

University of Groningen

## The Motivational Theory of Role Modeling

Morgenroth, Thekla; Ryan, Michelle K.; Peters, Kim

*Published in:*  
Review of General Psychology

*DOI:*  
[10.1037/gpr0000059](https://doi.org/10.1037/gpr0000059)

**IMPORTANT NOTE: You are advised to consult the publisher's version (publisher's PDF) if you wish to cite from it. Please check the document version below.**

*Document Version*  
Publisher's PDF, also known as Version of record

*Publication date:*  
2015

[Link to publication in University of Groningen/UMCG research database](#)

*Citation for published version (APA):*

Morgenroth, T., Ryan, M. K., & Peters, K. (2015). The Motivational Theory of Role Modeling: How Role Models Influence Role Aspirants' Goals. *Review of General Psychology*, 19(4), 465-483.  
<https://doi.org/10.1037/gpr0000059>

### Copyright

Other than for strictly personal use, it is not permitted to download or to forward/distribute the text or part of it without the consent of the author(s) and/or copyright holder(s), unless the work is under an open content license (like Creative Commons).

The publication may also be distributed here under the terms of Article 25fa of the Dutch Copyright Act, indicated by the "Taverne" license. More information can be found on the University of Groningen website: <https://www.rug.nl/library/open-access/self-archiving-pure/taverne-amendment>.

### Take-down policy

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

*Downloaded from the University of Groningen/UMCG research database (Pure): <http://www.rug.nl/research/portal>. For technical reasons the number of authors shown on this cover page is limited to 10 maximum.*

# The Motivational Theory of Role Modeling: How Role Models Influence Role Aspirants' Goals

Thekla Morgenroth  
University of Exeter

Michelle K. Ryan  
University of Exeter and University of Groningen

Kim Peters  
University of Queensland

Role models are often suggested as a way of motivating individuals to set and achieve ambitious goals, especially for members of stigmatized groups in achievement settings. Yet, the literature on role models tends not to draw on the motivational literature to explain how role models may help role aspirants achieve these outcomes. In this paper, we introduce role aspirants and their motivational processes into an understanding of role modeling by drawing on expectancy–value theories of motivation to bring together the disparate literatures on role models to form a cohesive theoretical framework. We first integrate different definitions of role models into a new conceptualization where we propose that role models serve 3 distinct functions in which they influence goals and motivation: acting as behavioral models, representing the possible, and being inspirational. We then build a theoretical framework for understanding not only when, but also how, role models can effectively influence motivation and goals. This new theoretical framework, the Motivational Theory of Role Modeling, highlights ways in which the power of role models can be harnessed to increase role aspirants' motivation, reinforce their existing goals, and facilitate their adoption of new goals.

*Keywords:* goals, inspiration, motivation, role modeling, role models

Role models are often seen as a way of motivating individuals to perform novel behaviors and inspire them to set ambitious goals. In educational and occupational settings, this is especially true for members of underrepresented and stigmatized groups. In these contexts, role models are often regarded as a panacea for inequality, by the general public, policymakers, and the academic literature alike (e.g., Bosma, Hessels, Schutjens, Van Praag, & Verheul, 2012; Dean, 2014; Peacock, 2012; Wright, Wong, & Newill, 1997). For example, many commentators voiced their hope that Barack Obama would serve as an effective role model for African Americans when he was elected as the president of the United States in 2008. ABC News mused “Across the country, educators, community activists, and students are hopeful that the election of Obama, whose mother was a white American and father a black African, will provide much-needed inspiration to black youth” (Gomstyn, 2008). In line with this idea, the utility of role models has been examined across a wide range of contexts including how

role models might impart core values for doctors (e.g., Paice, Heard, & Moss, 2002), address the underrepresentation of women in science (e.g., Stout, Dasgupta, Hunsinger, & McManus, 2011), and increase political activism in young people (Campbell & Wolbrecht, 2006). The extant literature provides us with important and interesting insights into the various factors that may impact on the effectiveness of role models such as shared group membership and similarity between role model and role aspirant, as well as level of role model success and the attribution of this success by the role aspirant.

However, despite these informative insights, the role model literature has a number of limitations. First, it is fragmented and lacks a clear definitional consensus on what role models are and what they can do. Irvine (1989) lamented that “the concept of role model is an ill-defined and imprecise term that begs for more clarity and debate” (p. 52) and, alas, this statement still holds true today. Second, although the extant literature provides evidence for a range of separate factors that influence role model effectiveness, what is still needed is an integrated theoretical framework in which to situate, incorporate, and understand these findings. For this, construct clarity is indispensable (e.g., Suddaby, 2010). Third, although role models are often seen as those who motivate us to set more ambitious goals or make the right decisions, the current understanding of role models does not draw on the motivational literature in order to understand how role models work. This is despite the fact that research into motivational processes often acknowledges that social processes similar to role modeling can influence goal setting, motivation, and possible selves (e.g., Bandura, 1997; Fishbach & Ferguson, 2007; Markus & Nurius, 1986;

---

Thekla Morgenroth, Department of Psychology, University of Exeter; Michelle K. Ryan, Department of Psychology, University of Exeter, and Department of Economics and Business, University of Groningen; Kim Peters, Department of Psychology, University of Queensland.

We thank Ken E. Evans and Robert E. Wood for their helpful comments on earlier drafts of this paper.

Correspondence concerning this article should be addressed to Thekla Morgenroth, University of Exeter, Exeter EX4 4QG, United Kingdom. E-mail: t.morgenroth@exeter.ac.uk

Oyserman, Bybee, & Terry, 2006) and the fact that the literature on transformational leaders who are, like role models, inspirational others, has used expectancy–value models of motivation to explain their influence on followers (Shamir, House, & Arthur, 1993). Finally, thus far the role model literature has focused predominantly on role models, the attributes they need to possess, and the behaviors they need to express in order to be effective. What tends to be missing is a focus on *how* role models can influence ambitions, motivation, choices, and achievements. Although the focus on role models has clearly led to some interesting and useful findings—findings that we will draw upon in this study—we believe that it is time to widen this focus to include those who emulate and are inspired by role models and the motivational processes on their side. In this paper we will refer to them as ‘role aspirants,’ a term which should be understood as an individual who makes active, although not necessarily always conscious or deliberate, choices about in whose footsteps to follow based on their own values and goals. In other words, just as leaders do not exist without followers (Haslam, 2004; Haslam, Reicher, & Platow, 2011), role models do not exist without role aspirants. In this way, role aspirants are those who both create role models and benefit from them—and therefore including how their own attributes contribute to the perceptions of role models and the psychological processes on their side is key to understanding the role modeling process.

To address these limitations we will provide a targeted review of the literature on role models, focusing on occupational and educational settings, and build a much-needed integrated theoretical framework that not only adds to the general understanding of role models but can also be used to develop well-informed role model interventions. We will draw heavily on expectancy–value models of motivation (e.g., Atkinson, 1957; Eccles, 1983; Eccles & Wigfield, 2002; Feather, 1982; Vroom, 1964, 1966) and the resulting framework, the Motivational Theory of Role Modeling, thus brings together both the role model literature and the motivational expectancy–value literature. Within this framework, we will expand the focus from role model attributes to include the motivational processes of the role aspirant and the ways in which their perceptions of role models can be influential in these processes.

