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Strengthening Implicitly-formed Attitudes: The Use of Evaluative Conditioning and Selective Exposure

Claudia Q. Luu
University of Tennessee, Knoxville, cluu@vols.utk.edu

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University of Tennessee

Abstract

Implicit attitudes are defined as unconsciously-formed evaluations towards an object or the self. Although the very nature of unconsciously formed attitudes may appear to be too weak to be significant to modern theories of attitudes, we challenge that these minute unconscious attitudes can inadvertently affect cognitive information processing which ultimately manifests into stronger attitudes. Here we demonstrate that implicitly formed attitudes can eventually lead to biased behaviors that can positively reinforce themselves which is consistent with the effects of strong attitudes suggested by contemporary research on attitudes. In order to mimic the formation of implicit attitudes, we developed an evaluative conditioning procedure that was designed to invoke attitudes without conscious memory of the conditioned stimulus. Students from a large southeastern university participated in the study, where they went through a process of evaluative conditioning. A group of randomly selected participants were then asked to complete a selective exposure task. Participants who were in the selective exposure task and had contingency memory of the pairing of the unconditioned stimulus and conditioned stimulus were shown to have strengthened attitudes.

Keywords: Persuasion, attitude strength, evaluative conditioning, selective exposure

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Attitudes are one of the key components behind one's behavior. Explicit attitudes are formed with conscious awareness or intent, while implicit attitudes are formed without either aspect. The former being similar to how you would explain to someone the love you have for the taste of chocolate, and the latter relating more to our subconscious thoughts that we might not outwardly agree with. In this case, we will be focusing specifically on implicit attitudes, which can be formed in different ways.

When a person elaborates thoughtful messages, the strength of their attitudes becomes stronger, according to the Elaboration Likelihood Model (ELM) (Cacioppo & Petty, 1984). In the ELM, there are two paths that factors into how a person can be persuaded. The peripheral path is when people are not focusing on the persuasive arguments themselves, but instead are persuaded by peripheral cues. For example, the speaker's credibility or appearance can influence their persuasive impact. On the other hand, the central path of persuasion occurs when a person has the ability and motivation to listen to a persuasion. Thus, they are able to focus more on the content of the elaborated persuasive message. In fact, one's focus or attention on the persuasive message can heavily factor into the effectiveness of changing attitudes. An increase in attention on the persuasive messages will increase the effectiveness in changing attitudes, while more distractions will result in a decrease of effectiveness. Similarly, the Heuristic-Systematic Model explains two ways in which a person can process persuasive messages (Henderson, 2002). The heuristic process is when a person uses mental shortcuts in order to make judgments more quickly and efficiently, whereas the systematic process involves the person thinking more carefully before forming an opinion from the persuasive message.

However, it is not as simple as just how someone interprets and processes persuasive messages. We must understand many other types of peripheral processes that contribute to the change of one's attitude in less thoughtful ways. As stated earlier, humans use mental shortcuts or heuristics to make decisions more efficiently and quickly (Zajonc, 2001). One of these heuristics is known as the availability heuristic, which enables one to base their judgment on the ease in which they can bring the topic into mind. Another type of peripheral processes is the idea of mere exposure, which describes how people prefer things that are more familiar to them. By being more exposed to a stimuli, people will feel more of a positive attitude towards that stimuli due to familiarity.

Attitudes could also be acquired through conditioning, which is a learning procedure through constant pairings of stimuli. For example, operant conditioning is when we give rewards or punishments to influence the way a person behaves (Fazio, Eiser, & Shook, 2004). Rewarding good behavior results in conditioning the person to increase that type of behavior, while punishing bad behavior decreases it. However, we will be focusing on a different type of conditioning called evaluative conditioning (Olson & Fazio, 2001). Instead of applying a reward and punishment system to change their attitude on a particular stimulus, we would pair the conditioned stimulus with either negative or positive unconditioned stimuli. With constant negative or positive pairings, the participant would start to develop an attitude towards the conditioned stimulus. For instance, if a commercial of a soda brand continuously played after a commercial of adorable, fluffy puppies jumping around and wagging their tails, this would lead to a more positive evaluation of that soda brand.

