

FULL PAPER

Again and again (and again): A repetition-frequency-model of persuasive communication

Immer wieder und wieder (und wieder): Ein Modell zur Erklärung von Wiederholungseffekten in der persuasiven Kommunikation

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Abstract: This article develops a model to explain contradictory findings on the effects of repeated exposure to persuasive communication. The model's starting point is the repetition frequency of a given stimulus. This determines – in interaction with variables relating to the stimulus, the recipients, and the context – whether the repeated stimulus is perceived consciously or unconsciously. If the recipient perceives the stimulus consciously, this can lead to habituation to the stimulus and to peripheral processing; alternatively, the recipient can become sensitized to the stimulus, which can result in central processing and perceiving the stimulus as a persuasive attempt. Moreover, mere-exposure effects can also have an influence on the perception of the stimulus, independent of the other paths described.

Keywords: Repetition effects, persuasive communication, advertising effects, two-factor models, mere exposure

Zusammenfassung: Der vorliegende Beitrag entwickelt ein Modell, um die konträren Befunde zu Wiederholungseffekten persuasiver Kommunikation zu erklären. Ausgangspunkt des Modells ist die Wiederholungsfrequenz, mit der ein persuasiver Stimulus dargeboten wird: Diese entscheidet (in Interaktion mit Eigenschaften des Stimulus, des Rezipienten und des Kontexts) zunächst, ob der wiederholte Reiz nur unbewusst wahrgenommen wird oder ob der Rezipient diesen bewusst wahrnimmt. Falls der Rezipient den Stimulus bewusst wahrnimmt, kann dies einerseits eine Gewöhnung an den Reiz bewirken und zu einer peripheren Verarbeitung führen. Andererseits kann der Rezipient für den Stimulus sensitiviert werden, was eine zentrale Verarbeitung und die Aktivierung von Persuasionswissen bewirken kann. Unabhängig von diesen beschriebenen Pfaden beeinflussen zudem Mere-Exposure-Effekte die Wahrnehmung des Stimulus.

Schlagwörter: Wiederholungseffekte, persuasive Kommunikation, Werbewirkung, Zwei-Faktoren-Modelle, Mere-Exposure-Effekt

1. Introduction

There are many persuasive stimuli to which recipients are exposed repeatedly: Commercials run hundreds of times, advertising banners are omnipresent, and, during elections, identical placards line entire city blocks. Arguments for or against political, social, or economic projects are presented time and again. Thus,

frequent exposure to the same persuasive stimuli is more the rule than the exception. Yet, effects of repeated exposure to persuasive communication have generated hardly any attention among media effects researchers. For the most part, researchers present a stimulus (e.g., a statement or advertisement) to their experimental subjects only once, and assume – implicitly or explicitly – that repeated exposure would evoke similar effects.

This assumption, however, is problematic, as the perception of persuasive stimuli changes when they are presented repeatedly (Anand & Sternthal, 1990; Belch, 1982; Berlyne, 1970; Grass & Wallace, 1969; Harrison, 1968; Janiszewski & Meyvis, 2001; McCullough & Ostrom, 1974; Mitchell & Olson, 1977; Pechmann & Stewart, 1988; Ronis, 1980; Saegert & Jellison, 1970; Sawyer, 1981; Zajonc, 1968). An advertising placard seen a second, third, or tenth time is perceived differently than when it was first seen. For example, a humorous placard could, at first, make the recipient laugh, evoking positive emotions towards the product being advertised. If the placard is seen five times a day, however, the recipient might not laugh anymore – the placard might instead no longer be consciously perceived, or even become annoying. There is, accordingly, much evidence to suggest that the link between the persuasive effect of advertising and the number of repetitions is not a strictly linear one. Many studies have shown that a moderate number of repetitions often increases the persuasive effect, while excessive exposure weakens or reverses this effect (Anand & Sternthal, 1990; Cacioppo & Petty, 1979, 1989; Campbell & Keller, 2003; Johnson & Watkins, 1971; Nordhielm, 2002; Pechmann & Stewart, 1988; Ronis, 1980; Sawyer, 1981; Stewart, 1964; Weiss, 1969; Wilson & Miller, 1968).

Although media effects research had already begun describing these effects in the early 1900s (Poffenberger, 1925; Strong, 1914), hardly any elaborated approaches were developed to theoretically explain contradictory findings. The present article will therefore start by describing the existing empirical findings on the effects of repeated exposure to persuasive communication. Three models will then be presented, with an aim to shed light on these effects. While these models do have some explanatory value, they do not do justice to the complexity of the processes. Based on these models, empirical findings, and diverse theoretical approaches, an integrated model then will be developed to clarify the effects of repeated exposure to persuasive stimuli.

