words, when these words are used in a message these perceptions do not always transfer. The recall results suggest that messages that use grawlixes and non-taboo words to replace taboo words may actually be better remembered than those with taboo words, something that may be problematic for vulnerable populations exposed to these messages.
Despite these results suggesting grawlixes may be an inadequate method to replace taboo words, it is difficult to fully assess the usefulness of grawlixes in censorship efforts. This is, in part, due to the difficulty of accurately defining in academic literature what censorship is and what the goal of censorship efforts are. Researchers should focus on clearly defining and establishing benchmarks on what censorship strives to accomplish to allow for proper evaluation of various censorship efforts. Based on the results of this study, context might be an influential factor for a reader's perceptions of a message. If this is true, for censorship to be effective the entire message may need to be removed, replaced, or censored in another manner.

The results of present study also suggest that although grawlixes serve to express negative emotion (Zimmer, 2013), the messages are not perceived to be any more negative in valence than non-taboo words. From a message processing perspective this may suggest that individuals interpret a message’s emotional valence and the emotional content of a message separately. It would be of interest if future researchers examined what judgments individuals make for both the overall message and for the components within the message. Researchers may probe into more detail participants' perceptions of the words being used, the emotions the communicator is feeling, and the overall judgments participants are making regarding the message in context.

Future studies may look into how physiologically arousing grawlixes are. Previous research (see Jay, Caldwell-Harris, King, 2008; LaBar & Phelps, 1998; Manning & Melchiori, 1974) has found evidence to suggest taboo words are associated with physiological arousal. Physiological measures may yield better insight into the relationship among taboo words, grawlixes, non-taboo words, and emotion. Physiological measures may be implemented to determine how arousing grawlixes are and if grawlixes behave more like taboo words than non-
taboo words physiologically. Physiological measures may also be used to examine the effect of context to greater depth. Using physiological measures may also help to examine if context is more important than word use for peoples' perceptions of emotional intensity and negative emotional valence. Physiological arousal measures can more precisely measure if there's a change in arousal in reading messages with taboo words, grawlixes, or non-taboo words.

Sample population may be something to consider for future studies also. The concern over censorship and the tabooiness of a message may be more salient among an older population and a population who have children. Due to the heightened issue relevance, it is possible this or a similar study could be conducted and observe a more pronounced effect in a sample of middle-aged parents when using a taboo word, grawlix, or non-taboo word in a message. Additionally, a younger population may be of interest to examine to see when the grawlix symbol and taboo word referent relationship develops exactly and if taboo words have a greater effect among younger participants. In specific, probing the results for those 13 or younger could be of interest since the sample for this study reported on average that 13 years is the minimum they would allow someone to read these messages. Future studies may also want to include a measure for habituation to the stimuli. This measure may be used to assess if participants are accustomed to seeing taboo words and grawlixes in forum comments. A habituation measure might help tease out if habituation is responsible for participants being less likely to have the predicted emotional responses from taboo words and grawlixes in this context.

Future studies may also want to further analyze the effects of grawlix ambiguity. The results from the identification test suggested that participants had the greatest difficulty in identifying the most ambiguous grawlix. Varying degrees of grawlixes may be examined to see if potential differences in negative emotional valence, emotional intensity, and recall exist.
Finally, future studies may want to utilize varying stimuli. Future researchers may use more or less hostile conversations. Researchers can have the conversations be more threatening and use a higher frequency of taboo words. This could potentially lead to a greater effect than just altering one word in a conversation. It is possible that a lone taboo word, grawlix, or non-taboo word is not salient enough to truly impact a reader's perception. It may also be useful to examine the effects of gender for the communicators. Women who use taboo words may violate social expectations and these messages may be evaluated differently than if used by men, who are known to use taboo words more frequently (Mehl & Pennebaker, 2006). Finally, altering the context of the conversations away from transcripts of online forum comments may influence the results. College students may see using taboo words or grawlixes on online communities as standard behavior, which may influence their perceptions about their use. If the context was altered to a federal webpage, letter correspondence, book dialogue, or subtitles for the news, the results may be quite different.

**Limitations**

This study had several limitations which may have influenced the results. One limitation involved the stimuli. The conversations differed significantly in how realistic they were to participants. This may have influenced how emotionally negative or intense the disagreements were to the participants. Some participants also may not have seen the disagreements in the conversations as relatable. For instance, those participants not familiar with baseball may not have understood what the disagreement was over.