The Motivational Theory of Role Modeling, which we will develop throughout this article, is illustrated in Figure 1. As can be gathered from this figure, we propose that attributes of the role aspirant as well as the role model contribute to the perception of the role model by the role aspirant. Examples of these attributes are similarity between role model and role aspirant, levels of role model success, and role aspirants’ beliefs about whether abilities are fixed or malleable. We further propose that the perception of three role model qualities, namely goal embodiment, attainability, and desirability, is key to the role model process. The perception of these qualities in turn influences a number of role modeling processes such as vicarious learning and identification. Through these processes, role models change the perception of goals and goal related behaviors, that is, the expectancies and values role aspirants’ associate with these goals. Expectancy and value in turn interact to influence the role modeling outcomes such as the adoption of new goals and the reinforcement of existing goals. Figure 1 further illustrates how the role model process is somewhat cyclical in nature, such that exposure to role models changes expectancies, values, and goals, which can at the same time be thought of as role aspirant attributes, and thus influence the perception of role models.

To devise this theoretical framework it is important to first clarify what we mean by role models as a construct. We will therefore start by discussing a range of definitions of role models from the literature to provide an understanding of the functions they may fulfill. We will argue that role models have three distinct functions which we discuss in detail below: (a) acting as behavioral models, (b) representing the possible, and (c) being inspirational. Based on these functions, we will then provide our own definition of role models.

Next, we will give a brief overview of expectancy–value theories of goals and motivation (Atkinson, 1957; Eccles, 1983; Eccles & Wigfield, 2002; Feather, 1982; Vroom, 1964, 1966) that form the structure that the Motivational Theory of Role Modeling is built upon. We will then discuss how role models, in their three different functions, might fit into this theoretical framework and how they can contribute to role aspirants’ expectations of success

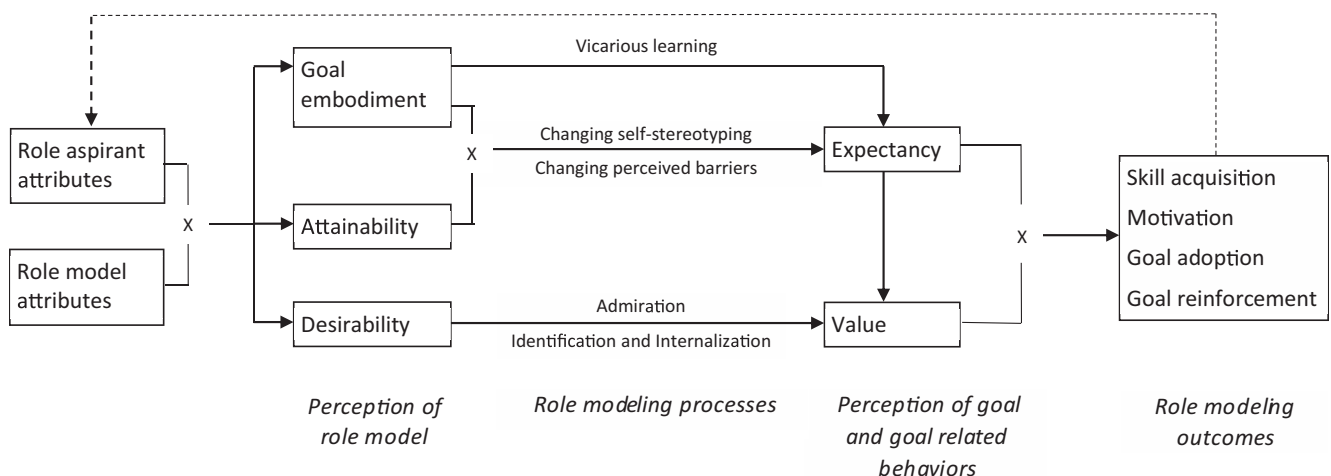


Figure 1. An illustration of the Motivational Theory of Role Modeling.

(i.e., expectancies) and the desirability (i.e., value) of their achievement-related goals.

Integrating the extant findings on role models, we will propose a theoretical framework that outlines the processes that determine the extent to which role models who embody role aspirants' goals and are perceived to be desirable and attainable contributes to the effectiveness of these role models in their three different functions. We will discuss how both the attributes of role models and of role aspirants contribute to these perceptions. Rather than mainly aim to generate a set of new hypotheses, this framework aims instead to provide a novel and informative structure to the role model literature, giving a better understanding of the processes through which role models effectively influence role aspirants' goals and ambitions and highlighting how different role model and role aspirant attributes might be more or less relevant depending on the function potential role models are hoped to fulfill. Finally, we will discuss the practical implications of our perspective with a focus on underrepresented and negatively stereotyped groups and discuss future research directions.

### What Is a Role Model?

Despite the fact that the term 'role model' is widely used today, it was not until the 1950s that Merton (1957) coined the term to refer to individuals in specific roles (e.g., surgeons) who serve as examples of the behavior associated with this role. Since then, the term 'role models' has become widely used both in the general public and in academia, with over 400,000 scholarly articles using this term at the time of writing this paper. However, more often than not, as we will show, contemporary meanings of the term diverge quite drastically, both from Merton's original definition and from one another. This matter is complicated further by the fact that there are a number of other terms which pertain to similar constructs and processes, for example "exemplar" and "proxy" from the social comparison literature (e.g., Wheeler, Martin, & Suls, 1997). Nevertheless, in this section we will argue that there are three recurring, and interrelated, themes among existing definitions of role models: (a) they show us how to perform a skill and achieve a goal — they are *behavioral models*; (b) they show us that a goal is attainable — they are *representations of the possible*, and (c) they make a goal desirable — they are *inspirations*. We will consider each of these functions in turn.

### Role Models as Behavioral Models

A number of definitions describe role models as those from whom we learn particular skills and behaviors. For example, Kemper defines a role model as someone who

demonstrates for the individual how something is done in the technical sense. . . . [A role model] is concerned with the "how" question. The essential quality of the role model is that he [or she] possesses skills and displays techniques which the actor lacks (or thinks he [or she] lacks), and from whom, by observation and comparison with his [or her] own performance, the actor can learn. (Kemper, 1968, p. 33)

Similar ideas are reflected in more recent definitions of role models. For example, Ibarra and Petriglieri (2008) describe role models as those who are successful in a profession and imitated by those attempting to assume a professional role (see also Almqvist

& Angrist, 1971; BarNir, Watson, & Hutchins, 2011; Bell, 1970; Bosma et al., 2012; Cheryan, Siy, Vichayapai, Drury, & Kim, 2011; Hoyt, 2013; Javidan, Bemmels, Devine, & Dastmalchian, 1995; Lockwood, 2006; Paice et al., 2002; Sealy & Singh, 2010; Shapiro, Haseltine, & Rowe, 1978; van Auken, Fry, & Stephens, 2006; Wright et al., 1997).

