

## 2 The Elaboration Likelihood Model

### Changing attitudes toward exercising and beyond

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#### Introduction

A considerable amount of effort is invested every year in changing people's attitudes to encourage healthier lifestyles. Many of these resources are spent on designing persuasive campaigns to promote favorable attitudes and behaviors toward regularly engaging in sport and/or physical activity (1). Similarly, other campaigns have focused on reducing positive attitudes toward unhealthy practices, such as consuming unnecessary supplements and the use of illegal substances in both professional and amateur athletics. Despite the efforts aimed at promoting healthy attitudes and behaviors, there is relatively limited evidence of their sustained effectiveness (2). In fact, research has shown that the impact of the various communication campaigns promoting physical exercise varies greatly and outcomes are not always satisfactory (3); sometimes they are successful, but at other times they produce null or even adverse effects (4). Faced with such disparate results, it can be difficult to anticipate whether, when, and for whom health-related campaigns will be effective. Furthermore, even when health and exercise communications produce the desired outcomes in the short term, the long-term stability of any induced change is not assured. In this chapter, we review a conceptual framework that addresses these issues by focusing on the key psychological processes relevant for understanding the effectiveness of persuasive communications.

Persuasion is present in nearly every human interaction and is a fundamental aspect of the communication process between trainers and athletes, coaches and sport teams, as well as with fans (5). In this chapter, we use the term *persuasion* to refer to any procedure with the potential to change someone's mind. Although persuasion can be used to change many things such as a person's specific beliefs (e.g., exercising burns calories), the most common target of persuasion is a person's *attitudes*. Attitudes refer to general evaluations people have toward others (or themselves), places, objects, issues, and activities, such as physical exercise (e.g., "exercising is good for me"). Typically, persuasion involves a person or a group of people (i.e., the recipient, or audience) receiving a communication (i.e., the message) from another individual or group (i.e., the source) in a particular setting (i.e., the context). The success of persuasion depends on whether the

attitudes of the recipients are modified in the desired direction and ultimately impact behavior.

In addition to this typical situation, however, persuasion research also addresses other phenomena such as self-persuasion in which the self is both the source and the recipient of change. As with traditional persuasion, self-persuasion plays a critical role in the domain of sport and exercise psychology since most participants attempt to talk themselves into working harder, striving for goals, and so on. Thus, we also describe research on the psychological processes by which self-generated messages and self-affirmations influence persuasion (for more information on selected aspects of self-persuasion, see Chapter 13, this volume).

We organize this chapter around the Elaboration Likelihood Model of persuasion (ELM [6]), a comprehensive framework for understanding the multiple processes by which variables can change people's attitudes and ultimately their behaviors. We first discuss the three primary communication factors involved in persuasion: the source, recipient, and message. Then, we describe the role of the ELM in accounting for and predicting persuasion processes and outcomes. Subsequently, we describe how some variables (e.g., emotion, self-affirmation) can have multiple roles in a persuasive context producing different outcomes depending on the circumstances. Finally, we explain how variables work not only in isolation, but also how they can combine together in the persuasion context to influence attitudes toward sport, exercise, and physical activity. A schematic depiction of the ELM is presented in Figure 2.1.

#### Communication factors

For decades, scientists have used the terms "source," "message," and "recipient" to describe the fundamental inputs to the persuasion process. Source factors refer to aspects of the person (or group, e.g., a governmental agency) delivering the persuasive appeal. When considering various source factors, researchers have typically categorized them in terms of *expertise* (i.e., the amount of knowledge the person has on the specific topic); *trustworthiness* (i.e., the source's intention to be honest); *attractiveness* (i.e., how much the source is liked); and *power* (i.e., the perceived status and control of the source over desired resources) (7). For example, hearing a doctor of sport science promote a particular nutrient will have a different persuasive impact than hearing that same information from a high-school student (see Chapter 9, this volume). Message factors refer to what is said or spoken in the message or to how the message is structured. Important aspects of the message include how compelling the arguments are (8) and the number of arguments presented (9). Recipient factors refer to characteristics of the individuals receiving the message (i.e., the audience). There are numerous recipient factors relevant to persuasion, such as the person's demographic characteristics (e.g., gender, age, race), cognitive skills (e.g., intelligence), personality (e.g., extraversion), current mood, how powerful they feel (see Chapter 13, this volume), and how fatigued they are.