2. Repeated exposures to persuasive stimuli: Contradictory findings

The paper at hand focuses on *attitudinal* effects of repeated exposure to persuasive stimuli. Admittedly, repeated exposure to persuasive communication not only affects attitudes: Credibility (Dechêne, Stahl, Hansen, & Wänke, 2010; Hasher, Goldstein, & Toppino, 1977), behavior (Miller, 1976), perceived fame (Jacoby, Kelley, Brown, & Jasechko, 1989), or ethical questions (Weeks, Longenecker, McKinney, & Moore, 2005) have likewise been identified as relevant dependent variables. Yet, research on persuasive communication has often focused the attitudinal dimension because this provides reliable insight into explanation and prediction of behavior (Stiff & Mongeau, 2003). Attitudes are an important link

between what people think and what they do: They guide social actions as diverse as health behaviors (e.g., vaccinating, drug abuse), shopping behavior, or voting decisions, to mention a few. However, conceptualizing most of such behavioral effects must take into account temporal aspects of attitude formation. Research on repeated exposure to certain stimuli, though, has yielded mixed results regarding the effects on attitudes.

The first group of studies are those that demonstrate that repeated exposure to a stimulus improves recipients' attitudes towards this stimulus (Harrison, 1968; Johnson & Watkins, 1971; Matlin, 1970; McCullough & Ostrom, 1974; Miller, 1976; Zajonc, 1968; Zajonc & Rajecki, 1969); a root function (Strong, 1914), a nearly linear (Zajonc, 1968), and a logarithmic relationship (Harrison, 1968) have all been discussed as possible functions for this phenomenon. However, the studies that show such an improvement in attitude as a result of repeated exposure generally do not look at the effects of persuasive communication, but rather at how recipients' attitudes are influenced by exposure to non-persuasive stimuli, such as drawings or meaningless syllables. Such findings are most commonly explained by the mere-exposure effect (Bornstein, 1989; Zajonc, 1968), which holds that repeated exposure to a stimulus leaves implicit traces of memory in the mind. These traces increase processing fluency. This means that, upon subsequent exposures, recipients can process the stimulus more fluently and therefore more easily (Bornstein & D'Agostino, 1992; Seamon et al., 1995). This easier processing leads to a more positive experience for recipients, who then transfer this positive feeling onto the stimulus itself (Reber, Schwarz, & Winkielman, 2004; Reber, Winkielman, & Schwarz, 1998). This false attribution leads recipients to positively evaluate stimuli to which they are repeatedly exposed.

The second group comprises of studies in which repeated exposure to a stimulus remains ineffectual, or in which, after initial exposure, no additional effect of repeated exposure is observed (Arkes, Boehm, & Xu, 1991; Belch, 1982; Gigerenzer, 1984; Mitchell & Olson, 1977; Rethans, Swasy, & Marks, 1986). This effect has been studied, most notably, in media effects research, where it is known as commercial wearout (Appel, 1971; Calder & Sternthal, 1980; Craig, Sternthal, & Leavitt, 1976; Grass & Wallace, 1969; Pechmann & Stewart, 1988). Understood more narrowly, this concept refers to the reduction of an advertising campaign's effectiveness as a result of excessive repetition. In most cases, there is no additional effect of further repetitions, which is attributed to dwindling attention paid to known stimuli.

The third group of studies shows the exact opposite effect from that presented in the preceding paragraph; in these studies, stimuli presented more often are viewed more negatively (Berlyne, 1970; G. N. Cantor, 1968). Berlyne (1970) showed that complex stimuli are experienced more positively with increasing exposure, while simple stimuli are viewed more negatively with more repetition. Cantor (1968), using the Welsh Figures Preference Test, demonstrated that children take a more positive view of figures presented for the first time and a more negative view of figures that are presented repeatedly. These findings are explained with reference to the novelty of a new stimulus, because it is assumed to be more interesting and therefore more cognitively stimulating (Berlyne, 1970;

Stang, 1975). However, this effect has only been found in a few studies dealing with non-persuasive stimuli, and both Berlyne (1970) and Stang (1975) have emphasized that their findings are limited to the specific stimulus material used.

The fourth group of studies shows that, under certain circumstances, repeated exposure initially evokes more negative attitudes towards the stimulus, but, after a moderate number of repetitions, these attitudes become more positive. However, only a few studies have reported such a U-shaped attitudinal curve, and these findings only resulted from very specific circumstances (Anand & Sternthal, 1990; Saegert & Jellison, 1970; G. F. Smith & Dorfman, 1975). In these studies, this effect is moderated by the complexity of the stimuli, which has a negative impact on the ease of message processing; the pattern therefore tends only to occur for stimuli with low to moderate complexity.

A fifth group of studies shows a reverse U-shaped (i.e., bell-shaped) attitudinal curve: Recipients' attitudes towards a stimulus become more positive up to a certain point; after a certain level of repetition, the effect reverses and the attitudes become more negative (Anand & Sternthal, 1990; Batra & Ray, 1986; Cacioppo & Petty, 1979; Calder & Sternthal, 1980; Harrison & Crandall, 1972; Nordhielm, 2002; Ray & Sawyer, 1971; Rethans et al., 1986; Zajonc, Shaver, Tavis, & Van Kreveld, 1972). This bell-shaped attitudinal curve is the most commonly seen pattern in studies of repeated exposures to persuasive message. The authors usually explain the initial improvement in attitudes as being the result of mere-exposure effects (i.e., more frequent exposure leads to more positive attitudes towards the stimulus), while excessive exposure is linked to the recognition of persuasive intent and the resulting reactance, which in turn has a negative impact on attitudes (Friestad & Wright, 1994; Moyer-Gusé & Nabi, 2010).