Such definitions of role models are quite similar to Merton's (1957) original definition and focus on the acquisition of skills by emulation. They are thus also very similar to Bandura's (1977b) conceptualization of models in his theory of social learning, a theory concerned with the acquisition of skills as well as the motivational consequences of observing another individual. From this perspective, motivation can be seen as both a prerequisite of role modeling as well as an outcome. Role aspirants are initially motivated to pursue a certain goal and role models then demonstrate how to do achieve this goal. This includes not only the modeling of behavior, but also cognitive and emotional strategies that may enhance goal attainment. The relevant outcome here is often role aspirants' performance or achievement—and, indeed, this is often the measure used for role model effectiveness across the literature (e.g., Ainsworth, 2010; Bagès & Martinot, 2011; Hoyt, Burnette, & Innella, 2012; Latu, Schmid Mast, Lammers, & Bombari, 2013).

### Role Models as Representations of the Possible

Other definitions focus on role models as representations of what is possible or achievable. They demonstrate that a potential goal is attainable. For example, Lockwood (2006) notes: "Role models are individuals who provide an example of the kind of success that one may achieve, and often also provide a template of the behaviors that are needed to achieve such success" (p. 36). This definition clearly includes an aspect of role models as behavioral models (they provide a 'template'), but goes beyond being a mere behavioral exemplar to representing future opportunities or prospects. Similarly, McIntyre, Paulson, Taylor, Morin, and Lord (2011) describe role models as "successful members of one's own group" (p. 301) and note that "when people find themselves in threatening situations, they often look to role models for reassurance and inspiration" (p. 301). Although this certainly differs from Lockwood's definition, McIntyre and colleagues also focus on the fact that role models send the message "I can do this, so you can do this too" to role aspirants (see also Bagès & Martinot, 2011; BarNir et al., 2011; Buunk, Peiró, & Griffioen, 2007; Dasgupta, 2011; Hoyt, 2013; Huguet & Regner, 2007; Latu et al., 2013; Marx & Roman, 2002; Sealy & Singh, 2010; Stout et al., 2011). This second function differs from that of behavioral models in that it is not concerned with vicarious learning or *how* to do something. Rather, it is about learning *that* something is possible. This may be a preexisting goal or a new goal the role aspirant had not considered pursuing before because it felt out of reach. Observing a role model having achieved a particular goal may, under the right circumstances, be enough to motivate role aspirants to believe that they too can reach that goal. As representations of the possible, role models may thus contribute to the reinforcement of role aspirants' already existing goals as well as the adoption of new goals.

## Role Models as Inspirations

A third set of definitions focuses on how role models can influence what it is role aspirants see as desirable and worth striving for. In other words, this function is not concerned with making something that is desirable also appear *possible* but making something new desirable in the first place. Gauntlett (2002), for example, defines a role model as “someone to look up to and base your character, values and aspirations on” (p. 211). In other words, Gauntlett does not describe role models as those we look up to *because* they embody our aspirations but rather as someone on whom we base our evaluation of *what makes* a desirable character trait, value, or aspiration. Similarly, Paice and colleagues (2002) note that “excellent role models will always inspire, teach by example, and excite admiration and emulation” (p. 707; see also Almquist & Angrist, 1971; Basow & Howe, 1980; Bell, 1970; Bosma et al., 2012; Gibson & Cordova, 1999). The role model thus prompts a process in which the role aspirant is inspired to become more like the role model and sets his or her goals accordingly. This function is again different from the two described above. It is neither concerned with vicarious learning by role aspirants nor necessarily with making an already desirable goal attainable. Rather it is about eliciting role aspirant motivation to strive toward something new or something better than before. Thus, in their function as inspirations, role models mainly contribute to role aspirants’ adoption of new goals.

## Defining Role Models

Taken together, although there seems to be some consensus that role models are seen as positive sources of social influence who can influence role aspirants in a number of ways, there is less of a consensus about the exact nature of this influence. We propose that this is attributable to the fact that role models do, in fact, act in three different functions, mirroring the three distinct, albeit in part related, themes of how role models have been defined by various researchers. We argue that these functions differ both in the outcomes they affect and in the processes by which they do so, a notion we will develop in detail throughout this paper.

In relation to outcomes, the definitions of role models as behavioral models focus on a role aspirant moving toward an already existing goal—either through enhanced motivation or through skill acquisition—the definition of role models as inspirations focus on role aspirants considering and adopting new goals as well as increasing the motivation to work toward these goals. As representations of the possible, role models can influence both goal reinforcement and goal adoption and enhance motivation to strive toward these goals. However, although these foci are somewhat differentiated, they cannot be separated completely. For example, moving toward an already existing goal might spark the adoption of more ambitious goals. In addition to these motivational consequences, role models can of course also impact upon performance, either through the acquisition of skills in their function as behavioral models, or through increased motivation in all three of their functions. Both skills and motivation are thus contributing to enhanced achievement (Chamorro-Premuzic, Harlaar, Greven, & Plomin, 2010; Weber, Lu, Shi, & Spinath, 2013).

We argue that each of these outcomes is an important aspect of the role modeling process because they describe the various ways in which role models can increase the likelihood of role aspirants

pursuing and reaching particular goals in achievement settings. We thus define role models as *individuals who influence role aspirants’ achievements, motivation, and goals by acting as behavioral models, representations of the possible, and/or inspirations*. This influence includes the reinforcement of existing goals as well as the adoption of new goals.

Although motivational processes are key to all three of the role model functions described above, there has been, to our knowledge, little theorizing directly speaking to the motivational processes by which role models may influence role aspirants. In contrast, the importance of behavioral models for skill acquisition and performance has been explicated in other work (e.g., Bandura, 1977b; Groenendijk, Janssen, Rijlaarsdam, & van den Bergh, 2013; Zimmerman & Kitsantas, 2002). This lack of attention to the motivational aspects of role modeling is particularly problematic because many of the issues around the underrepresentation of certain, often stigmatized, groups in achievement settings such as the workplace or education, can be seen to exist at the level of motivation rather than skills. Despite the fact that there are a number of barriers that have been shown to impair the performance of underrepresented groups, such as stereotype threat (Steele & Aronson, 1995), poor performance is generally not the biggest obstacle to overcome. For example, with regard to gender it has been shown that women and girls do not tend to perform worse than men and boys in male-dominated areas such as STEM (e.g., Else-Quest, Hyde, & Linn, 2010; Jacobs, Lanza, Osgood, Eccles, & Wigfield, 2002; Wang, 2012). Rather, they seem to show less interest in, and decide against, these fields (Else-Quest et al., 2010; Wang, 2012)—and thus we can see their underrepresentation as a motivational rather than a performance issue.

On this basis, it seems there would be great value in understanding the processes by which role models can motivate role aspirants. When do they function as behavioral models, representations of the possible, and inspirations? And how do these functions translate into role aspirant motivation? To answer such questions we require a suitable theoretical framework. We therefore turn to the literature on expectancy–value models of motivation to provide the scaffolding to allow us to integrate the three definitional functions of role models. In the next section, we will argue that expectancy–value theories are ideally suited to explain motivation in achievement settings and provide the theoretical framework into which we will then integrate the role model literature.

