

## **Excitation-Transfer Theory**

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### **Introduction**

Excitation-transfer theory is an extension of Schachter's two-factor theory of emotion and Hull's drive theory. Hull's drive theory explains that a physical excitation can provide "drive" for behaviors which need it after the stimuli (Bryant & Miron, 2003, p. 33).

Schachter's two-factor theory of emotion claims that emotion is made up of a person's perception of non-emotion-specific internal physical excitation (a high energy state) and their attribution of a cognitive label (fearful, amused) based on perception of external, environmental cues (Bryant & Miron, 2003, p. 33).

Excitation-transfer theory maintains that emotion consists of a physical high energy state and a cognitive label. It suggests that emotional magnitude can be manipulated by a non-emotion-specific high energy physical state. In particular, it suggests that this physical excitation can be produced by communication, physical circumstances (like exercise or other adrenaline inducing activities), or other emotion. Then, that excitation can later be mistakenly attributed to a felt emotion, intensifying that emotion. For example, if someone thinks they've stepped on a snake, and is then shown that the snake isn't real, they may become quite angry or very amused. The excitation from the fear transfers to the anger or amusement.

This phenomenon and theory are interesting because they influence the flow of emotion; communication has the potential to influence and be influenced greatly by that emotion. Ultimately, to assess whether or not this theory is useful, we must examine its claims, including that all emotion is driven by a nonspecific physical excitation. To do this, we will explain the origins of excitation-transfer theory, discuss its evolution, and assess its validity in light of a changing landscape of literature.

## Overview of Excitation-Transfer Theory

Excitation-transfer theory was defined in the 1970s by a series of studies by Dolf Zillmann, describing a theory that both includes and expands beyond the demonstrable effect in Zillmann and Bryant (1974). Its claims vary slightly over time, especially because some of the theories of emotion it is built on, namely Schachter's two-factor theory of emotion, have issues with replication. There's an incredible amount of overlap in Hull's drive theory, Schachter's misattribution theory, and Zillmann's excitation-transfer theory (Bryant & Miron, 2003).

Schachter, Hull, and Zillmann all express that emotion has two parts: an excitation or arousal, and a cognitive label (Bryant & Miron, 2003). The excitation is a physical state, and does not disperse quickly despite the ability to switch cognitive label near instantaneously. Going forward, this physical high energy state will be referred to as excitation or arousal.

Zillmann's excitation-transfer theory suggests that when there is an initial excitation or arousal which puts someone into a higher energy state, and then there is another stimuli which excites that person (not necessarily much at all), the emotion (cognitive label) that the person applies to that new stimuli is magnified by the residual excitation from the first stimuli. As Bryant and Miron (2003) explains, "the nonspecific excitation . . . produced by subsequent stimuli 'piggybacks' prior residual excitation" (p. 48). This is a relatively frequent pattern. One basic example of it is when someone is in a high energy state and is insulted. They most likely will become more aggressive than they normally would have if the insulted subject was not in a high energy state. This is the phenomenon demonstrated in Zillmann and Bryant (1974).

The theory started out with a simple focus on misattribution of excitation. Zillmann (1971) explains that the magnitude of an emotion can be influenced by the "level of excitation present at the time," which can be "transferred from a prior to a subsequent state"

(p. 422). This excitation can come from varied sources including aggressive communication (Zillmann, 1971) or exercise (Zillmann et al., 1972). In theory, it can be transferred to any emotion, as emotions here are considered cognitive labels for excitation under the ideas in two-factor theory (Zillmann, 1971, p. 421). Studied examples of transfer include anger as measured by behavior (Zillmann, 1971), amusement (Cantor et al., 1974), sexual arousal (Cantor et al., 1975), and others. There has been the most study on the transfer of excitation with regard to aggression and anger.