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Although sometimes these source, message, and recipient variables have simple effects on attitude change (e.g., source credibility or positive mood increasing persuasion), sometimes these variables can have the opposite effect, and the processes by which these variables have their influence can vary with a person's motivation and ability to think. To understand when a variable will have one effect or the other, we turn next to the processes underlying attitude change by applying the Elaboration Likelihood Model of persuasion (ELM).

**The Elaboration Likelihood Model**

The ELM is an early example of what became an explosion of dual process and dual system theories that distinguished thoughtful from non-thoughtful persuasion. We focus on the ELM because it has guided the most research on attitude change and persuasion. The theory focuses on how persuasion is affected by recipient *elaboration* – the amount of message-relevant thinking an individual engages in when processing a persuasive message or issue. That is, the ELM holds that sometimes people will be relatively unmotivated or unable to think about a message or issue, such as when the message is low in personal relevance (10), or there are many distractions present (8), but at other times, they will be highly motivated and able to think about it.

One of the most useful insights from the ELM is its proposition that variables can play different roles in persuasion depending on where people fall along the elaboration continuum. That is, based on whether an individual's elaboration is relatively low, moderate, or high, the same variable (e.g., source credibility, emotion) can exert different effects on persuasion through different processes. Furthermore, the process by which an attitude is changed has implications for how consequential that change is (see Figure 2.1). In the next sections, we describe how various source, message, and recipient variables can affect persuasion under different degrees of elaboration.

**Low thinking processes**

According to the ELM, when motivation and/or ability to think are relatively low, communication factors will likely influence persuasion by serving as simple peripheral cues or heuristics. That is, when thinking is low, the actual merits of the arguments for or against the advocacy are not as influential as simple cues that allow a person to decide what to believe without much scrutiny. Imagine for a moment that the world-class football (soccer) player, Cristiano Ronaldo, is endorsing a particular brand of automotive lubricants (as he does in real life for *Castrol*). Now, in addition to his expertise on the football field, he is also considered a likeable and attractive source. Under low thinking conditions, his advocacy for *Castrol* will likely result in greater persuasion through the mere associations with his likeability/attractiveness. That is, even though he has no expertise in the domain of automotive lubricants, low thinking recipients will likely have more favorable attitudes toward the product. Under these low