## Motivation, Goals, and Role Modeling

Role aspirant motivation is central to the main outcomes of role modeling—goal adoption, goal reinforcement, and achievement—but few researchers have drawn on the motivational literature to elucidate the role modeling process. We aim to address this lacuna by proposing a motivational framework of role modeling based on expectancy–value theories of motivation. These theories argue that two main factors influence motivation: expectations of success and the perceived desirability of this success. We focus on these theories because they are widely used in achievement domains and are supported by more than 50 years of evidence from a variety of contexts (e.g., Atkinson, 1957; Brooks & Betz, 1990; Eccles, 1983; Eccles & Wigfield, 2002; Feather, 1982; Maddux, Norton, & Stoltenberg, 1986; Nagengast et al., 2011; Trautwein et al., 2012; Vroom, 1964, 1966; Wang & Degol, 2013). What will

emerge is a theoretical framework which outlines *how* role models may act as behavioral models, representations of the possible, and inspirations, motivating role aspirants to set and achieve their goals.

In the following paragraphs we will first explain what we mean by motivation and goals. We will then provide an overview of expectancy–value theories of motivation before situating the three role model functions within this framework. We will draw on findings from both the motivational and the role model literatures to illustrate how and when role models can influence role aspirants' motivation and goals.

### Defining Motivation and Goals

Before we begin outlining our theoretical framework, it is useful to define what we mean by goals and motivation. In line with existing conceptualizations (e.g., Fishbach & Ferguson, 2007) we consider *goals* to be cognitive structures that represent some end-point or outcome that is desired, that one is committed to, and that one works toward reaching. Goals therefore could include a person's representation of their desired career (e.g., to be an academic) or a particular point along a career path (e.g., to secure a postdoctoral research position). As can be gathered from these examples, goals therefore also include positive possible selves. Possible selves were originally defined as “the cognitive manifestation of enduring goals, aspirations, motives, fears and threats” (Markus & Nurius, 1986), but more recent definitions (e.g., Erikson, 2007) emphasize the personalized meaning and agency of these goals. In other words, while “being an academic” could be classified as a goal, “me having achieved the goal of becoming an academic” is the possible self associated with that goal which also includes the anticipated feeling of being, and behaviors performed as, an academic. We thus include positive possible selves in our understanding of goals.

From our definition, we see goals as being directed toward the future. Motivation, on the other hand, is more grounded in the present and can thus be considered an energizing force resulting from existing goals that directs behaviors toward the goal (Lewin, Dembo, Festinger, & Sears, 1944). Motivation and goals are further tied together because the extent to which a person finds particular goal-related activities motivating increases the likelihood of that person adopting a related goal (see Vroom, 1964).

### Expectancy–Value Theories of Motivation

To understand how role aspirants set their goals and how, if at all, role models can influence this process we turn to expectancy–value theories of motivation (e.g., Atkinson, 1964; Eccles, 1983; Feather, 1982; Vroom, 1964; for an overview, see Eccles & Wigfield, 2002). Such theories are widely studied in achievement domains and supporting evidence comes both from studies in the laboratory using experimental designs (e.g., Maddux et al., 1986; Shapira, 1976) as well as in real-world settings (e.g., Eccles, Barber, & Jozefowicz, 1998; Meece, Wigfield, & Eccles, 1990; Nagengast et al., 2011; Parsons, Adler, & Meece, 1984; Plante, O'Keefe, & Théorêt, 2013; Renko, Kroeck, & Bullough, 2012; Trautwein et al., 2012; Wang, 2012). Expectancy–value theories have been shown to predict a variety of outcomes relevant to the role modeling process, such as behavioral intentions (Maddux et

al., 1986; Meece et al., 1990), career and achievement goals (Nagengast et al., 2011; Plante et al., 2013; Shapira, 1976; Wang, 2012), educational and occupational choices (Eccles et al., 1998), intended effort (Renko et al., 2012), and performance (Meece et al., 1990; Plante et al., 2013; Trautwein et al., 2012; Parsons et al., 1984).

Expectancy–value theories of motivation argue that the degree to which a person is motivated to achieve a particular goal is an outcome of a person's subjective goal expectations and their goal values (Eccles & Wigfield, 2002). *Expectancy* refers to an individual's perceived subjective likelihood of success in a certain task or area, for example, the perceived likelihood of passing a difficult math test (Eccles & Wigfield, 2002). This may very well be quite different from the actual likelihood of success. *Value*, on the other hand, refers to an individual's perceived desirability of said success such as the resulting enjoyment, pride, or financial rewards.

Expectancy and value have been demonstrated to be positively related to one another (e.g., Bandura, 1997; Eccles, 1983). For example, Vallerand and Reid (1984) found this positive association for a physical task and MacIver, Stipek, and Daniels (1991) demonstrated that in educational settings, ability perceptions (expectancy) predict enjoyment (value) of a subject for junior high-school students. This makes intuitive sense—we generally enjoy things that we are good at, or believe we are good at, more than we enjoy those things in which we experience or anticipate failure.

Moreover, expectancy and value interact with one another to influence individuals' motivations, achievement, and choices (Nagengast et al., 2011; Trautwein et al., 2012). For example, Nagengast and colleagues (2011) asked a large international sample of 15-year-olds about their science-related ability beliefs (expectancy) and about their enjoyment of and interest in science (value). They found that both individuals' expectancies and their values predicted involvement in science-related activities as well as science related career goals. In addition, expectancy and value interacted such that the effect of value was especially high when expectancy was also high—and the other way around.

In the following sections we will provide greater detail about the constructs of both expectancy and value. Our theoretical framework is built on the theories of expectancy, value, and motivation provided by others as well as empirical evidence. However, as our focus is specifically on how expectancy–value theories can further our understanding of role models, we will simplify existing models in some places and expand them in others. After outlining theories of expectancy and value we will then discuss how they can help us understand role models in their different functions.

**Expectancy.** Expectancy is the subjectively perceived probability of success, that is, the degree to which an individual sees a goal or a possible self as attainable. This can refer both to a specific, short-term goal (e.g., learning an advanced statistical technique) or broader, long-term goals (e.g., becoming a successful academic). Expectancy can be influenced by internal factors (i.e., related to the self), such as perceived ability, as well as external factors, such as perception of discrimination or perceived goal difficulty.

**Expectancy based on perceptions of internal factors.** This aspect of expectancy is one's subjectively perceived probability of success based on one's abilities and traits. It is closely related to, and includes, self-efficacy as conceptualized by Bandura (1997). Bandura defines self-efficacy as the confidence that one can suc-

cessfully perform a specific behavior or broader task. Self-efficacy is linked to subsequent motivation and performance (Bandura & Locke, 2003), to the probability of possible selves (Erikson, 2007), and to the value of a goal (Eccles & Wigfield, 2002). However, expectancy goes beyond self-efficacy in that it is also influenced by the perception of other internal factors, namely ability beliefs based on one's social identities and their associated stereotypes (Turner, Oakes, Haslam, & McGarty, 1994). In any given situation, to the extent that one sees oneself as a member of a specific group rather than as an individual, expectancy beliefs may be more influenced by one's beliefs about the abilities and success of said group (e.g., "I'm a woman. Women lack leadership abilities. Therefore, I will never be a good leader") than by one's own abilities.

This group-based aspect of ability beliefs is closely related to self-stereotyping (i.e., the extent to which stereotypes about a one's group are applied to the self), which has also been shown to be related to interest, motivation, and goals. For example, Rudman and Phelan (2010) demonstrated that when primed with traditional gender roles, women's implicit self-stereotyping (i.e., the degree to which they saw themselves as similar to a stereotypical woman) explained the effect between said priming and decreased interest in stereotypically masculine occupations such as surgery (see also Asgari, Dasgupta, & Stout, 2012; Stout et al., 2011). Similarly, Oyserman and colleagues (2006) demonstrated that changing the degree to which social identities were associated with academic achievement affected the degree to which low SES students saw their positive academic possible selves as plausible (i.e., the expectancy associated with these possible selves).