Rather than being strongly held beliefs, these attitudes mimic the sensation of vague gut feelings (Kendrick & Olson, 2012). Although these feelings may be weak, I argue that they can

affect one's perception, behavior, and judgment. Attitude-judgment relations involve deliberative evaluative judgments and automatic evaluative reactions. Automatic evaluative reactions are immediate implicit attitudes in response to a certain stimulus. Thus, the vague gut feeling produced from evaluative conditioning is one of these responses. When someone trusts their gut feelings, the sense of trust in themselves results in the likelihood of using those gut feelings as a basis for judgment. Therefore, when it is time to make a swift decision, these automatic evaluative reactions push them to make judgments about the object, person, or event. However, if they do not trust their gut feelings or are in a situation that makes them feel uncertain, then they are less likely to follow those gut feelings. Additionally, these vague gut feelings can influence people to use biased processing in attitude-consistent ways. If they have a positive or negative vague gut feeling about something, then they might seek out corresponding information to reinforce these vague gut feelings. People may also avoid information that does not correspond to the positive or negative vague gut feelings they currently have on the topic.

As a result, people could have attitude-consistent memory biases where they remember more information based on what their vague gut feelings are (Fazio & Olson, 2003). Not only is their memory affected, the ability to recall information is also skewed by those biases. Implicit attitudes may then become stronger due to their decisions being influenced by attitude-consistent memory biases and biased recalls. By trusting their vague gut feelings, people reduce ambiguity surrounding the topic at hand through these recollections (Houston & Fazio, 1989). Since they are rehearsing attitude-consistent information, the person will have an increase in the awareness of their attitude towards the stimuli over time. Ultimately, these attitudes which were once weak will increase in strength.

In our experiment, we will be examining how participants will be developing these vague gut feelings into stronger attitudes. Our hypothesis is that participants who have been given the opportunity to use their vague gut feelings will seek out information in attitude-consistent ways in order to disambiguate information. In turn, we believe that the vague gut feelings will become increasingly stronger, resulting in stronger attitudes. In order to give the participants this opportunity, we will first create a scenario where the participants can develop vague gut feelings towards an unconditioned stimulus through evaluative conditioning. Participants will be asked to monitor a screen in which they will have to react quickly to a certain image when it appears. Some of these images will be paired with either positive or negative stimuli. Over time, these constant pairings should condition the participant to have positive or negative vague gut feelings towards the unconditioned stimuli. After the monitoring process, participants will be asked to select information they would like to learn about the unconditioned stimuli. If our hypothesis is correct, then we would expect participants to seek either positive or negative information about the unconditioned stimuli depending on the pairings of either positive or negative stimuli, respectively. The practice of selective exposure will then reinforce their vague gut feelings into stronger attitudes about the unconditioned stimulus. The attitudes of participants who do not have the opportunity to "use" their implicitly-formed attitudes are predicted to be weaker.

Methods

Participants. 252 psychology students at a large southeastern U.S. university participated in groups of one to four for partial fulfillment of course requirements.

Materials and Procedure. The design was based on Olson and Fazio (2001; for additional procedural details see Jones et al., 2010). On arrival, participants were asked to wait in a room until either the start time for the current session of the experiment was met or all participants

who signed up for the current session arrived. When either of these conditions were met, the participants were then led to a room, and seated in individual cubicles that were equipped with computer monitors and keyboards. Participants were told that they were to complete a task about "attention and rapid responding," with their role being that they were a security guard keeping surveillance in order to detect and respond to suspicious activity. Specifically, the assigned task involved focusing their attention on a computer screen with images appearing and disappearing while responding to selected target images as quickly as possible by pressing the spacebar.

To start, participants were first shown a screen presenting the first target's image and name. The target images presented in this experiment were Pokémon (cartoon characters) that were not paired with either positive or negative stimuli. Participants were instructed to focus on the screen, and to press the spacebar as quickly as possible when they saw the target Pokémon. In order to ensure that the participants' attention was directed equally on both the words and images during the task, the participants were told to react to either the word version or the visual illustration of the target.