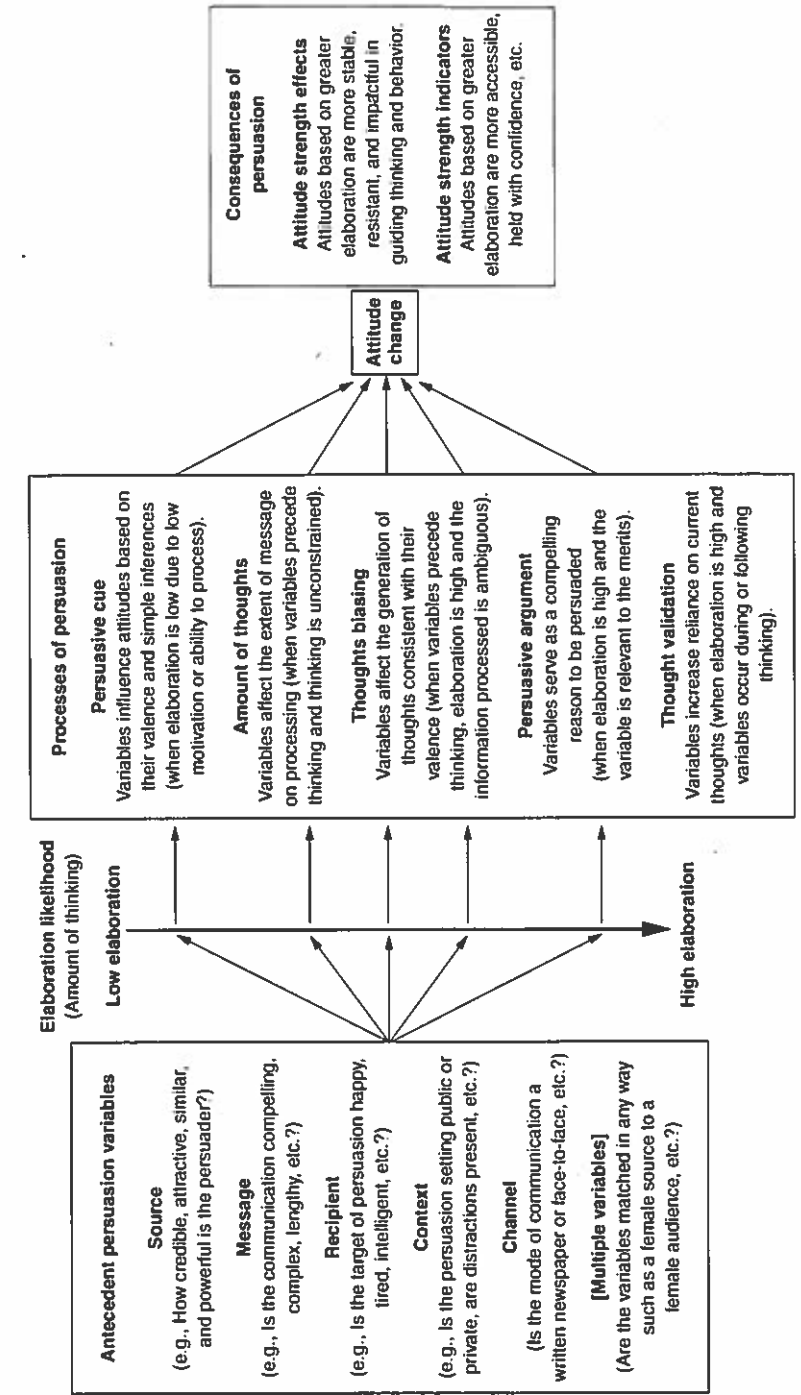


Figure 2.1 Schematic depiction of the Elaboration Likelihood Model of Persuasion.

thinking conditions, source traits can influence persuasion even when they are entirely irrelevant to the appeal (7). Other variables that can operate similarly include the length of the message (e.g., if there are lots of arguments, the point advocated must be right) (9) and the mood of the recipient (e.g., "if I feel good, then I must like this proposal") (11). Under low thinking, variables produce effects consistent with their overall valence. For example, if the source is positively valenced it will lead to more persuasion, whereas if one's mood is negatively valenced, it will lead to less persuasion.

#### *High thinking processes*

As just reviewed, under low elaboration conditions, variables affect persuasion via simple association or heuristic processes. In contrast, when elaboration is high, these same variables can affect persuasion through several different high thought processes outlined next.

**Biasing thoughts.** When elaborating on a message, the thoughts a recipient generates are an important determinant of its persuasiveness. If the message elicits mostly favorable thoughts, then it will lead to more persuasion than if it elicits primarily negative ones. However, variables can bias the type of thoughts people generate – especially when the strength of the presented arguments is ambiguous (12). For example, if someone recently received good news (inducing a positive mood in that individual) before a friend gave an appeal to join him/her at the gym, any thoughts the recipient generates in response to that appeal could be even more positive (which should lead to more persuasion) than if the recipient had not been in such a positive mood (11). In contrast, a negative mood could have biased thoughts in opposition to the appeal.

In the attitude change literature, there are a number of variables (in addition to mood) which have produced a bias in one's thoughts under high elaboration. One well-studied variable is reactance, which occurs when people feel forced to go along with a proposal (see Chapter 6, this volume). Thus, when a source insists that recipients "must" go along on an important issue, counterarguing ensues (13). Another important biasing variable is the position a source takes. That is, if the message position supports one's initial attitude or preferred outcome, people will tend to generate thoughts in favor of it; however, if the message opposes one's perceived self-interest, thoughts will be biased against it (10,14).

**Serving as an argument.** Variables such as source attractiveness, which may have influenced persuasion as a simple positive cue under low thought, are carefully evaluated for their evidentiary value under high thought. For example, if Cristiano Ronaldo were advocating *Castrol* automotive lubricants for someone who was highly motivated and able to think about the message, then his effectiveness as a simple attractiveness cue would likely be reduced. In contrast, if he were advocating a particular brand of soccer ball, then high thinking recipients would consider his expertise as further evidence for the appeal (15). In sum, under high elaboration, in order for a variable to serve as an argument

(regardless of whether that variable pertains to the source, message, or recipient), it needs to provide relevant evidence for the merit of the appeal.

**Validation.** Beyond whether people generate favorable or unfavorable thoughts to a message, it is also important to consider whether people use those thoughts to form their attitudes. For example, although two people may both come to believe that a particular exercise supplement improves their workouts, one person may be significantly more confident in this thought or may feel better about holding that thought. In this instance, the person who is more confident and/or favorable toward his/her thought will likely use it more when forming an evaluation of the product and therefore be more favorable toward the product. Thus, when recipient's elaboration is high, the *self-validation hypothesis* (16) posits that meta-cognitions in the form of thought-confidence and/or thought-liking can affect whether or not people rely on their thoughts in forming their attitudes.