### **Evolution**

As research on this phenomenon progressed, so did the theory of emotion. There was also a recognition of the limits of both two-factor theory and excitation-transfer theory that led to some refinement. In particular Cantor et al. (1975) recognized a time based component. Excitation is not recognized as an increase in magnitude of emotion when the subject perceives the initial stimuli is causing the excitation; instead there is a phase between the end of the excitation and the end of the subject's perception of the excitation when transfer is possible (Cantor et al., 1975).

This limit actually breaks with Schachter's two-factor theory. Schachter's model expects a subject to attribute emotion cognitively based on external factors and environment, but in this case, there is a sense that previous cognition and a person's sense of what influences them play a role (Bryant & Miron, 2003, p. 40).

In response, Tannenbaum and Zillmann (1975) suggests a new three factor theory of emotion that builds on but refines Schachter's two-factor theory. Excitation-transfer theory is not changed much, as this new theory is more or less built around it as described in Cantor et al. (1975). In particular, it adds the factor of disposition, describing a person's previous emotional states and predisposition to emotional states. It keeps Schachter's excitation factor, and replaces cognitive attribution with a more abstract appraisal function that allows for previous cognition and a sense of what influences oneself. One practical

application of the new inclusion of disposition and appraisal in excitation-transfer is the impact of mass media. Tannenbaum and Zillmann (1975) explains that because most people do not believe themselves to be very influenced by media, the “misattribution of accruing arousal” is more likely, leading to “transfer effects in his postcommunication behavior” (Tannenbaum & Zillmann, 1975, p. 187). In other words, media is likely to influence people’s emotional state and behavior, especially when they do not recognize this themselves.

### **Critical Assessment of Excitation-Transfer Theory**

This theory has changed over its lifetime, but there are many studies establishing that the phenomenon it studies exists. The biggest problem with it is its foundation in two-factor theory, because there have been studies which fail to replicate its foundational experiments; a summary explains that “Schachter’s (1964a, b) theory is not well supported by the research, but the available evidence has not necessarily disproven the theory either” (Cotton, 1981, p. 1). Because of this failure to reproduce and relative lack of evidence, it’s reasonable to reassess the two-factor theory’s assumption that all emotions have the same nonspecific arousal. This is a claim that demands thorough examination and evidence before it should be taken as fact. As Cotton (1981) explains, “Other theorists do not treat emotion this way; they believe that different emotions have different physiological concomitants, and they emphasize cognitive processes to a lesser degree” (p. 2).

Despite excitation-transfer theory’s break with two-factor theory, they still share the nonspecific arousal component of emotion. Many of Zillmann’s early studies focused specifically on aggression (Zillmann, 1971; Zillmann & Bryant, 1974; Zillmann et al., 1972), which doesn’t necessarily generalize to all emotion. There has since been study on other emotions, with positive results: Cantor et al. (1974) found that jokes were perceived as funnier due to excitation transfer from communications based on “excitatory potential” rather than the positive or negative tone of the communication. Cantor and Zillmann (1973) found an excitation transfer effect on the appreciation of music. These studies verify that

excitation-transfer theory can effect amusement and music appreciation, but it's hard to prove that excitation-transfer effects every emotion. Excitation-transfer theory isn't proven to occur (or occur equally) in all cases.

Beyond the criticisms of the excitatory component of emotion (in both two-factor theory and in excitation-transfer), the main question to ask is whether or not the theory adequately explains the processes and cause behind the phenomenon it describes. The theory seems to have enough study and refinement that it can accurately predict outcomes of excitation transfer from physical excitation to behavior and emotions, but it's hard to tell if the internal model for why that transfer happens is true.

### **Conclusion**

This accuracy in prediction is perhaps the most important part of the theory; it allows for the use of excitation-transfer in mass media (Bryant & Miron, 2003; Tannenbaum & Zillmann, 1975), communication (Zillmann & Bryant, 1974), and daily life (Tannenbaum & Zillmann, 1975). The theory is useful regardless of whether or not the reasoning behind it is sound.

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