Some participants also did not spend the full amount of time on the distraction task. Given the small sample size of the study this may have had an influence on the recall scores of participants. The findings to the study may not be stable and a larger sample can detect the effect
on recall of only changing one word in a message more precisely. It may also be that the recall test was too easy for participants. Asking participants to recall content may therefore not be an accurate assessment of recall.

The study was also limited by the participant population. Participants’ age was an average of 22 years old. Twenty two year olds may not be concerned with how offensive a message is and strategies to reduce a messages' offensiveness. Furthermore, since the sample was entirely composed of college students, it may be that college students are a unique demographic who are desensitized to offensive messages.

A final possible limitation may be the methodology choice of having participants rate negative emotional valence and emotional arousal of the same conversations they had read earlier. By reading the conversations a second time participants may have habituated to the stimuli, in specific the taboo words, no longer viewing them as offensive as they might have the first time reading them. This could explain why participants had conflicting results regarding how they rated the offensiveness of a taboo word and how they rated it on negative emotional valence and emotional intensity. Participants already knew what taboo words to expect and could downplay any emotional responses associated with reading them in advance.

Conclusion

The study is, to the researcher’s knowledge, the first to examine how readers respond to messages with grawlixes. Although participants were able to correctly identify the grawlix-taboo word relationship, participants’ responses suggest they respond to them differently. These findings contradict much of the previous research on taboo words and how they differ from non-taboo words. The results ultimately suggest that grawlixes as a form of censorship may be counter-productive in some ways or unnecessary, at least for college students.
TABLE 1

*Descriptive Statistics and Zero-Order Correlation Matrix of Primary and Supplemental Variables*

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Negative emotion</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Emotional intensity</td>
<td>.69**</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Recall of content</td>
<td>.07</td>
<td>-.02</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Recognition, words present</td>
<td>.02</td>
<td>.08</td>
<td>.03</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Recognition, words not present</td>
<td>-.08</td>
<td>.16</td>
<td>-.04</td>
<td>-.12</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Recognition, weighted percent</td>
<td>-.01</td>
<td>.18*</td>
<td>.03</td>
<td>.83**</td>
<td>.45**</td>
<td>--</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Swearing behaviors</td>
<td>-.13</td>
<td>-.06</td>
<td>-.04</td>
<td>.19*</td>
<td>.09</td>
<td>.19*</td>
<td>--</td>
<td></td>
</tr>
<tr>
<td>8. Verbally aggressive tendency</td>
<td>.01</td>
<td>.17</td>
<td>-.09</td>
<td>-.05</td>
<td>.29**</td>
<td>.13</td>
<td>.29**</td>
<td>--</td>
</tr>
</tbody>
</table>