There are many source, message, and recipient factors that can influence persuasion by affecting thought reliance. For example, researchers have found that learning a message had come from an expert source after processing it led people to have greater confidence in their thoughts than learning a message came from a non-expert source (17). As a result, when thoughts were favorable, the expert source increased thought use and thus persuasion, but when thoughts were unfavorable, the expert source also increased reliance on these negative thoughts and thereby reduced persuasion. In addition to source expertise, other variables shown to enhance thought reliance include feeling happy (18) and powerful (19). Because validation has been shown to be so influential in persuasion contexts, it is worth noting an important boundary condition on this high thinking process: the validity of one's thoughts should be salient *during* or *following* thought generation rather than prior to it. If people already feel confident about their thoughts before the message appears, they will not spend much time thinking about it.

**Correction processes.** In general, people are motivated to hold accurate attitudes, so under high elaboration conditions, people may notice a particular bias in their thinking and try to correct for it. For example, if a sport fan is carefully considering the arguments for why his/her favorite player should be inducted into the hall of fame, the fan may realize that his or her own personal preference for the player may be biasing their interpretation of the evidence. As such, the fan may try to *correct* for his or her bias to remain impartial. According to the Flexible Correction Model (20), if people are thinking carefully and wish to reduce a bias, they will try to estimate the magnitude and direction of it and adjust their attitudes accordingly. If people *overcorrect* their judgment, it may turn out that they end up being more unfavorable toward their favorite player than they would have been without the correction. Although bias correction usually happens under high degrees of thinking, if certain corrections are practiced frequently (e.g., repeatedly correcting one's bias in the evaluation of referee calls), the correction can become automatic (21).

*Factors affecting the amount of thinking*

Sometimes it is not clear if a message or issue is worth thinking about. Under conditions where elaboration is not constrained to be high or low by other factors, the same variables that served in the roles already mentioned (e.g., simple cues, validation) can determine the extent of thinking. For example, we noted earlier that one's mood could serve as a simple cue when thinking was low or bias thoughts when thinking was high. If thinking is not already set by other variables, one's mood can affect the amount of thinking. For example, when one feels bad, this can induce a problem solving mindset that enhances thinking (22).

Research has pointed to many variables that can affect the amount of thinking about a persuasive message. Regarding one's ability to process, imagine a trainer is coaching his or her boxer on a new and effective punching combination. However, since that athlete has recently finished a workout, s/he simply does not have the mental ability to think deeply about the message. In addition to mental fatigue, other factors that affect one's ability to elaborate include the complexity of the message, the number of opportunities the person has to consider the message (23), and contextual distractions (8).

One variable with particular relevance to sport is physiologic arousal. A number of studies have shown that enhancing arousal can increase information processing. In one relevant study (24), students were either given a non-caffeinated or a caffeinated (3.5mg/kg of body weight) beverage and then received a message containing strong or weak arguments for voluntary euthanasia. Results revealed that argument quality affected attitude change more in the caffeine than in the non-caffeine conditions, suggesting greater elaboration. That is, with caffeine, like other variables affecting ability, higher ability is associated with strong arguments being more persuasive and weak arguments being less persuasive than when ability to process is low.

As noted earlier, one of the critical variables affecting a person's inclination to elaborate is the personal relevance of the message (10). That is, when a message can be connected to the recipient's sense of self through his or her values, goals, outcomes, or identities (e.g., a runner receives a message pertaining to his preferred type of exercise), it increases the likelihood the recipient will process the message (25). Other motivational factors influencing the amount of thinking include momentary states of anxiety (26) as well as one's *need for cognition* (i.e., the extent to which a person generally enjoys thinking [27]).