3. Overview of existing models of repetition effects

3.1 Berlyne's two-factor theory

"The leading explanation for the effects of repeated exposures to advertising messages is based on Berlyne's two-factor theory" (Anand & Sternthal, 1990, p. 345). Berlyne (1970) took as his starting point the bell-shaped curve of attitudes that is often been observed as a result of repeated exposures to persuasive stimuli. To explain these findings, he postulates the existence of two antagonistic, simultaneous processes (i.e., his two factors), the strength of which changes depending on the number of presentations: Repeated exposures supposedly reduce the uncertainty that new stimuli necessarily entail, resulting in positive habituation to the stimulus (Factor 1), while excessive exposure can lead to monotony, saturation, or reactance, therefore evoking tedium (Factor 2). After a certain number of repetitions, tedium becomes predominant, and further exposure reduces positive attitudes towards the stimulus. To sum, positive habituation initially dominates, but monotony builds after excessive exposure; repeated exposures thereby initially lead to positive attitudes, which shift to less-positive attitudes after a certain number of repetitions, resulting in a bell-shaped curve. Berlyne mentioned three key explanatory variables as determining which of the two factors predominates: The

number of repetitions, the complexity of the stimuli, and the presentation context. The author therefore postulates the existence of an optimal level of repetition, which varies in relation to the complexity of the stimuli and the presentation context.

“Here let us note, that because it provides an easy way of reconciling diverse results, Berlyne’s two-factor theory has gained considerable acceptance” (Harrison, 1977, p. 67). However, this oversimplification of the mechanisms harbors numerous problems; only the four most pivotal ones will be addressed here. First, while the model explains the effects of abstract, non-persuasive stimuli, it neglects the specific aspects of persuasive communication (and mechanisms like recognizing the persuasive intent). Second, the model does not differentiate between conscious and unconscious processing, but implicitly assumes that both processes occur more or less unconsciously. Third, the model explains neither the psychological mechanisms of positive habituation, nor the mechanisms that ultimately engender tedium. Fourth, the model does not address how the message is processed, ignoring the possibility that recipients might get used or sensitized to a stimulus and process it centrally or peripherally. In light of these serious limitations, Berlyne’s model represents an extremely simplified two-way process, and raises more questions than it answers. Hence, the “two-factor theory has emerged as the leading, though not always adequate, explanation for the effects of repeated exposures to advertising messages” (Anand & Sternthal, 1990, p. 250).

3.2 Stang’s two-factor theory

Stang (1975) modifies Berlyne’s (1970) two-factor theory by postulating that repeated exposure is not tied to habituation, but rather to a learning process. Stang operates on the assumption that repeated exposure to a stimulus gives the recipient more opportunity to learn something about this stimulus; this learning process is experienced as positive, and therefore the attitude towards the stimulus improves. With increasing repetition, tedium sets in, and the attitude becomes more negative. Although Stang demonstrates these postulated links with three experiments using Turkish words and trigrams, the same criticisms that were raised regarding Berlyne’s two-factor theory can be applied to Stang’s model. Further, Stang’s idea of a learning process introduces even more ambiguity. It is unclear, for example, whether learning leads to more positive attitudes, or, conversely, whether positive attitudes increase the ease of learning (Cacioppo & Petty, 1979). It is also unclear whether this type of link between emotion and learning exists at all (Greenwald, 1968).

3.3 Cacioppo and Petty’s two-stage model

Cacioppo and Petty (1979, 1980, 1989) build on Stang’s ideas to develop a “two-stage argument elaboration model of message repetition.” The fundamental idea of their model is that during the first stage, recipients have more opportunities to consider arguments and reflect on their meaning, how they relate to one another, and what the resulting implications could be. Thus, recipients process the persua-

sive message more centrally and engage in elaboration (Petty & Cacioppo, 1986). During the second stage, the authors postulate that excessive exposure could lead to tedium or reactance. This would, in turn, negatively affect information processing. Cacioppo and Petty's model offers an explanation very similar to those already presented from Berlyne and Stang: The effects of repeated exposure are grounded in two antagonistic processes, for which, depending on the number of repetitions, either the positive or the negative process can predominate.

3.4 Criticism of these three models

Both two-factor theories and the two-stage model presented in the preceding sections offer explanations for the contradictory findings on the effects of repeated exposures. Depending on which of the paths is predominant at a given point in time, these models can illustrate various processes. However, these very simple models quickly reach their explanatory limits, with their five main weak points presented briefly below.

The first weak point is that all three of these models proceed from the assumption that the number of presentations is crucial in determining which of the two paths will become dominant, an assumption which is problematic for two reasons. The first reason is that the number of presentations should take into account the time intervals by which presentations are separated (repetition frequency), since it is of great importance whether product placement, for example, occurs on screen multiple times within a minute, or occurs periodically over the entire length of a film. The second reason is that repetition frequency should be considered in its interaction with variables linked to the stimulus, the recipients, and the context; a stimulus can be ignored despite high presentation frequency, if, for instance, it is designed to be inconspicuous, or if it is integrated into its context and the recipient is not paying much attention. The interaction of the repetition frequency with variables linked to the stimulus, the recipients, and the context should therefore constitute the starting point for creating any theoretical model.