*M*  

| Variable | 4.56 | 4.32 | 2.11 | 2.11 | 4.44 | .50  | 4.14 | 2.99 |

| *SD*      | 0.92 | 1.28 | 1.06 | 0.82 | 2.49 | .15  | 0.92 | 1.27 |

Note. * p < .05, ** p < .01
### TABLE 2

*Means, Standard Deviations, and Significant Differences by Word Condition*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Taboo</th>
<th>Grawlix</th>
<th>Non-taboo</th>
<th>F (df)</th>
<th>p</th>
<th>η²</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Negative emotion</td>
<td>4.52 (0.84)</td>
<td>4.52 (1.12)</td>
<td>4.63 (0.83)</td>
<td>0.22 (2, 130)</td>
<td>.80</td>
<td>.003</td>
</tr>
<tr>
<td>2. Emotional intensity</td>
<td>4.30 (1.44)</td>
<td>4.29 (1.24)</td>
<td>4.35 (1.20)</td>
<td>0.03 (2, 130)</td>
<td>.97</td>
<td>.005</td>
</tr>
<tr>
<td>3. Recall of content</td>
<td>2.05 (1.13)</td>
<td>2.18 (0.97)</td>
<td>2.10 (1.08)</td>
<td>0.17 (2, 132)</td>
<td>.84</td>
<td>.003</td>
</tr>
<tr>
<td>4. Recognition, words present</td>
<td>1.76a (0.93)</td>
<td>2.17b (0.79)</td>
<td>2.36c (0.61)</td>
<td>6.70 (2, 128)</td>
<td>.001</td>
<td>.09</td>
</tr>
<tr>
<td>5. Recognition, words not present</td>
<td>4.12ab (2.78)</td>
<td>5.26a (2.46)</td>
<td>3.93b (2.03)</td>
<td>3.68 (2, 123)</td>
<td>.03</td>
<td>.06</td>
</tr>
<tr>
<td>6. Recognition, weighted percent</td>
<td>.44a (.20)</td>
<td>.54b (.11)</td>
<td>.52b (.10)</td>
<td>5.47 (2, 122)</td>
<td>.01</td>
<td>.09</td>
</tr>
<tr>
<td>7. Swearing behaviors</td>
<td>3.93 (0.94)</td>
<td>4.25 (0.88)</td>
<td>4.21 (0.94)</td>
<td>1.55 (2, 133)</td>
<td>.22</td>
<td>.02</td>
</tr>
<tr>
<td>8. Verbally aggressive tendency</td>
<td>2.89 (1.22)</td>
<td>3.12 (1.34)</td>
<td>2.94 (1.26)</td>
<td>0.41 (2, 133)</td>
<td>.66</td>
<td>.01</td>
</tr>
<tr>
<td>9. Minimum age to read conversations</td>
<td>15.59a (1.88)</td>
<td>12.75b (3.38)</td>
<td>12.20b (3.98)</td>
<td>13.38 (2, 133)</td>
<td>.002</td>
<td>.17</td>
</tr>
<tr>
<td>10. Conversation realism</td>
<td>5.87 (1.08)</td>
<td>5.59 (1.26)</td>
<td>5.92 (1.07)</td>
<td>1.14 (2, 133)</td>
<td>.32</td>
<td>.03</td>
</tr>
</tbody>
</table>

Note. Different subscript letters indicate significance from each other
APPENDIX A

Consent Form

University of Hawai‘i

Consent to Participate in Research

Message Processing of Male Conversational Messages

My name is Jay Stout, and I am a graduate student at the University of Hawai‘i at Mānoa (UHM) conducting a research project examining how people process messages in conversation between men. To participate in this study you must be at least 18 years old.

Project Description – Activities and Time Commitment: If you decide to take part in this project, you will be asked to read transcripts of conversations. You will be reading brief excerpts of conversations/exchanges between men and you will be evaluating their messages. Some of these messages may contain explicit language. You will complete a demographic questionnaire at the end of the survey. I will also ask you to complete a questionnaire regarding the content of the transcripts. Completion of the study will take approximately 35-45 minutes. Approximately 200 people will take part in this project.

Benefits and Risks: There are no direct benefits for completing this study. The investigator believes there is minimal risk to you by participating in this study. If you would like to discontinue your participation during the study, you may withdraw at any time without consequence.

Confidentiality and Privacy: All information you provide in the questionnaire will remain strictly confidential. Any personally identifying information that you provide (e.g., your name to receive credit) will be deleted and will be replaced with a number. All information will be stored on a password protected computer.

Voluntary Participation: Participation in this project is voluntary. You can freely choose to participate or to not participate in this study, and there will be no penalty or loss of benefits for either decision. If you agree to participate, you can stop at any time without any penalty or loss of benefits to which you are otherwise entitled.
Questions: If you have any questions about this study, you can contact the principal researcher, Jay Stout, at 808.956.6354 or jaystout@hawaii.edu. You can also contact my faculty advisor, Dr. Amy Hubbard, at 808.956.3321, aebesu@hawaii.edu. If you have any questions about your rights as a research participant, you can contact the UH Human Studies Program at 808.956.5007 or uhirb@hawaii.edu.

Copy to Participant
APPENDIX B

Distraction Task

Directions: Please consider the past 24 hours of your life. Take the next 10 minutes to write about what has happened in these past 24 hours. Please be as specific as possible, you are encouraged to use the entire 10 minutes to write.
APPENDIX C

Demographic and Supplementary Questions

Directions: Please answer the following.