One motivational variable that has been studied extensively in health- and sport-related messages is *ambivalence* (28). Ambivalence refers to the extent to which an individual has both positive and negative evaluations of the same attitude object. For example, in regards to use of anabolic androgenic steroids, someone who weightlifts could evaluate the musculature gains positively, while simultaneously evaluating the side-effects negatively. Ambivalence is an uncomfortable feeling, which people tend to be motivated to alleviate. As a result, feeling ambivalent can lead to increased information processing in order to resolve that ambivalence (29). Feelings of ambivalence can stem not only from

one's personal positive and negative evaluations of an object, but from disagreeing with liked others (30) and from wanting to hold an attitude different from one's current view (31). For example, a rugby player might wish that he or she had a more positive attitude toward a different position on the pitch, so when s/he receives a persuasive appeal about the benefits of such a change, s/he should be more motivated to elaborate on it. In the next section, we describe how a similar looking persuasion outcome can vary in its consequences, depending on whether it was produced by relatively high or low amounts of thinking.

**Consequences of different change processes**

Having discussed the different processes that lead to persuasion, we turn to the *consequences* of those processes. According to the ELM, attitudes formed or changed through highly elaborative processes result in stronger (more impactful) attitudes than those changed through low thinking processes. *Attitude strength* refers to the extent to which an attitude resists persuasion, persists over time, and guides people's judgments and behaviors (32). Research has shown that stronger attitudes are more accessible (i.e., come to mind easily) (33) and are held with more certainty (34) – strength features which both result from increased thinking.

*Elaboration and attitude strength*

Previous research has clearly documented that greater elaboration of a persuasive message results in stronger attitudes. For example, in one study investigating doping-related attitudes (35), young football (soccer) players were recruited and received a persuasive message that argued either against or in favor of legalizing several doping behaviors (e.g., the use of anabolic androgenic steroids). The athletes either learned that the legalization proposal would be implemented in football during the following year (high personal relevance and elaboration) or it would be implemented in other sport (e.g., cycling) in 5 years (low personal relevance and elaboration) (10). Attitudes toward the legalization proposal were assessed immediately following the message and 1 week later. As expected, participants in both the high and low relevance groups showed more favorable attitudes toward the legalization proposal right after reading the pro- rather than the anti-message. However, attitudes were stronger (i.e., remained more stable a week later) in the high rather than low relevance conditions, consistent with the idea that elaboration enhances attitude strength.

Moreover, another study (36) showed a similar effect on a measure of resistance to persuasion. That is, when initial attitudes toward doping were formed under conditions of high personal relevance, those attitudes resisted a later attacking message more than when initial attitudes were formed under conditions of low personal relevance. Furthermore, participants showed greater attitude-consistent behavioral intentions when they formed their initial attitudes through thoughtful (vs. non-thoughtful) consideration of the first message. In another

relevant study (37), it was found that elaboration in a sport context also influenced attitude certainty, a key indicator of attitude strength (34). In this research, football coaches were either induced to engage in relatively high (vs. low) elaboration of a persuasive message against (vs. in favor of) the legalization of several banned substances, and in line with the theorizing, the coaches' conviction in their attitudes was dependent on how deeply they thought about the message. In fact, some research (38) has even demonstrated that people can come to infer greater certainty in their attitudes if they are simply led to believe that they have thought deeply about the attitude object – even if they have not.

These findings reveal that attitude strength is affected by the (objective and subjective) amount of issue-relevant elaboration. Of course, elaboration is not the only determinant of attitude certainty. For example, people sometimes reflect on the process by which they have determined their attitudes and infer how certain they should be from this (34). In one relevant study, people became more certain of their attitudes if they believed that they had considered both sides of the issue rather than just one (39). Furthermore, coming to believe that one's attitude has a moral basis rather than a practical basis increased attitude strength in the absence of any substantive differences in the underlying nature of the attitude (40).

### Multiple roles

We have now explained how variables can induce attitude change in different ways along the elaboration continuum and that the extent of elaboration can determine how strong the resulting attitudes are. From this, we are able to derive one of the most powerful insights from the ELM: any one variable can work in different ways along the elaboration continuum. Next, we provide some illustrations of this principle.

### Emotions

One of the earliest variables shown to work in multiple ways at different points along the elaboration continuum is emotion. Emotions play a big part in exercise and sport, whether among the sportspeople themselves or the fans. We have already noted that when thinking is constrained to be low (e.g., due to many distractions), emotions tend to serve as simple associative cues that produce evaluations consistent with their valence (11). In contrast, when thinking levels are high, emotions serve in other roles. First, emotions can be evaluated as evidence (e.g., negative emotions such as sadness or fear can lead to positive evaluations of a movie if these are the intended states). Also, when thinking levels are high, emotions can bias one's ongoing thoughts (e.g., positive consequences seem more likely when people are in a happy state as opposed to a sad state). However, if an emotion is induced after people have finished thinking about the message (rather than prior to doing so), then emotions can affect confidence in the thoughts. For example, because emotions such as happiness and anger are

associated with certainty, these would validate thoughts, whereas emotions such as sadness and fear, which cause doubt in one's thoughts, would lead to less use of them. Finally, if thinking is unconstrained, emotions can determine how much people think. For example, as noted earlier, if negative emotions make people think that something is problematic, this can lead to more thinking than happiness (41).