**Expectancy based on the perception of external factors.** Expectancy can also be based on external factors. For example, one could believe that being able to successfully perform managerial tasks will lead to one's eventual appointment to a senior leadership position. However, one could also believe that there are other factors that may impact on the likelihood of one's appointment to a senior leadership position such as a sexist organizational culture or individuals with discriminatory attitudes (e.g., "I am a woman. Therefore *others* will think I can never be a good leader and won't appoint me to a leadership position"). Here, even if one had positive beliefs about one's own abilities (or indeed about the abilities of one's group), one might still not expect to reach a goal due to external barriers and would thus have lower levels of overall expectancy and, as a result, motivation. This link has been demonstrated in studies providing evidence that external barriers such as perceived discrimination and prejudice can lower motivation in achievement settings (Alfaro, Umaña-Taylor, Gonzales-Backen, Bámaca, & Zeiders, 2009; Foley, Kidder, & Powell, 2002; Foley, Ngo, & Loi, 2006; Ragins & Cornwell, 2001). For example, Alfaro and colleagues (2009) conducted a longitudinal study with Latino and Latina adolescents in an educational setting and found that perceptions of racial discrimination predicted future reductions in academic motivation. With regard to occupational settings, Foley and colleagues (2002) found that female solicitors' perceptions of gender discrimination were associated with motivational indicators such as lower organizational commitment and higher intentions to quit their jobs.

**Value.** Value refers to the subjective desirability of a goal and goal-related behaviors and predicts motivation and goals in addition to, and in interaction with, expectancy (Nagengast et al., 2011;

Trautwein et al., 2012). Similar to expectancy, there are a combination of factors that can contribute to the overall value of a goal (Eccles, 1983). First, value can be based on attributes of the goal and goal-related activities in themselves such as interest and enjoyment. Moreover, value can also be based on the perceived effects that reaching the goal might have.

**Value based on internal attributes of the goal.** The first aspect of value refers to both the enjoyment and interest associated with a goal per se, as well as the degree to which a goal and its associated activities are included in one's self-concept. For example, being interested in mathematics, enjoying solving mathematical problems, and a subjective importance of being good in math are internal value components of the goal of becoming a mathematician. It is thus related to both Eccles' (1983) conceptions of intrinsic value (i.e., enjoyment and interest) and attainment value (i.e., subjective importance), both of which have been linked to motivation and goals (Harackiewicz, Durik, Barron, Linnenbrink-Garcia, & Tauer, 2008; Meece et al., 1990; Pang & Sau Ching Ha, 2010; Parkes & Jones, 2012; Xiang, Chen, & Bruene, 2005). For example, Meece and colleagues (1990) investigated value in the context of mathematics in high school and found that subjective importance of maths (i.e., the degree to which it was part of students' self-concept) was positively related to the number of maths classes students were planning to take. Similarly, Parkes and Jones (2012) found that both subjective importance and intrinsic enjoyment of teaching and performing predicted undergraduate music students' intentions of becoming music teachers or performers.

**Value based on consequences of goal attainment.** The second aspect of a goal's value encompasses reasons for pursuing a goal that are linked to the outcomes of the goal rather than pursuing the goal per se, for example higher order goals or moral values. In other words, this relates to the usefulness of a goal in achieving something else. It might include the difference one could make as a politician, the money one could make as a lawyer, or the perceived social contribution of being a nurse. What one finds useful is not fixed or objective, but rather is dependent on one's attitudes and moral values. For example, the goal of being a stay-at-home mother and wife may be desirable for some women with traditional values, but quite the contrary for some feminists.

Evidence demonstrates that value that is based on the consequences of goal attainment does indeed impact on role aspirants' motivation, goals, and choices in achievement domains (Bøe, 2012; Lin, Shi, Wang, Zhang, & Hui, 2012; Pang & Sau Ching Ha, 2010). For example, Lin and colleagues (2012) demonstrated that when asking prospective American and Chinese teachers about their motivations, outcomes associated with a goal such as "making a contribution to society" were reported as most important. Similarly, Pang and Sau Ching Ha (2010) found that schoolchildren's perceived usefulness of physical activity was predictive of their engagement in sport.

In summary, we have outlined how the extent to which individuals expect to achieve a given goal and value this goal has an important impact on their motivation, both in terms of adopting the goal and being motivated to achieve it. But how does this relate to role modeling? In the next three sections we will discuss how expectancy-value theories might be used to better understand the role modeling process. We will explain how role models can influence role aspirants' expectancies and values in their functions

as behavioral models, representations of the possible, and inspirations. We will argue that a role model's effectiveness in influencing these factors will depend on how they are perceived by the role aspirant and we will outline attributes of the role model as well as of the role aspirant that predict these perceptions and the potential mechanisms by which they exercise their influence. We will first describe how role aspirants' expectancies can be influenced by role models as behavioral models, before we turn to role models as representations of the possible, and finally to role models as inspirations.

### Role Models as Behavioral Models in the Expectancy-Value Framework

As outlined above, self-efficacy is an important part of goal-related expectations and, according to Bandura (1977a), one source of self-efficacy is social modeling which leads to vicarious learning. In other words, observing someone successfully engaging in a task will increase one's confidence in being able to successfully complete the task oneself. For example, observing other people presenting at an academic conference can help a student or early career researcher understand how to communicate their research successfully. Even before actually presenting their work, they will feel more confident in their ability because they have a better idea of how to do so. This differs from the function of role models as representations of the possible in that the focus is on *how to do something*, not *if something is possible*. This path from vicarious learning to self-efficacy has been demonstrated many times since it was proposed by Bandura and has been applied to variety of domains. For example, Law and Hall (2009) conducted a survey with sports novices and demonstrated that self-reported observational learning of skills and strategies predicted individuals' self-efficacy in relation to skills and tactics respectively. Similar results have been found in occupational contexts (Eden & Kinnar, 1991; Neff, Niessen, Sonnentag, & Unger, 2013), educational settings, for example, with regards to maths and statistics (Bartsch, Case, & Meerman, 2012; Lent, Lopez, & Bieschke, 1991) and writing (Zimmerman & Kitsantas, 2002). This demonstrates how, by learning vicariously from their role models in their function as behavioral models, role aspirants increase their self-efficacy and thus their expectancy beliefs, resulting in higher motivation to pursue the goal in question.

But who is seen as a behavioral model? Manz and Sims (1981) note that "whether or not a model is attractive, competent, and successful contributes to the overall probability of that model's behavior being imitated by others" (p. 105). In other words, those who embody a relevant goal serve as behavioral models. Goal embodiment refers to the degree to which a role model has successfully reached the role aspirant's goal and is thus closely linked with the capacity to motivate a role aspirant to move toward an already existing goal. For example, to a medical student who has the goal of becoming a successful surgeon, any successful surgeon may embody this goal. However, although goal embodiment in achievement domains may often be linked to success, goal embodiment goes beyond simple attainment. We would argue that role aspirants generally have more than one goal related to the same domain and that the person who best embodies a combination of these goals will make the most effective role model. For example, a medical student whose goal is to become a successful

surgeon might also desire a good work-life balance and want to be respected by both patients and colleagues. Thus, a surgeon who embodies all three of these goals will be more likely to become this student's role model—and, more importantly, become an *effective* role model for this student—rather than the most successful surgeon who has no work-life balance and is disliked by everyone. On the other hand, role aspirants can also have more than one role model. Our hypothetical medical student could thus also learn vicariously from one surgeon how to achieve success, from another how to achieve a good work-life-balance, and yet another surgeon might become a behavioral model for bedside manner and interactions with colleagues.