1. What is your gender?
   1. Male
   2. Female
   3. I prefer not to say

2. What is your age?
   _____

3. Is English your first language?
   1. Yes
   2. No

4. How fluent are you in English?
   1 (Not at all) 2 (A little) 3 (Somewhat) 4 (Moderately) 5 (Considerably) 6 (Highly) 7 (Completely)

5. Have you seen these or similar symbols, #@$%!, used in place of words in any of the following: TV captions, comic books, internet websites, social media websites, news articles (online), news articles (in print), or printed books?
   1. Yes
   2. No

6. Which of the following words would you consider a taboo word/profanity/swear word(s)? (Check all that apply)
   1. Fuck
   2. Fucking Asshole
   3. Motherfucker
   4. #&*%
5. #&*%ing @$hole
6. mother#&*%er
7. heck
8. rude jerk
9. man

7. Please rate how offensive you personally think the following words are:

1. Fuck
   1 (Not at all)  2 (A little)  3 (Somewhat)  4 (Moderately)  5 (Considerably)  6 (Highly)  7 (Completely)

2. Fucking asshole
   1 (Not at all)  2 (A little)  3 (Somewhat)  4 (Moderately)  5 (Considerably)  6 (Highly)  7 (Completely)

3. Motherfucker
   1 (Not at all)  2 (A little)  3 (Somewhat)  4 (Moderately)  5 (Considerably)  6 (Highly)  7 (Completely)

4. #&*%
   1 (Not at all)  2 (A little)  3 (Somewhat)  4 (Moderately)  5 (Considerably)  6 (Highly)  7 (Completely)

5. #&*%ing @$hole
   1 (Not at all)  2 (A little)  3 (Somewhat)  4 (Moderately)  5 (Considerably)  6 (Highly)  7 (Completely)

6. mother#&*%er
   1 (Not at all)  2 (A little)  3 (Somewhat)  4 (Moderately)  5 (Considerably)  6 (Highly)  7 (Completely)

7. Heck
   1 (Not at all)  2 (A little)  3 (Somewhat)  4 (Moderately)  5 (Considerably)  6 (Highly)  7 (Completely)

8. Rude jerk
9. Man

8. Please rate how offensive you think the following words would be considered by the public:

1. Fuck

2. Fucking asshole

3. Motherfucker

4. #$%&*

5. #$%&*ing @$$hole

6. mother#$%&*er

7. Heck

8. Rude jerk
9. Man

1 (Not at all) 2 (A little) 3 (Somewhat) 4 (Moderately) 5 (Considerably) 6 (Highly) 7 (Completely)

9. I believe the conversation between Roger and Ian (Two men watching a baseball game) is realistic

1 (Strongly disagree) 2 (Moderately disagree) 3 (Slightly disagree) 4 (Neutral) 5 (Slightly agree) 6 (Moderately agree) 7 (Strongly agree)

10. I believe the conversation between Nelson and Zack (Nelson was trying to get help for his laptop) is realistic

1 (Strongly disagree) 2 (Moderately disagree) 3 (Slightly disagree) 4 (Neutral) 5 (Slightly agree) 6 (Moderately agree) 7 (Strongly agree)

11. I believe the conversation between Peter and Alan Alan (Peter was upset over speeding drivers) is realistic

1 (Strongly disagree) 2 (Moderately disagree) 3 (Slightly disagree) 4 (Neutral) 5 (Slightly agree) 6 (Moderately agree) 7 (Strongly agree)

12. I can imagine an interaction, like the one between Roger and Ian (Two men watching a baseball game) happening

1 (Strongly disagree) 2 (Moderately disagree) 3 (Slightly disagree) 4 (Neutral) 5 (Slightly agree) 6 (Moderately agree) 7 (Strongly agree)

13. I can imagine an interaction, like the one between Nelson and Zack (Nelson was trying to get help for his laptop) happening

1 (Strongly disagree) 2 (Moderately disagree) 3 (Slightly disagree) 4 (Neutral) 5 (Slightly agree) 6 (Moderately agree) 7 (Strongly agree)

14. I can imagine an interaction, like the one between Peter and Alan (Peter was upset over speeding drivers) happening

1 (Strongly disagree) 2 (Moderately disagree) 3 (Slightly disagree) 4 (Neutral) 5 (Slightly agree) 6 (Moderately agree) 7 (Strongly agree)

15. At what age would you allow a child to read the dialogues you just read?
APPENDIX D

Conversation: Taboo Word Condition

Directions: Please read the following comments from online forums carefully:

Conversation 1: Roger and Ian are commenting on a sport website’s live update of their favorite teams competing against each other. Roger believes his team’s pitcher has thrown a strike, but the umpire has called it a ball.