The second main weak point of the three models discussed is that none of them sufficiently differentiate between the conscious and unconscious perception of stimuli. While Berlyne's (1970) two-factor theory focuses more on the unconscious perception of stimuli, Stang's (1975) approach and Cacioppo and Petty's (1979) two-stage model are based more on the conscious perception of stimuli. Both, conscious and unconscious perceptions can be relevant, as a function of repetition frequency, as well as of variables linked to the stimulus, the recipients, and the context. Indeed, particularly strong positive effects of persuasive stimuli can occur when the stimuli have not even been noticed (Matthes, Schemer, & Wirth, 2007), which could not be explained by Cacioppo and Petty's two-stage model (Nordhielm, 2002). Any model would have to take into account both, the conscious and unconscious perception of repeatedly presented stimuli, as well as the fact that mere-exposure effects can occur with both the conscious and the unconscious processing of stimuli (Stafford & Grimes, 2012).

The third weakness of the models discussed is that they do not sufficiently explain the psychological mechanisms that underlie the generation of positive atti-

tudes. The question of why positive habituation occurs in the first place, as well as what processes lead to such positive attitudes, is treated only marginally. Although, the increase of perceptual fluency with repeated exposure and the resulting familiarity with the stimulus could provide a good explanation for these processes (Bornstein, 1989; Bornstein & D'Agostino, 1992, 1994; Reber et al., 2004; Reber et al., 1998; Seamon et al., 1995). It also remains unclear as to why in both, Stang's as well as Cacioppo and Petty's model, positive effects arise as a result of learning processes. The emergence of positive attitudes does not require a certain amount of time to process the stimulus, as the two-stage model suggests: Indeed, very brief exposure to stimuli – including, often, stimuli that are not even consciously perceived – has been shown to evoke positive attitudes (Bornstein, 1989; Bornstein & D'Agostino, 1992).

The fourth weakness of all three models is their vague description of negative reactions. While both Berlyne and Stang's two-factor theories explain these effects with the notion of tedium, Cacioppo and Petty's two-stage model focuses on reactance, making negative associations and negative elaborations more available. Unanswered questions include how exactly the authors define reactance and tedium, why these negative reactions are evoked, and what impact these negative reactions have.

The fifth and final core weakness of these three models is that they do not sufficiently describe why some stimuli can evoke positive reactions even after a high number of repetitions, while other stimuli trigger aversive reactions after only a few repetitions. This shortcoming results from a failure to take into account the two possible adaptational reactions on the part of the recipient. On one hand, the recipient might familiarize him or herself with a repeated stimulus, and consequently stop processing it centrally. On the other hand, repeated exposures could, alternatively, sensitize the recipient to the stimulus, causing the recipient's attention to focus more strongly on the stimulus with each additional repetition.

4. The repetition-frequency-model of persuasive communication

4.1 Basic concepts: repetition frequency and its interaction with the stimulus, the recipients, and the context

To capture the repeated exposure effects of persuasive communication, the starting point of this model is the repetition frequency of a persuasive stimulus, i.e., the number of times the stimulus in question is presented within a certain time interval. With this established, the model departs from approaches that instead assume the number of presentations to be the key variable of repeated exposure effects. As early as a hundred years ago, Strong (1914) highlighted the relevance of differentiating between the number of presentations and the frequency of repetition. This difference is intuitively clear: If a commercial can only be run ten times, it is crucial to know whether it will have maximum impact when run over the course of several months or in quick succession. A high repetition frequency fosters mere-exposure effects, increases the probability that a stimulus will be consciously perceived, and can lead to sensitization to the stimulus. The precise effects of repetition frequency depend on variables relating to the stimulus, the

recipients, and the context; the interaction between which determines how recipients perceive and process persuasive messages.

The complexity and obtrusiveness of the repeated stimulus can, however, moderate the effects of repetition frequency. This idea is not new. In Berlyne's (1970) two-factor theory, complexity constitutes an important factor, whereby simple stimuli are assumed to evoke tedium more quickly than complex stimuli. Empirical testing has confirmed that, after repeated presentation, recipients take a more positive view of complex stimuli than of very simple stimuli (Anand & Sternthal, 1990; Berlyne & Lawrence, 1964; Janiszewski & Meyvis, 2001; Saegert & Jellison, 1970; G. F. Smith & Dorfman, 1975; Zajonc, Crandall, Kail, & Swap, 1974). However, categorizing various stimuli as complex or simple often seems arbitrary; Berlyne, for instance, classifies Zajonc's (1968) Chinese characters, foreign words, or pictures of faces as complex stimuli, while categorizing images from Cantor's (1968) Welsh Figure Preference Test as rather simple. The second attribute of stimuli, obtrusiveness, includes the length of presentation and its conspicuousness (Koch & Ruland, 2011). Inconspicuous stimuli are often experienced positively, even when presented repeatedly, while conspicuous or obtrusive stimuli are often negatively perceived (Bornstein, 1989; Bornstein & D'Agostino, 1992; Cowley & Barron, 2008; Russell, 2002). Another crucial difference is whether the same stimulus is presented repeatedly, or whether recipients are also exposed to slightly modified versions. If recipients believe that the message contains new information, they are more likely to be willing to change their attitude than if they think that the same message is being repeated (McCullough & Ostrom, 1974; Schumann, Petty, & Clemons, 1990).