The role model literature provides evidence for the importance of goal embodiment for changing expectancy, although it generally assumes success as the relevant goal in achievement settings (e.g., Bagès & Martinot, 2011; Marx & Roman, 2002). For example, BarNir and colleagues (2011) investigated students in a business class and the impact of successful role models on self-efficacy in relation to career intentions. They found that, in general, role models had a positive effect on career intentions and that this effect was in part explained by entrepreneurial self-efficacy (see also Henry, Hill, & Leitch, 2005; Robertson & Collins, 2003).

What is less understood, however, is the way in which role aspirants' multiple goals might influence choices of role model and subsequent expectancies and motivation. Indeed, there is evidence that although success might be an important role model attribute which contributes to perceptions of goal embodiment, the extent to which it matters depends on role aspirant attributes and goals, for example whether role aspirants generally set avoidance or approach goals (Lockwood, Jordan, & Kunda, 2002; Lockwood, Sadler, Fyman, & Tuck, 2004; Schokker et al., 2010). A study by Lockwood and colleagues (2002) illustrates this point. The authors demonstrate that only those individuals who are promotion focused (i.e., those who focus on a positive goal they are trying to achieve, such as success) benefit from a successful role model while this is not the case for those who are prevention focused (i.e., those who focus on the avoidance of a negative outcome such as failure). Moreover, a study by Weaver, Treviño, and Agle (2005) demonstrated that business success was often irrelevant when it came to identifying role models for ethical behavior. When role aspirants focused on this moral goal, being ethical was the important dimension, not general success in the business world.

In summary, role model attributes (e.g., levels of success and competence in other areas) and role aspirant attributes (i.e., goals held by the role aspirant) interact and contribute to role aspirants' perception of goal embodiment. Higher levels of perceived goal embodiment increase the extent to which role aspirants learn vicariously from role models and feel more confident in reaching their goals. In other words, vicarious learning increases self-efficacy or expectancy based on perceptions of internal attributes. Higher levels of expectancy in turn increase motivation, reinforce existing goals, and also lead to the acquisition of new skills. For an illustration of these processes, see Figure 2. The figure also illustrates two points we have made before, namely that expectancy influences value and that role modeling is a cyclical process. In the case of role models of behavioral models, this could, for example, mean that once new skills have been acquired, a role model who was previously perceived to be high in goal embodiment is no



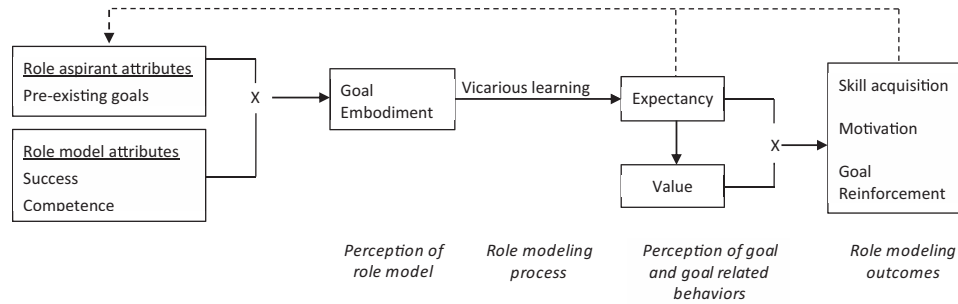


Figure 2. Role models as behavioral models.

longer seen in that way and role aspirants instead seek out new role models who embody a higher level of skills or success.

Taken together, this leads us to our first proposition:

*Proposition 1.* Perceived goal embodiment influences expectancy, and in turn motivation and goals, by prompting vicarious learning.

### Role Models as Representations of the Possible in the Expectancy–Value Framework

Role models may also impact on role aspirants' expectations of success as representations of the possible, although the mechanisms by which they do so are different from those of role models who are behavioral models. The way in which role models as representations of the possible can influence role aspirant expectancy goes beyond increasing self-efficacy in Bandura's sense. In the sections below we will outline two distinct ways in which role models as representations of the possible may influence expectancy, namely changing self-stereotyping and changing the perception of external barriers. Moreover, we believe that role aspirants' perceptions of goal embodiment and attainability will influence the extent to which these processes take place. Although the link between goal embodiment and expectancy has already been discussed above, below we will present evidence that suggests that it exerts its influence not only through vicarious learning, but also through changing self-stereotyping. Next, we will propose that role models as representations of the possible also affect expectancy through changing the perception of barriers. Again, we propose that goal embodiment and attainability are key to this process and discuss evidence highlighting the role of goal embodiment to this process.

The last section on role models as representations of the possible is dedicated to the role of attainability. Here we present evidence that attainability is linked to expectancy, suggest role model and role aspirant attributes that influence perceptions of attainability, and discuss how attainability is linked to the processes of changing self-stereotyping and changing perceived barriers.

**Representations of the possible and self-stereotyping.** One way in which role models can represent the possible, and thus increase role aspirant expectancy, is through influencing self-stereotyping (through either decreasing negative self-stereotyping or increasing positive self-stereotyping) by evoking a shared social identity with the role aspirant. This potential link between role models, self-stereotyping, and expectations of success is supported

from a theoretical perspective by the stereotype inoculation model (Dasgupta, 2011). This model is designed to explain how, in high achievement contexts, ingroup experts and peers—in other words, role models—can help to inoculate minority group members against negative stereotypes. According to this model, contact with role models changes how role aspirants perceive the demographic composition of a domain. This change in perceptions in turn enhances identification with the domain, which can also be thought of as decreased negative self-stereotyping, and increases self-efficacy. These processes in turn lead to a variety of positive outcomes such as increased effort and performance, better career goal setting and decision making, and more active engagement.

There is also empirical evidence supporting the stereotype inoculation model that demonstrates that role models can have a positive impact on relevant self-stereotypes and that this does indeed go hand-in-hand with role aspirants more positive beliefs about success and aspirations (Asgari et al., 2012; Hoyt & Simon, 2011; Stout et al., 2011). For example, Asgari and colleagues (2012) presented female participants with information about female leaders who were thought to function as potential role models. They found that exposure to these leaders reduced gendered self-stereotyping such that participants associated themselves more strongly with agentic traits (e.g., being a leader) rather than stereotypically female nurturing qualities (e.g., supportive). The researchers also found that such changes in self-stereotyping predicted the degree to which participants saw themselves in leadership positions in the future (Asgari et al., 2012, Study 3).