Roger: Are you serious?!! That was obviously a strike!!
Ian: Are you blind?! He clearly threw too low!!
Roger: What the fuck are you seeing?!! That was right in the middle of the strike zone!!

Conversation 2: Nelson has been asking for help on an online tech forum for a while and has received no helpful responses.

Nelson: Can’t figure out how to get my laptop to turn on and it’s been weeks now!! Can anyone help me please?!
Zack: Have you tried pressing the, “on” button?
Nelson: Very funny. Can’t someone ask for help without people being fucking assholes about it?!!

Conversation 3: Peter and Alan are members of a neighborhood community forum. Peter has been posting about people speeding on the roads.

Peter: What's wrong with you people?!! The sign say 25, slow down!!
Alan: I didn’t buy a new muscle car to drive the speed limit. So you better look both ways before crossing the street!!
Peter: What kind of an excuse is that motherfucker?!! You can kill someone!!
APPENDIX E

Conversation: Grawlix Condition

Directions: Please read the following comments from online forums carefully:

Conversation 1: Roger and Ian are commenting on a sport website’s live update of their favorite teams competing against each other. Roger believes his team’s pitcher has thrown a strike, but the umpire has called it a ball.

Roger: Are you serious?!? That was obviously a strike!!

Ian: Are you blind?! He clearly threw too low!!

Roger: What the #&*% are you seeing??!! That was right in the middle of the strike zone!!

Conversation 2: Nelson has been asking for help on an online tech forum for a while and has received no helpful responses.

Nelson: Can’t figure out how to get my laptop to turn on and it’s been weeks now!! Can anyone help me please??

Zack: Have you tried pressing the, “on” button?

Nelson: Very funny. Can’t someone ask for help without people being #&*%ing @#$holes about it??!

Conversation 3: Peter and Alan are members of a neighborhood community forum. Peter has been posting about people speeding on the roads.

Peter: What's wrong with you people?!? The sign say 25, slow down!!

Alan: I didn’t buy a new muscle car to drive the speed limit. So you better look both ways before crossing the street!!

Peter: What kind of an excuse is that mother#&*%er??!! You can kill someone!!
APPENDIX F

Conversation: Non-taboo Word Condition

Directions: Please read the following comments from online forums carefully:

Conversation 1: Roger and Ian are commenting on a sport website’s live update of their favorite teams competing against each other. Roger believes his team’s pitcher has thrown a strike, but the umpire has called it a ball.

Roger: Are you serious?!? That was obviously a strike!!

Ian: Are you blind?! He clearly threw too low!!

Roger: What the Heck are you seeing?!? That was right in the middle of the strike zone!!

Conversation 2: Nelson has been asking for help on an online tech forum for a while and has received no helpful responses.

Nelson: Can’t figure out how to get my laptop to turn on and it’s been weeks now!! Can anyone help me please??

Zack: Have you tried pressing the, “on” button?

Nelson: Very funny. Can’t someone ask for help without people being rude jerks about it??!

Conversation 3: Peter and Alan are members of a neighborhood community forum. Peter has been posting about people speeding on the roads.

Peter: What's wrong with you?!? The sign say 25, slow down!!

Alan: I didn’t buy a new muscle car to drive the speed limit. So you better look both ways before crossing the street!!

Peter: What kind of an excuse is that man?!? You can kill someone!!
APPENDIX G

Recall of Taboo Words Test

Directions: Try to remember the conversations you just read and answer the following.

1. What was Roger upset about?
2. What was Nelson upset about?
3. What was Peter upset about?

Directions: You will be seeing a series of words, please respond as quickly as possible if you remember this word(s) being used in the conversations you read earlier.

1. Fuck
2. @$!%
3. Dude
4. Man
5. Shit
6. #$%
7. #$%ing @$hole
8. Heck
9. Motherfucker
10. Annoying idiot
11. Bitch
12. Mother#$%er
13. $$%head
14. Rude jerk
15. Piece of shit
16. Fucking asshole
17. $%%
18. In the world
APPENDIX H

Grawlix Identification Test

Directions: Please answer the following based on the conversations you read earlier, please write whatever you believe the answer is and be as explicit as needed:

1. Consider when Roger said, "What the #&*% are you're seeing?!! That was right in the middle of the strike zone!!" to Ian.