Recipients' individual characteristics also interact with effects of repetition frequency. Such characteristics include prior knowledge and existing attitudes, as well as personal relevance and involvement (Claypool, Mackie, Garcia-Marques, McIntosh, & Udall, 2004; Nordhielm, 2002). The presence of any of these characteristics may increase recipients' attention: If, say, a certain issue is highly personally relevant to the recipient, he or she will pay more attention to it, and process the repeated message more centrally (Claypool et al., 2004). Although attentive processing does induce a deeper and more conscious processing of repeated messages, it also shifts the focus to the repeated presentation itself, which can activate knowledge of persuasive intent (Friestad & Wright, 1994).

The context in which the stimulus is presented also moderates the effects of repetition frequency. Processing fluency, for example, is heavily influenced by whether the stimulus differs from a standard presented at the same time (Dechêne, Stahl, Hansen, & Wänke, 2009; Hansen, Dechêne, & Wänke, 2008; Malaviya, 2007; Whittlesea & Williams, 2000, 2001). A very conspicuous and distracting context can weaken the effects of repeated exposure by straining cognitive resources, which would otherwise be used to examine the stimulus more closely (Malaviya, 2007). Indeed, in two studies the effects of repeated exposure have failed to appear when competing (Burke & Srull, 1988), or completely different products (Rethans et al., 1986) were advertised simultaneously.

The interaction between repetition frequency and variables relating to the stimulus, the recipients, and the context determines, first, the strength of fluency effects generated by repeated presentation (Path 1), and, second, whether a stimu-

lus is perceived unconsciously (Path 2a) or consciously. If perceived consciously, the question is whether habituation (Path 2b) or sensitization (Path 2c) will set in. For Path 2c, the interaction determines the extent to which knowledge of persuasive intent is activated (see for all paths Figure 1). These four possible paths presented in the following section demonstrate this model's ability to resolve prior contradictory findings on the effects of repeated exposure. As mentioned before, the model focuses on attitudinal effects. Rokeach (1968) provides a prominent definition of attitudes, describing them as "a relatively enduring organization of beliefs around an object or situation predisposing one to respond in some preferential manner" (p. 112). Attitudes can be understood as an enduring combination of descriptive, prescriptive, and evaluative beliefs. Individuals learn these combinations over time. Hence, attitudes do not constitute just a momentary emotional state, but become quite stable, making it quite difficult to change them. Therefore, persuasive communication effects are not limited to attitude change, but also refer to messages intended to shape or reinforce attitudes or other responses such as emotions or behaviors (Miller, 1980).

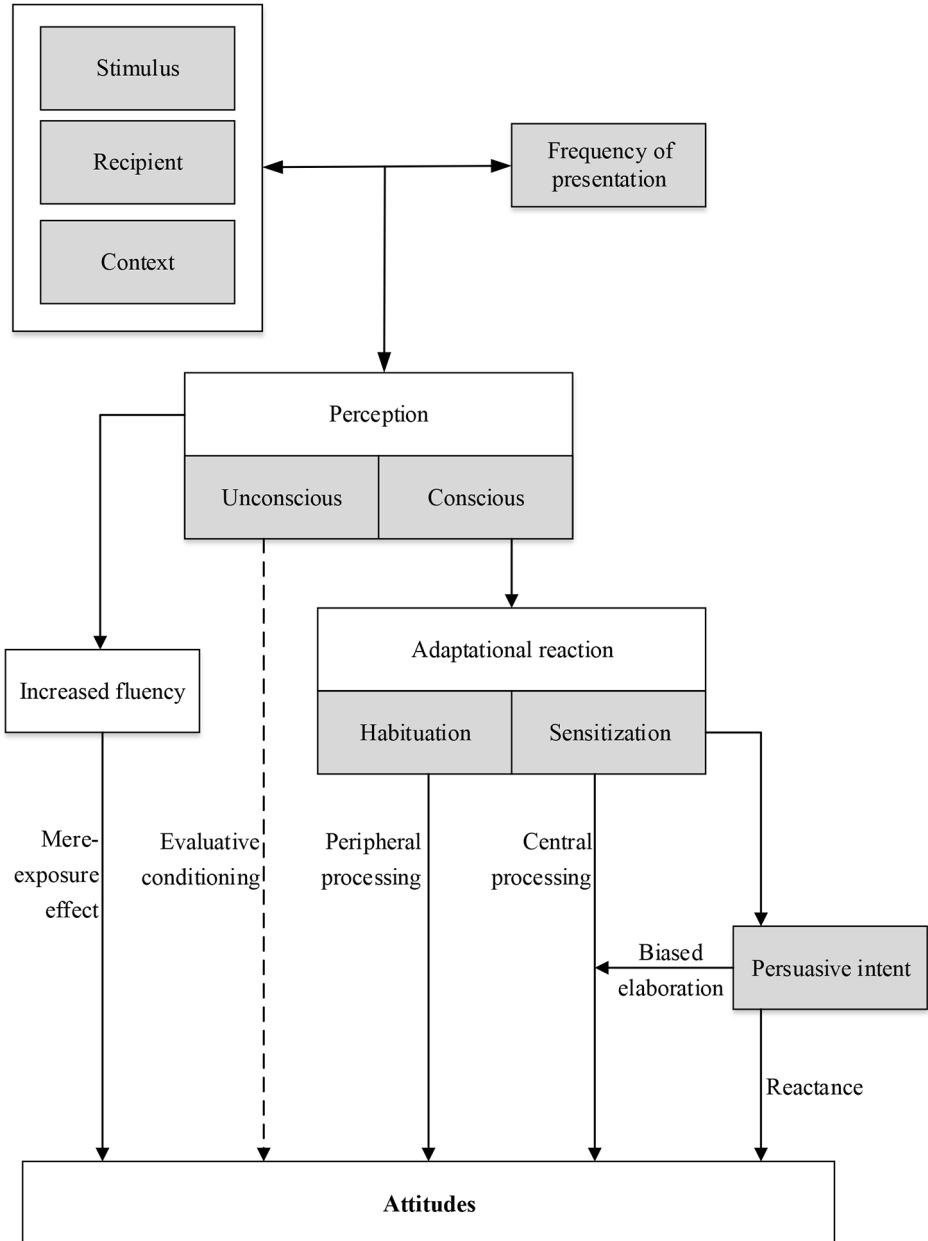
4.2 Path 1: Repeated exposure increases fluency