However, not all potential role models will act as representations of the possible and change self-stereotyping. We suggest that the perception of two role model qualities is key to this process, namely goal embodiment and attainability. A role model's attainability refers to the degree to which a role aspirant can see him or herself being like the role model in the future—the answer to the question “can I be like this person?” This is closely related to similarity, but differs in an important aspect. Rather than being about current similarity, it is about potential future similarity. We propose that attainability is related both to motivation in relation to existing goals and the adoption of new goals and works through influencing role aspirants' expectations of success when combined with the embodiment of an existing or new goal. By seeing someone else reach a goal (goal embodiment) and believing that one can be like said person (attainability), role aspirants can imagine themselves in the position of this role model and thus believe in reaching the goal themselves. In this way, together

attainability and goal embodiment can increase group-based self-efficacy.

These changes are only useful if they are in line with one's goals or a potential new goal, and thus goal embodiment is crucial.<sup>1</sup> For example, if a role aspirant aims to become a manager, only those stereotypes that are relevant to this goal (i.e., the traits and abilities a manager needs to possess) are important and these stereotypes are only going to change in the desired direction if the role model embodies what it means to be a manager. A number of studies demonstrate that exposure to role models who embody goals can indeed change role aspirants' self-stereotypes, their beliefs about their abilities, their goals, and their ambitions. Such evidence has been found both using experimental methodologies in the laboratory (Asgari et al., 2012; Stout et al., 2011, Studies 1 and 2) and in longitudinal, naturalistic studies (Asgari, Dasgupta, & Cote, 2010; Stout et al., 2011, Study 3) as well as in studies testing the effects of interventions which included the use of role models on possible selves (Oyserman et al., 2006). Crucial to our argument, the potential role models in these studies were always successful in a domain relevant to the role aspirant. For example, they were either successful professional leaders who changed the role aspirants' self-stereotypes with regards to leadership (Asgari et al., 2012), successful peers in STEM fields who changed role aspirants' self-stereotypes with regards to maths (Stout et al., 2011), or professors (and thus leaders) of the role aspirants' field of study who affected leadership-related self-stereotypes (Asgari et al., 2010).

**Representations of the possible and external barriers.** Role models in their function as representations of the possible may also change the way in which external barriers are perceived. For example, if a woman sees another woman occupying a senior leadership position, this role model might facilitate expectations of success in more than one way. First, it may give her an example of successful behavior she can emulate and change self-stereotyping as discussed above. In addition to that, however, such a role model may also demonstrate to the role aspirant that gender does not constitute an insurmountable obstacle and might thus improve her expectancies of success based on external factors as well. In other words, the role model shows that "it can be done."

We have already discussed how one of these potential barriers which lower expectancies is the perception of discrimination and research shows that the presence of role models such as other ingroup members in similar or higher positions does indeed signal the absence of discrimination, for example, discrimination based on ethnicity (Foley et al., 2002) and sexual orientation (Ragins & Cornwell, 2001). However, we again suggest that different potential role models might be more or less suitable to change perceived barriers. To show that barriers are not insurmountable for role aspirants, role models must have reached the goal and role aspirants must believe that they can be like the role model in the future. The mechanisms are thus similar to those resulting in changing self-stereotyping.

Indirect evidence for the importance of goal embodiment in this process comes, for example, from Buunk and colleagues (2007) who found more positive effects on planned career-related behavior when final year students were exposed to a recently graduated role model who was successful rather than an unsuccessful in securing a job after graduation. We suggest that this is attributable to changes in expectancy based on external factors such as the

current job market (see also Foley et al., 2002; Ragins & Cornwell, 2001).

**The role of attainability.** We have suggested that attainability is important both for changing self-stereotyping and for changing the perception of external barriers. There are a number of studies that demonstrate that role models as representations of the possible need to be attainable in order to increase expectancy. Although the construct of attainability in itself has not been widely investigated within the role model literature, there are a number of factors, namely level of the role model's success, attribution of this success, shared group membership, and similarity, that have been investigated and that speak to attainability.

**Role model success and attainability.** A study by Lockwood and Kunda (1997, Study 2) directly manipulated the attainability of a role models success, and in line with our predictions they demonstrated that only those role models whose success seemed attainable positively influenced role aspirants expectations of success. Moreover, a study by Hoyt and Simon (2011) demonstrates that potential role models that are too successful can be detrimental for role aspirant expectancy. This indicates that the ideal degree of success follows an inverted U-shaped curve: If an individual is not seen as successful enough, they are unlikely embody the role aspirant's goal in achievement settings. However if the individual is too successful, they may seem unattainable and a contrast effect may occur, leaving the role aspirant in an inferior situation than if they were without this potential role model.<sup>2</sup> However, the optimal success of a potential role model is of course dependent on the role aspirant's perception of the role model's success in comparison to his or her own success as well as their own ability beliefs (Brown, Novick, Lord, & Richards, 1992; Collins, 1996; Hoyt, 2013; Wheeler et al., 1997). A doctoral-level student might see a successful postdoc as an excellent role model, but the same postdoc's effectiveness as a role model for a professor will be very limited—at least when the goal in question is purely success. Similarly, whereas a confident doctoral-level student might see the successful postdoc as attainable, another doctoral-level student with low self-esteem and low self-efficacy might see her or him as out of reach.

Other studies that speak to the attainability of role models, albeit indirectly, have examined the way in which the perceived reasons for a role model's success impact on role aspirants' expectancies. For example, if success is seen to occur by sheer luck or through nepotism, this is unlikely to be encouraging as it may be seen as unattainable. Using the terminology from Weiner's (1979) theory of attribution, people will be most likely to benefit from a role model's success if said success seems stable, controllable, and internal. Although not all studies use such terminology when investigating the effects of attribution, they still corroborate this idea and demonstrate that the attribution of success influences role

<sup>1</sup> Note that goal embodiment in the context of role models as representations of the possible can refer to either a new or an already existing goal. In the context of behavioral models, on the other hand, it refers primarily to already existing goals.

<sup>2</sup> This is also where the distinction between similarity and attainability becomes important. Similarity itself is at its maximum when level of success of role aspirant and role model are exactly the same. Attainability, on the other hand, can still be equally high when the role model is slightly more successful than the role aspirant as it is evaluated based on the potential future.

aspirants' expectancy (Hoyt et al., 2012; Lockwood & Kunda, 1997) and also illustrate how this attribution depends both on actual reasons for success on the side of the role model and attributes of the role aspirant.

For example, some studies have examined the effect of theories of abilities, that is, the belief that specific abilities such as intelligence or leadership skills are malleable and can be learned or are fixed and thus cannot be influenced by hard work or practice. The former could also be described as being controllable, whereas the latter is uncontrollable. With regard to this, Lockwood and Kunda (1997, Study 3) assessed students' theory of intelligence—whether they believed intelligence was fixed or malleable—before presenting them with information about an outstanding student or no potential role model. They found that for those role aspirants who believed that intelligence was malleable, the role model did indeed inspire. They rated their own ability beliefs more highly than those not exposed to a potential role model. On the other hand, those who believed that intelligence was fixed did not benefit from the highly successful student.