### Self-affirmation

Most people have a need to view themselves positively. Holding a positive self-view can play an important role in exercise and sport. For example, in high-pressure moments (e.g., before taking a penalty kick), athletes can benefit from having a positive view of themselves and their abilities. One way athletes can promote this positive belief is through *self-affirmation* (42). Self-affirmation consists of asserting one's personally relevant values, which in turn can reduce the impact of perceived threats. A meta-analysis of positive self-talk and sport performance found that positive self-talking consistently improved task performance in a variety of domains (43). As was the case with emotions, however, the processes through which self-affirmations influence judgments and behaviors vary with the situation as outlined by the ELM.

In two studies, for example, it was found that self-affirmation affected feelings of confidence and therefore affected persuasion by different mechanisms depending on the circumstances (44). In particular, depending on whether a self-affirmation induction occurred *prior to* versus *after* the reception of a persuasive message, different processes and subsequent effects of argument quality resulted. When self-affirmation was placed before the message, attitudes were less polarized to strong than weak arguments compared to the control condition because the confidence from affirmation reduced argument processing. When placed after the message, however, attitudes in the affirmation condition were more polarized to strong than weak arguments because the confidence from affirmation enhanced thought use. In addition to influencing the extent of elaboration and the validation of cognitive responses to a message, self-affirmation can influence attitudes by serving the multiple roles described throughout this review.

### Stereotypes and stereotype threat

Stereotypes are present in many aspects of social life, including sport. Similar to emotions and self-affirmation, stereotypes can influence attitudes by the same processes as other variables. For example, stereotypes can operate by serving as a judgmental heuristic under low thought or by biasing one's thoughts under high thought (45). Notably, a variable can only bias thoughts when it precedes the message, whereas if thinking is high and the variable follows the message, it can determine whether thoughts are validated or not. In two experiments testing the latter possibility (46), participants were given information about a target person followed by a description designed to activate a stereotype. When

processing capacity was high, receiving a description after processing that was consistent (vs. inconsistent) with the stereotype led to greater thought confidence. For example, when judging a poorly performing student and generating unfavorable thoughts about that student, confidence in those thoughts was higher when it was subsequently revealed that the poorly performing student was of low rather than high socio-economic status (SES). The opposite was true when judging a student who performed well. As a result, when SES stereotypes matched the performance, participants were more likely to recommend remedial classes for the poorly performing student and gifted classes for the high performing student. When processing capacity was low, however, stereotypes served their familiar peripheral cue role in judgment, and thought confidence played no role.

Following a similar logic, imagine an exerciser, Jason, who has the stereotype that bodybuilders will judge or make fun of him for not being in shape while at the gym. Now, assume that while working out there, Jason spots a bodybuilder laughing while looking toward him. This confirming behavior will likely make Jason feel very confident in his thoughts that the bodybuilder is being very critical. However, if Jason learns that the bodybuilder was listening to a phone call through his headphones while laughing, he will likely have less confidence in his thoughts that the bodybuilder was being critical.

In a conceptually similar study (47), self-stereotypes were shown to operate in a similar way. Specifically, after women took a very challenging math test on which they did not perform well, subsequently being reminded of the negative stereotype surrounding their gender's math abilities led them to have increased confidence in their thoughts that their gender indeed was bad at math. In the sport domain, if one has the belief that s/he will do poorly in high-pressure situations, any sign of poor performance (e.g., a remark from a coach) may only make the player more confident in their belief.

### Matching

Although we have focused our discussion so far on single variables, persuasion is a complex situation in which more than one variable operates simultaneously. To illustrate the complexity that can emerge, we now briefly describe some examples of how a recipient factor can interact with the type of message and/or source variables to affect persuasion.