In the sentence, what word is #&*% replacing?

2. Consider when Nelson said, "Very funny. Can’t someone ask for help without people being #&*%ing @$holes about it?!!" when Zack suggested Nelson press the “on” button to start his laptop.

In this sentence, what words are #&*%ing @$holes replacing?

3. Consider when Peter said "What kind of an excuse is that mother#&*%er?!?!! You can kill someone!!!!” when Alan said he’d continue speeding.

In this sentence what word is mother#&*%er replacing?
APPENDIX I

Negative Emotional Valence Scale

Directions: After reading the conversation, indicate to what extent you believe Roger (or Nelson, or Peter) felt after saying, "What the fuck are you seeing?!!" (or Can’t someone ask for help without people being fucking assholes about it?!! or What kind of an excuse is that motherfucker?!!). Rate each question based on the following 7-point scale: 1 = not at all at this moment and 7 = very much at this moment.

1. Disgusted
2. Scornful
3. Irritable
4. Afraid
5. Upset
6. Angry
7. Nervous
8. Hostile
9. Jittery
10. Distressed
11. Loathing
APPENDIX J

Emotional Intensity Scale

Directions: Indicate to what extent Roger (or Nelson, or Peter) felt the following after saying, "What the fuck are you seeing?!!" (or Can’t someone ask for help without people being fucking assholes about it??!! or What kind of an excuse is that motherfucker?!!). Use the following 7-point rating scale: 1 = strongly disagree and 7 = strongly agree.

1. Active
2. Alert
3. Aroused
4. Energetic
5. Excited
6. Forceful
7. Lively
8. Powerful
9. Sharp
10. Vigorous
APPENDIX K

Verbal Aggressiveness Tendency Scale

**Directions:** Please consider the following and rate the appropriate response on the 7-point scale with 1 = strongly disagree and 7 = strongly agree.

1. When individuals are very stubborn, I use insults to soften the stubbornness.
2. When people refuse to do a task I know is important, without good reason, I tell them they are unreasonable.
3. If individuals I am trying to influence really deserve it, I attack their character.
4. When people behave in ways that are in very poor taste, I insult them in order to shock them into proper behavior.
5. When people simply will not budge on a matter of importance, I lose my temper and say rather strong things to them.
6. When individuals insult me, I get a lot of pleasure out of really telling them off.
7. I like poking fun at people who do things that are very stupid in order to stimulate their intelligence.
8. When people do things that are mean or cruel, I attack their character in order to help correct their behavior.
9. When nothing seems to work in trying to influence others, I yell and scream in order to get some movement from them.
10. When I am not able to refute someone's position, I try to make them feel defensive in order to weaken their position.
APPENDIX L

Swearing Behaviors Scale

Directions: Consider the following and rate the corresponding response on the 7-point scale with 1 = strongly disagree and 7 = strongly agree

1. It offends me to see swear words in the print media (newspapers, magazines).*
2. It offends me to hear swear words in movies.*
3. It does not offend me to hear swear words on television.
4. It offends me when I see swear words on the internet.*
5. It offends me when I see swear words in e-mail.*
6. It offends me to hear swear words on the radio.*
7. It does not offend me to hear swear words from friends.
8. It offends me to hear swear words from strangers.*
9. It offends me to hear swear words from acquaintances.*
10. It does not offend me to hear swear words from teachers.
11. It offends me to hear swear words from my boss.*
12. I am more likely to swear in front of someone who is of the opposite sex.
13. I am less likely to swear in front of someone I don’t know than a friend.*
14. I am more likely to swear in front of my coworkers than in front of my friends.
15. I do not believe swearing is a bad habit.
16. I believe it is more acceptable for a male to swear than a female.
17. I find it more offensive to hear a woman swear than a man.*
18. I swear when I hurt myself.
19. I swear when I am happy.
20. I do not swear when I am frustrated.*
21. I do not swear when I do poorly on a test.*
22. I swear when I do well on an exam.
23. I swear when I have trouble remembering something.
24. I swear when something goes wrong.
25. I do not swear when I am angry.*
26. I feel empowered when I swear.
27. I feel embarrassed when I swear.*
28. I feel mature when I swear.
29. I do not feel adult when I swear.*

*Item needs to be reverse coded.
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