This vigilance task consisted of 5 blocks of 86 trials each with each lasting 1.5 seconds. Prior to each block, a new target Pokémon was chosen and identified clearly for the participants. All images were presented either individually or in pairs, and were positioned in different areas of the screen. Among the target images were other filler images and words. Some of these filler images and words were simultaneous pairings of two critical CS Pokémon, Shellder and Metapod, with either positive (e.g., the word "amazing," an image of puppies) and negative (e.g., the word "horrible," an image of a dirty ashtray) images and words, respectively. Each CS Pokémon appeared with 20 different US throughout the task. Which Pokémon was paired with positive or negative US was counterbalanced between participants.

Selective Exposure Measure. After the blocks of the vigilance task, the participants were required to complete a short set of unrelated questionnaires. Following these questionnaires, half of the participants were randomly assigned to complete the selective exposure measure while the other half of the participants did not have to complete this part of the experiment. The selective exposure measure was masked as an opportunity to learn more about the Pokémon that were shown during the vigilance task. This opportunity was presented as a way to learn more information about the Pokémon for the participants to use in a hypothetical game later on. During this opportunity, a picture of a Pokémon and two statements of opposite valence appeared, where the participants were allowed to select a statement in which they would like to learn more about. These two statements were listed as features that were either a pro or a con of the Pokémon's traits. For each of the 20 trials completed, participants were asked to select between the two statements that would supposedly tell them more about the characters, with one suggesting negative qualities (e.g., "Shellder only has one weapon it can use during battle") and one suggesting positive qualities (e.g., "Shellder's main attack is very powerful").

Attitude Accessibility Measure. Participants were then asked to complete an evaluative priming measure of their attitudes towards Shellder and Metapod. For this task, the participants were given a pool of target adjectives, and were asked to identify the adjectives as either positive or negative by pressing a corresponding key. After a practice block of 20 trials where just the adjectives were presented on the screen, each of the remaining 96 trials were preceded by a prime consisting of one of the Pokémon from the conditioning task. The images of these Pokémon were shown for 300 milliseconds, followed by a target word for 1 second, or until the participant responded.

Contingency Memory Measure. Afterwards, the participants were asked to complete two measures of contingency memory. The participants first completed a valence memory task where they were presented with an image of one of the Pokémons, and asked which valence of stimuli was paired with the image (positive, negative, neutral, or unknown). There were a total of 8 different images of Pokémon from the surveillance task presented, in which two were the CS.

Finally, participants completed a measure of identity memory, where they were asked which Pokémons were paired with a specific US image or word from the conditioning task. This task included 12 trials, 8 involving the critical CSs.

When completed, the participants were told to wait for other participants to finish, then all participants were debriefed, thanked for their time, and dismissed.

Results

Date preparation. Eighteen participants were excluded from analyses for committing too many errors (>25%) on the priming measure or for failing to complete survey items. Priming indices of automatic attitudes were constructed for each participant based on average response latencies to critical trials involving CS-primes and positive/negative targets using the following formula: (CS positive prime & negative target + CS negative prime & positive target) – (CS positive prime & positive target + CS negative prime & negative target). Higher numbers indicate more conditioning-consistent automatic attitudes. A selective exposure index was created for each participant by subtracting the number of statements selected for each CS that were inconsistent with conditioning from selections that were consistent with conditioning so that higher numbers indicate a greater selective exposure effect. Finally, both identity memory (memory for specific US paired with each CS) and valence memory (memory for the valence of US paired with each CS) were constructed. The former was based on a sum of correct responses

on trials involving critical CSs, and could vary from 0 to 7, and the latter was based on two items inquiring about the valence of US paired with each CS and could range from 0 to 2. For each, higher numbers indicate greater memory for the CS-US pairings.