Matching refers to a persuasion context in which one variable aligns with (i.e., "matches") another variable in some way. For example, one study examined the effectiveness of exercise advertisements at getting children to be more physically active (48). For half of the sample, children aged 9–10, these advertisements matched their interests (e.g., jumping on a trampoline), whereas for the other half of children, ages 11–13, the advertisements did not. After a year of broadcasting this message on national television, the younger children engaged in physical activity to a greater extent than the older ones. In this instance, the effect of matching could have been a result of greater liking through cue-related

processes (e.g., "it speaks to me so, I like it"), or it could have induced greater attention to the advertisements via heightened personal relevance. Regardless, there are multiple ways to create a match – such as matching the gender of the source to the gender of recipient or the complexity of the message to the recipient's preference for thinking critically (49).

One variable to receive a lot of attention with respect to matching is the individual difference called *self-monitoring*. High self-monitors orient their behavior to fit the current social circumstance, whereas low self-monitors simply act in line with their internal beliefs. Therefore, if a high self-monitor reads an advertisement that emphasizes a product's social image qualities, or if a low self-monitor reads one that emphasizes its functionality, the message would be considered a match and thereby enhance persuasion (50). In line with the ELM, if a participant is constrained from elaborating on a persuasive message, merely matching it to one's level of self-monitoring can result in greater persuasion because the match serves as a simple cue. However, if thinking is unconstrained, a matched (vs. mismatched) message can promote greater elaboration such that the argument quality of matched messages influences attitudes more than mismatched messages (51). Under high elaboration, matching can also work in other ways such as biasing the content of one's thoughts or validating those thoughts if the match follows message processing.

More relevant to exercise, matching effects have also been demonstrated with an individual's goal orientation (52). That is, people tend to be either promotion focused (i.e., focused on winning) or prevention focused (i.e., focused on not losing), which means persuasive messages can be tailored to match a recipient's goal pursuit strategy. In one relevant study (53), exercisers received messages promoting physical activity that either matched (vs. mismatched) their goal-pursuit strategy. Promotion-focused participants received messages stressing the gains of being active (e.g., "Scientists recommend physical activity to stay healthy or improve your health"), whereas prevention-focused participants received messages stressing the losses (e.g., "Scientists warn that failing to get enough physical activity can lead to poor health"; see Chapter 1, this volume). Participants were then interviewed 2 weeks later, and those who had received the matched (vs. mismatched) message reported engaging in greater physical activity. If the participants were not elaborating much, a matched message could have simply felt "right," which in turn could produce persuasion as a simple cue.

However, matching need not work as a simple cue. As seen earlier, it can also affect the extent of thinking when elaboration is unconstrained by other variables. In one sport-relevant study (54), college students who either enjoyed playing sport more or less than the average college student were recruited to participate and were then given an audiotaped recording that advocated a mandatory thesis requirement for graduating seniors. The audiotapes either used strong or weak arguments that either relied on sport metaphors or literal statements. For example, one sport argument read: "If college students want to play ball with the best, they shouldn't miss out on this opportunity." On the other hand, that same argument as a literal statement read: "If college students want to

work with the best, they shouldn't miss out on this opportunity." After hearing one of these audiotapes, participants rated their attitudes toward the advocacy. Results showed that participants in the matched conditions (i.e., those who liked sport and received sport metaphors, and those who disliked sport and received literal statements) generated more message-relevant thoughts and showed greater argument quality effects on attitudes indicating greater elaboration of the message.

### Conclusions

We have covered a variety of ways in which the processes of persuasion operate with a particular focus on applications to topics relevant to sport and exercise psychology. At a minimum, four conclusions can be taken from the reviewed research guided by the ELM (6). First, attitude change can occur through processes that involve either relatively low or high amounts of thought, and numerous variables impact persuasion by determining a person's motivation or ability to think about a message or issue. Second, there are significant differences in the short- and long-term outcomes that result depending on the extent of thought underlying persuasion. Attitudes formed or changed under high elaboration tend to persist, resist subsequent persuasion, and guide intentions and behaviors better than those formed or changed under low elaboration. Third, we illustrated how a single variable can serve multiple roles in the persuasion context. For example, one's emotional state can influence attitudes by serving as a simple cue to persuasion under low elaboration conditions, serving as an argument, biasing thoughts or validating thoughts under high elaboration conditions, and affecting the extent of thinking when elaboration is unconstrained. Finally, we examined how variables not only work in isolation but how they can also combine together with other variables in the persuasion context to influence attitudes. Together, these conclusions help provide a comprehensive and reliable framework to predict when and why a persuasive appeal will influence recipients' attitudes and ultimately their behavior in various contexts including those involving sport and exercise.

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