The first path in this model is completely independent of the other three paths; i.e., repeated exposure to a persuasive stimulus leads to more fluent processing, which in turn can result in more positive attitudes towards the stimulus. The cognitive mechanisms responsible for this have been thoroughly studied, and it is accepted that every unconscious or conscious perception of a stimulus leaves traces of memory in the mind (Bornstein, 1989; Bornstein & D'Agostino, 1992, 1994). After numerous presentations, a stimulus seems more familiar, and can therefore be processed more fluently (Bornstein, 1989; Bornstein & D'Agostino, 1992, 1994; Reber et al., 2004; Reber et al., 1998; Seamon et al., 1995). This more fluent processing is experienced positively by recipients, who then tend to engage in metacognitive misattribution, transferring these positive feelings onto the stimulus itself (Fang, Singh, & Ahluwalia, 2007; Harrison, 1977; Seamon et al., 1995; Zajonc, 1968). This effect, known as the mere-exposure effect, is believed to occur with particular intensity when recipients show weak involvement (Bornstein, 1989; Bornstein & D'Agostino, 1992), and when stimuli are perceived in passing (Bornstein, 1989). These fluency mechanisms affect both visual and auditory stimuli, which, for example, are then assessed as being more credible (Dechêne et al., 2010; Hasher et al., 1977; Koch & Zerback, 2013; Reber & Schwarz, 1999; Schwartz, 1982).

The strength of these effects also depends on repetition frequency and on its interaction with variables relating to the stimulus, the recipients, and the context. Studies on non-persuasive stimuli have generally shown that fluency increases with repetition frequency, and attitudes towards the stimulus consequently become more positive (Harrison, 1968; Johnson & Watkins, 1971; Matlin, 1970; McCullough & Ostrom, 1974; Miller, 1976; Zajonc, 1968; Zajonc & Rajecki, 1969). Studies on persuasive stimuli have also found that moderate levels of repetition lead to more positive attitudes towards product placements (Koch & Ruland, 2011; Matthes et al., 2007; Russell, 2002), posters (Miller, 1976), arguments (Cacioppo & Petty, 1979), and advertising messages (Anand & Sternthal, 1990; Weiss, 1969); however,

a very high presentation frequency has been found to lead to a weakening of these effects, or even to a negative shift in attitudes (Path 2c and its underlying mechanisms provide a clear explanation of this effect later in the present paper).

Figure 1. Repetition-frequency-model of persuasive communication



4.3 Path 2a: Unconscious perception of persuasive stimuli

The repeated presentation of a persuasive stimulus can also remain completely unnoticed. Recipients often do not consciously perceive very inconspicuous or disguised stimuli (e.g., product placements integrated seamlessly into their context and surroundings), but the probability that a stimulus will be noticed increases with presentation frequency. However, even if recipients fail to consciously perceive a stimulus despite repeated exposure, this does not mean that the stimulus will not evoke any effects. The first reason is outlined in the above section on Path 1, which proceeds via fluency and explains why mere-exposure effects can also occur unconsciously and attitudes towards a persuasive stimulus can improve unconsciously (Russell, 2002).

Apart from that, an evaluative conditioning process can also occur without conscious perception of the stimulus (Allen & Janiszewski, 1989; Walther & Grigoriadis, 2004). This process is similar to that of classic conditioning; i.e., the repeated presentation of a neutral stimulus within spatial and temporal proximity of a second, unconditioned, stimulus, which then evokes what are often instinctive reactions. After repeated coupling of these two stimuli, the presentation of the originally neutral stimulus begins to evoke the same reaction as the unconditioned stimulus. Evaluative conditioning employs the same mechanisms, with the key difference being that, strictly speaking, it is the emotional meaning of an unconditioned stimulus, as opposed to a behavioral reaction, that is transferred onto another stimulus to form or change attitudes (Allen & Janiszewski, 1989). Processes of evaluative conditioning naturally require the coupling of two stimuli, easily possible in the case of product placement (Schemer, Matthes, Wirth, & Textor, 2008).