Primary analyses. There was no evidence for an overall conditioning effect on the priming measure (M=3.21, SD = 82.12), $t(225) = .59$, $p = .56$. There was also no evidence of a selective exposure effect among participants assigned to that condition (M=.17, SD = 2.26), $t(110) = .80$, $p = .43$. There was a tendency for those assigned to the selective exposure condition, who had a chance to think about their attitudes, to show a stronger conditioning effect on the priming measure (M=10.92, SD = 78.38) than those who were not assigned to the selective exposure condition (M=-4.23, SD = 85.27), t (224) = 1.41, $p = .17$.

To examine the impact of awareness of the pairings, we examined the effects of selective exposure on priming effects among those who showed no memory for the pairings (valence memory = 0, n = 152) and among those who showed some memory for the pairings (valence memory > 0, n = 81). Among those with no memory for the pairings, the selective exposure condition did not show greater conditioning effects on the priming measure than those who did not selectively expose, $t < 1$. However, among those with some memory for the pairings, there was a significant difference between those who selectively exposed and those who did not, t (79) = 2.23, $p = .03$. Among these participants, those who selectively exposed showed evidence of automatic attitudes (M=31.09, SD = 80.17), $t(41) = 2.51$. Those who did not selectively expose did not (M=-13.76, SD = 100.59), $t(38) < 1$. Thus, among participants who had some memory for the pairings, those who selectively exposed showed evidence of automatic attitude activation from the conditioning procedure, whereas those who were not selectively exposed did not. The analyses involving identity memory generally mirrored those involving valence memory.

Discussion

In our experiment, we tested our hypothesis of whether participants could develop stronger attitudes when they were given an opportunity to use their vague gut feelings. Specifically, we believed that the participants would seek information in attitude-consistent ways to disambiguate the information they have at hand. This process would allow for the participants to develop their vague gut feelings into stronger attitudes. Through evaluative conditioning, participants could develop vague gut feelings towards either CSs (Shellder or Metapod). After the conditioning segment, participants were given the opportunity to learn more about either of the Pokémon. We predicted the participants to seek either positive or negative information about the CSs depending on whether the CSs were paired with either positive or negative stimuli. Through the use of selective exposure, participants would then be able to develop stronger attitudes.

Our results showed that there was no evidence for an overall conditioning effect on the priming measure nor was there a selective exposure effect among participants in this condition. However, participants who were assigned to go through the selective exposure condition and were given the opportunity to think about their attitudes showed a slightly stronger conditioning effect on the priming measure. Additionally, participants who showed some memory of the US and CS pairings had a significantly higher selective exposure effect than those who did not have memory of the pairings, and did show significantly stronger attitudes than participants who showed some memory of the pairings who did not selectively expose. Therefore, the results of this study did not fully support our hypothesis as there was not a significant overall conditioning effect or selective exposure effect, but it provided tentative evidence that use of implicitly formed attitudes can strengthen them.

We must evaluate why an overall conditioning effect and selective exposure effect were not present in our study. Evaluative conditioning is said to have a stronger effect on the subject when they are able to focus their attention on the evaluative conditioning task (Kattner, 2012). The participants in our study were students at a university who participated in studies to meet a course requirement. For this reason, the participants may have not cared much about the experiment, which would result in them paying less attention to the study. In order to factor in attention, we could add another condition where one group of participants would have a distraction task and the another group without the distraction task. We could then compare the evaluative conditioning effect between both groups to understand the importance of attention in evaluative conditioning in our study. Similar to attention, the strength of contingency awareness has shown the same effects in evaluative conditioning (Hofmann, De Houwer, Perugini, Baeyens, & Crombez 2010). High levels of contingency awareness has resulted in a bigger evaluative conditioning effect in studies in the past. Likewise, our study has shown similar results in this aspect as participants who showed memory of the USs and CSs pairings had a stronger evaluative conditioning effect. Thus, the increase of contingency awareness from memory and higher evaluative conditioning effect resulted in an attitude strengthening effect for participants who were not completely clueless about the positive and negative pairings of the USs and CSs.