4.4 Path 2b: Conscious perception and habituation

The probability of the recipient consciously noticing the stimulus is higher if a repeatedly presented persuasive stimulus is particularly conspicuous, the recipient particularly attentive, the context not too distracting, and the repetition frequency very high. Conscious perception of the stimulus, however, does not mean that recipients will apply any effort to engage further with the stimulus (Petty & Cacioppo, 1986). The repetition-frequency-model of persuasive communication assumes that the recipient has two possible adaptational reactions: habituation or sensitization (sensitization is illustrated by Path 2c).

The repeated presentation of identical stimuli can lead to a gradual weakening of the motoric and sensory reactions (Hinde, 1970). The term habituation, in its original context, refers to alarm stimuli that are not linked with negative consequences, and whose repeated presentation leads to a decrease in the corresponding alarm and defense reactions (Hinde, 1970). The example of a loud bang illustrates this effect. The first time it is heard, everybody instinctively feels frightened and focuses their attention on the noise. However, on New Year's Eve, people quickly get used to the stimuli of loud bangs and cease focusing their attention on them. Individuals learn to notice certain stimuli less frequently, to react to them more weakly, or to ignore them completely (e.g., ticking of a clock). This habitu-

ation is not to be confused with positive habituation, which Berlyne (1970) describes as the generation of pleasant feelings (see the section on Path 1 for these mechanisms). Whether or not habituation with a stimulus occurs depends on interactions between repetition frequency and variables relating to the stimulus, the recipients, and the context. Habituation is particularly likely to occur with inconspicuously presented stimuli, which recipients tend to consider being less relevant or interesting, as well as in situations with conspicuous context conditions.

When habituation occurs, the stimulus is processed peripherally (Cacioppo & Petty, 1989; Petty & Cacioppo, 1984, 1986; Petty & Wegener, 1998). Recipients no longer involve themselves as intensely with the stimulus, dedicating less attention and processing time to repeatedly presented stimuli (G. N. Cantor, 1968; J. H. Cantor & Cantor, 1964; J. H. Cantor & Gordon, 1964; Saegert & Jellison, 1970). This does not mean that recipients no longer perceive the stimulus, but rather that, since the stimulus no longer offers any novelty value, they require less time to encode it and also have less motivation to process it (Petty & Cacioppo, 1986). As a result, arguments such as advertising slogans fade into the background, while peripheral cues gain importance. These peripheral cues can influence recipients' attitudes, although the effects are often short term and unstable. The repetition itself can even function as a positive peripheral cue (Petty & Cacioppo, 1986). Recipients could, for instance, assume that a frequently presented brand is widely available or especially reliable. However, high repetition frequency could also function as a negative cue, with recipients becoming annoyed or bored; peripheral negative associations (i.e., tedium) would then be formed (Berlyne, 1970; Stang, 1975; Cacioppo & Petty, 1979).

4.5 Path 2c: Conscious perception and sensitization

If a stimulus is presented conspicuously and frequently enough to be perceived consciously, sensitization, instead of habituation, can occur. In this case, the recipient becomes sensitized to the stimulus, which is then closely associated with central processing. Determining whether sensitization or habituation will occur depends on the interaction between repetition frequency and variables relating to the stimulus, the recipients, and the context. Sensitization is more likely to occur if recipients are forcibly exposed to a stimulus and are unable to ignore it; an example of this would be an especially conspicuous product placement in a context when recipients are extremely attentive and the context offers little distraction.

Sensitization leads to central processing of the stimulus; i.e., processing that is more in-depth and elaborated, and associated with better understanding, improved recall, and more stable attitude changes (Petty & Cacioppo, 1986). However, just because this type of processing occurs does not necessarily entail long-term persuasive effects. Petty and Cacioppo (1986) postulated in their elaboration likelihood model that there is a possibility for biased elaboration; i.e., a selective perception of a message's contents. The authors identify "excessive repetition" as one possible cause for biased elaboration (Petty & Cacioppo, 1986, p. 175), a suggestion that the proposed model takes up as well. A high presentation frequency for a persuasive stimulus – in interaction with variables relating to the stimulus, the recipients,

and the context – can cause recipients to recognize the persuasive intent and even to identify repetition as a persuasive tactic (Koch & Zerback, 2013; Koch, Zerback, & Fawzi, 2012). Recipients then see through the persuasive intent (Friestad & Wright, 1994; Moyer-Gusé & Nabi, 2010) and conclude “that the source was trying too hard to sell his case” (M. J. Smith, 1977, p. 198).

According to the repetition-frequency-model of persuasive communication, the recognition of persuasive intent can have two consequences, which can also occur simultaneously. The first possible consequence is that Petty and Cacioppo’s (1986) proposed biased elaboration can occur; in this case, the presented arguments are analyzed critically, with recipients refuting weak arguments and developing counterarguments (Cacioppo & Petty, 1979). Naturally, this has a negative influence on the processing of the message. The second possibility is that reactance will occur, as recipients can perceive persuasive intent as a threat to, or constraint on, their personal freedom (Brehm, 1966, 1972). If individuals fear that their freedom might be threatened or constrained, they are motivated to restore this freedom, a concept known as reactance (Brehm, 1972). There is strong empirical evidence in support of the link between the recognition of persuasive intent and the activation of reactance (Koch & Zerback, 2013; Moyer-Gusé & Nabi, 2010); reactance can, in turn, have a direct negative impact on the attitude towards the stimulus. The potential for high repetition frequency to evoke reactance and negatively influence recipients’ attitudes has been shown by Miller (1976) for election placards, and by Koch and Zerback (2013) for the repeated presentation of statements during interviews. The latter study found there to be simultaneous activation of a mostly unconscious positive effect induced by familiarity, along with the negative effect caused by recognition of persuasive intent and the resulting reactance.

5. Discussion

The present article shows that the three existing models that have been designed to explain the effects of repeated exposure to persuasive communication have several critical ambiguities and weaknesses, failing to distinguish between the total number of presentations and repetition frequency as well as between the conscious and unconscious perception of repeatedly presented stimuli. These three models are also quite vague in their explanations of the underlying psychological mechanisms at work, stemming from a lack of analysis of either the positive effects that can be evoked by repetition or the negative reactions that can be caused by high repetition frequency. It remains unexplained, why these effects occur, what the mechanisms are that encourage or prevent them, and what they have an impact on all remained unexplained. Finally, the three models offer no explanation as to why some stimuli can be repeated very frequently and continue to produce positive reactions, while other stimuli evoke aversive reactions after only a few presentations.

The repetition-frequency-model of persuasive communication, in contrast, explains the repeated exposure effects of persuasive communication, beginning with the repetition frequency with which a persuasive stimulus is presented. This, in

interaction with variables relating to the stimulus, the recipients, and the context, then determines the strength of Path 1 as well as whether processing will follow Path 2a, 2b, or 2c. In the first, completely independently Path 1, the repeated presentation of a stimulus increases processing fluency, making the stimulus easier to process after subsequent presentations. Since recipients falsely attribute the pleasant feeling of easier processing to the stimulus itself, the stimulus is perceived more positively with repeated presentation (mere-exposure effect). According to this mechanism, repeated presentation generally leads to more positive attitudes towards a stimulus – regardless of whether the stimulus is processed consciously or unconsciously. However, other paths can also be activated, which can moderate or even reverse this positive effect.

The frequency of repetition determines—again, in interaction with variables relating to the stimulus, the recipients, and the context—whether the repeated stimulus is perceived consciously or unconsciously. Unconscious perception does not necessarily mean that the effect on recipients is weaker; first, the mere-exposure effect can also occur independently, and second, the effects of evaluative conditioning occur unconsciously and can therefore affect recipients' attitudes.

An especially high presentation frequency tends to foster the conscious perception of the stimulus. In this event, the repetition-frequency-model of persuasive communication lays out two possible paths. The first is habituation; this is especially likely if the stimulus is inconspicuous, or if the recipient is not paying very close attention. The stimulus is no longer processed attentively and centrally, but rather peripherally, and the presented arguments recede into the background while peripheral cues gain importance. The repetition itself can also function as either a positive (e.g., implying that the advertised product is widely available or reliable) or negative (e.g., implying that the advertised product is boring or annoying) cue.

The second possible result is that the recipient will become sensitized to the stimulus, resulting in central processing. If sensitization occurs because a stimulus is, for instance, especially conspicuous, or because recipients are unable to ignore the stimulus (i.e., forced exposure), this leads to in-depth involvement with the stimulus, which could contribute to better understanding, improved recall, and more stable attitude changes. However, excessive repetition of persuasive stimuli can also result in the recipient recognizing the attempt at persuasion, triggering biased elaboration or reactance, which can impact attitudes negatively.

The core concept of the repetition-frequency-model of persuasive communication is that there are several possible paths depending on the degree of stimulus repetition. For example, an audience member in a movie theater could fail to consciously notice a well embedded, inconspicuous product placement the first time it was presented in the film, but repeated unconscious perception could evoke mere-exposure or evaluative conditioning effects, leading to more positive attitudes towards the product being advertised. After the fifth repetition within a few minutes, the recipient could become aware of the stimulus and begin perceiving it consciously. If the product placement was well integrated and the recipient was not paying much attention to the film, habituation could set in, cuing the recipient to process the stimulus peripherally. A product that had positive peripheral cues (i.e., was represented in a positive light and integrated into a positive context) might

cause the recipient to develop positive feelings towards the product. Further increase in repetition frequency might then lead to recognition of the persuasive intention behind the repetition, causing the recipient to either develop arguments against the persuasive intention (biased elaboration) or to exhibit reactance.

The repetition-frequency-model of persuasive communication outlined above still requires empirical testing to determine the extent to which altered repetition frequencies affect the activation or deactivation of these four paths. The model as presented is limited to attitudinal effects of persuasive communication. Nevertheless, the basic idea of the model can easily be adapted to other types of persuasive outcomes: Future studies should also try to explain effects on specific intentions, emotions, perceived truth, or behaviors. Moreover, future research could detect an optimal repetition frequency, although this frequency would, of course, depend on the complex interactions of repetition frequency with variables relating to the stimulus, the recipients, and the context. In this respect, an observation that Strong (1914, p. 152) made more than 100 years ago still holds true today: "It seems possible that there is an optimum length of interval between successive presentations. When that interval is lengthened the effect from each presentation is weakened. But what that optimum interval is we do not know."

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