In terms of selective exposure, there was no significant effect other than among those who showed contingency awareness of the USs and CSs pairings. The selective exposure measure was introduced as a way to learn about the pros and cons of the Pokémon for participants to later use that information in a game. Participants may not have been correctly presented with a selective exposure opportunity. Our intentions in the study were for the

participants to seek information in attitude-consistent ways, where in this case the participants would want to learn either positive or negative information about the Pokémon depending on their vague gut feelings about them. However, since we introduced the fact that this information would later be used for a game, participants may not have sought information in attitude-consistent ways. Studies have shown that those who have strong attitudes may have an automatic process with their vague gut feelings, so when they are given the opportunity to learn more information they may show relatively thoughtless selective exposure (Brannon, Tagler, & Eagly, 2007). In our study, we introduced the participants to a scenario with motivation to process new information carefully because we led them to believe they were playing a game. In games, players more than likely want to understand both the pros and cons to formulate a strategy best suited for their playstyle. Therefore, players who are more aggressive in their strategy may take this opportunity to learn more about the pros of their Pokémon. On the other hand, players who are more passive would take a defensive stance and learn more about the cons of their Pokémon. In any case, we must first take away the fact that the information the participants are learning about the Pokémon are being used in a game. Additionally, we might have to change the information from "pros and cons" to personality traits of the Pokémon. Not only were some methods flawed, there can be other factors that we did not take in account of too. One's curiosity may heavily favor their vague gut feelings as they would like to seek out information in attitude-consistent ways, but their curiosity may have an opposite effect if they want to seek out the opposite in order to understand more about the subject (Frey & Wicklund 1978). In another instance, intellectual honesty may affect a person's behavior as they may try to be unbiased, and try to be more fair when selecting their options. Rather than focusing too much on these factors,

we may consider them unique or rare circumstances so we could possibly not factor in these conditions.

However we go about trying to fix the experiment, we must also understand that these results may not be a great example of what happens in the real world. Our CSs are Pokémons so the effect in this experiment may not reflect how one would be conditioned or selectively exposed when it pertains to human beings and other important ideas. Pokémons are just cartoon characters that people may be exposed to every once in a while in their life while other concepts, subjects, and people are consistently present. Therefore, these attitudes or vague gut feelings in our experiment may not have a long lasting effect. To add, even if we switched out our CSs to involve consistently exposed subjects and people, we still do not know if these effects would be either short term or long term effects. We must further try to improve the study to see if these attitudes could stay or develop into stronger attitudes over time.

Being able to understand if these effects can influence the real world is important as there can be many positive or negative uses with that knowledge. Evaluative conditioning can have a strong effect on people's implicit attitudes through the use of marketing (Bosshard, Koller, & Walla 2019). Researchers have stated that evaluative conditioning can have a significant effect on consumers as long as advertisers do not run the same ad for too long, and also a single pairing of US and CS would be sufficient. The fact that advertisers know how to target the consumers to instigate a positive attitude towards their product can be beneficial to their company. However, consumers can be completely unaware of these effects, and could be easily manipulated and exploited into purchasing products that may take more of a toll in their lives. Additionally, well-liked brands have shown resistance to evaluative conditioning effects, which means that maybe only newer brands who have a neutral image may be able to manipulate the market more easily.

Furthermore, media allows for users to freely selectively expose themselves to any information they would like to gain access to. Specifically, the internet allows its users to freely search to look up information to disambiguate, or to even change their attitudes completely and continue to strengthen their new attitudes. Social media users can select who they would like to "follow" on Instagram or Twitter that agrees with their attitudes, and "unfollow" those they disagree with. Interestingly, you can see this in mob mentalities on social media when an influencer, someone who has a lot of followers and can have powerful influences on others, behaves in ways where the general public would agree or disagree. Some social media users group together to unfollow or follow, resulting in fame or cancel culture for the person involved.

Overall, implicit attitudes are present and can be influenced by the many ways people use and process information. Although we hypothesize that we could create a scenario where people could develop and use vague gut feelings to further strengthen them into stronger attitudes, the results did not strongly support that hypothesis. If we were to rethink the design of the experiment and consider external validity, then perhaps this experiment could have well-supported the hypothesis. Regardless, the interesting results gave more insight on how important evaluative conditioning and selective exposure is when used in the real world.

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