**Shared group membership and attainability.** Another widely studied role model characteristic that, we would argue, is related to attainability, is shared group membership. This is in line both with the social identity approach's claim that individuals generally believe that it is easier to become like those who share their social identities (Turner et al., 1994) and with the literature on upward comparison which claims that assimilation to an upward target is facilitated by a shared group membership (Collins, 1996). It is important to note, however, that everyone belongs to multiple social groups and that not every shared group membership carries equal weight. The social identity approach suggests that shared group membership will only matter to the extent that it relates to the role aspirant's salient and meaningful social identities (Turner et al., 1994). Moreover, in her review on the effects of upward comparison, Collins (1996) points out that the extent to which upward comparison targets share an *unusual* feature or group membership also affects the extent to which it matters (see also Brewer & Weber, 1994). It is therefore not surprising that most studies highlighting the importance of ingroup membership focus on categories that tend to be salient such as race or gender in situations in which these are even more visible—namely when said group is in the minority.

As we have noted earlier, changing role aspirants' self-stereotyping is an important mechanism through which role models can increase external expectancy, and therefore shared group membership may be one of the most important signals of attainability. Although some may argue that positive ingroup role models may impact on self-stereotyping through changing the stereotypes of the group as a whole (and that shared group membership rather than attainability is what matters). However, we would argue that the process is likely to be more complex, such that attainable, counterstereotypical role models demonstrate to role aspirants that stereotypes may not apply to oneself. Let us assume, for example, that a woman has the career goal of becoming a successful computer scientist but she does not believe that she has what it takes because of her gender. When she is exposed to a range of successful computer scientists, she makes an attainability assessment by asking herself whether she could be like said computer scientists. If her gender identity is salient, a female computer scientist is more likely to be seen as attainable than a

male computer scientist, which then leads to changes in her self-stereotypes following the logic of “she has the attributes of a successful computer scientist such as being analytical. I can be like her. Thus, I may have the attributes of a successful computer scientist such as being analytical.” This is supported by evidence that demonstrates that role models can indeed change role aspirant self-stereotyping *without necessarily changing stereotypes about the entire group in question* (Stout et al., 2011).

**Similarity and attainability.** More evidence indicating that perceived attainability is an important factor in the role modeling process comes from research investigating impact of the degree of similarity between the role aspirant and the potential role model. After all, the degree to which one can imagine being like someone else in the future is most certainly related to the degree of similarity perceived in the present. The idea that similarity is important for role aspirant expectancy assessment is not new and has been voiced several times in the social comparison literature (e.g., Collins, 1996; Festinger, 1954; Wheeler et al., 1997). For example, Festinger argues that role aspirants tend to compare themselves to similar others when assessing their abilities and Wheeler and colleagues argue in their Proxy Model of Social Comparison that to evaluate whether one can successfully perform a task, role aspirants compare themselves to a role models (which they refer to as proxy), who is similar in prior performance as well as in attributes related to the task (e.g., similar levels of expertise or practice). The authors further argue that role aspirants then look at whether the role model can successfully perform the task in question—a notion very similar to our proposed interaction between goal embodiment and attainability.

The examples of related attributes Wheeler and colleagues (1997) give seem to depend mostly on a role aspirant's past experience with the role model and thus suggests that one needs to know a role model quite well to make such an assessment. However, we would argue that many attributes thought to be related to success in achievement settings such as gender or ethnicity require little prior knowledge of the role model and this is in line with Wood's (1989) observation that even similarity on attributes that are completely unrelated to the ability in question such as sharing a date of birth (Brown et al., 1992) or being similar in physical attractiveness when evaluating one's ability of logical reasoning (Miller, 1982) promote positive effects when comparing with a target who is more successful than oneself.

Although neither Festinger (1954) nor Wheeler and colleagues (1997) suggest that the impact of similarity on expectancy is explained by attainability, this may be the case because their theory focuses on *present* ability rather than future goals. It makes sense that when evaluating whether one can perform a certain task in the present (e.g., “Can I at this point in time successfully publish a paper in GPR?”) one may look to others who are as similar as possible (e.g., other doctoral-level students who are also in their final year and similar in other related attributes such as number of other publications) to see whether they have been successful with the task at hand. However, when evaluating a broader, more distant goal (e.g., “Can I be a successful academic?”), attainability (i.e., potential future similarity) may be more important.

Similarity is by no means independent of level of success or shared group membership that we have discussed above, especially when said group membership is highly salient as it tends to be the case in the aforementioned studies (Turner et al., 1994). However,

there is evidence that the effect of perceived similarity on expectations of success goes beyond shared group memberships, even when it comes to salient categories such as gender (Asgari et al., 2012; Cheryan et al., 2011; Wohlford, Lochman, & Barry, 2004). For example, Cheryan and colleagues demonstrated that the degree to which women rated themselves as similar to a computer scientist role model had a greater impact on their success beliefs than did the role model’s gender. Moreover, this similarity was primarily influenced by whether or not the role model embodied computer scientist stereotypes such as having very “nerdy” hobbies.

Taking into account these findings, we conclude that perceived similarity is likely to be another, if not *the*, key factor in determining the perceived attainability—and eventually the effectiveness—of role models in their function as representations of the possible. Who is seen as similar depends on attributes of both the role aspirant and the role model. This may include important social identities such as gender but also fairly arbitrary characteristics such as a shared date of birth.

To summarize, someone’s perceived goal embodiment and attainability can make them a role model in their function as a representation of the possible and consequently influence expectancy by changing self-stereotyping and the perception of barriers. Both perceived goal embodiment and perceived attainability are influenced by a number of attributes of the role model as well as the role aspirant (see Figure 3). This process is again cyclical in nature. For example, once a role model has changed self-stereotyping and thus increased ability beliefs, a range of new role models might become attainable.

Based on what we have argued above, we thus propose:

*Proposition 2.* Perceived goal embodiment and perceived attainability interact to influence expectancy, and in turn motivation and goals, by changing self-stereotyping.

*Proposition 3.* Perceived goal embodiment and perceived attainability interact to influence expectancy, and in turn motivation and goals, by changing perceived external barriers.

We now turn away from the effects role models may have on expectancy and instead focus on how they can influence value in their function as inspirations.

### Role Models as Inspirations in the Expectancy–Value Framework

Before we go into more detail about how role models as inspirations integrate into the expectancy–value framework, it is useful to discuss what we mean by inspiration. Thrash and Elliot (2004) propose that inspiration can be divided into two different processes—being inspired *by* and being inspired *to*. The first, being “inspired by,” directly relates to role models as they are mentioned by the authors as one of the sources that can inspire role aspirants. For example, one might be *inspired by* one’s professor to pursue a career in academia. Thus, inspiration is one of the concepts that connects role models to role aspirant motivation and goal adoption. The authors also demonstrate that inspiration has three core qualities: Transcendence, evocation, and motivation. Transcendence refers to the way in which inspiration leads individuals to adopt new or better goals or to think in new or better ways—in other words, inspiration makes new goals desirable. Evocation recognizes that inspiration is generally evoked by something outside of one’s own will—for example, a role model. Finally, motivation describes the way in which inspiration leads one to want to strive toward these new goals. These three qualities are exactly what we, and others, argue role models do in their function as inspirations for role aspirants. Thus, these insights not only clarify that role models may indeed cause role aspirants to be inspired but also that this inspiration leads to role aspirants seeing new goals desirable and having increased motivation.

As we have outlined earlier, value is an important predictor of motivation, goals, and choices and in line with Thrash and Elliot’s (2004) conceptualization of inspiration we would argue that role models in this function can influence the perceived value of a goal. The fact that others can influence our value judgments has been

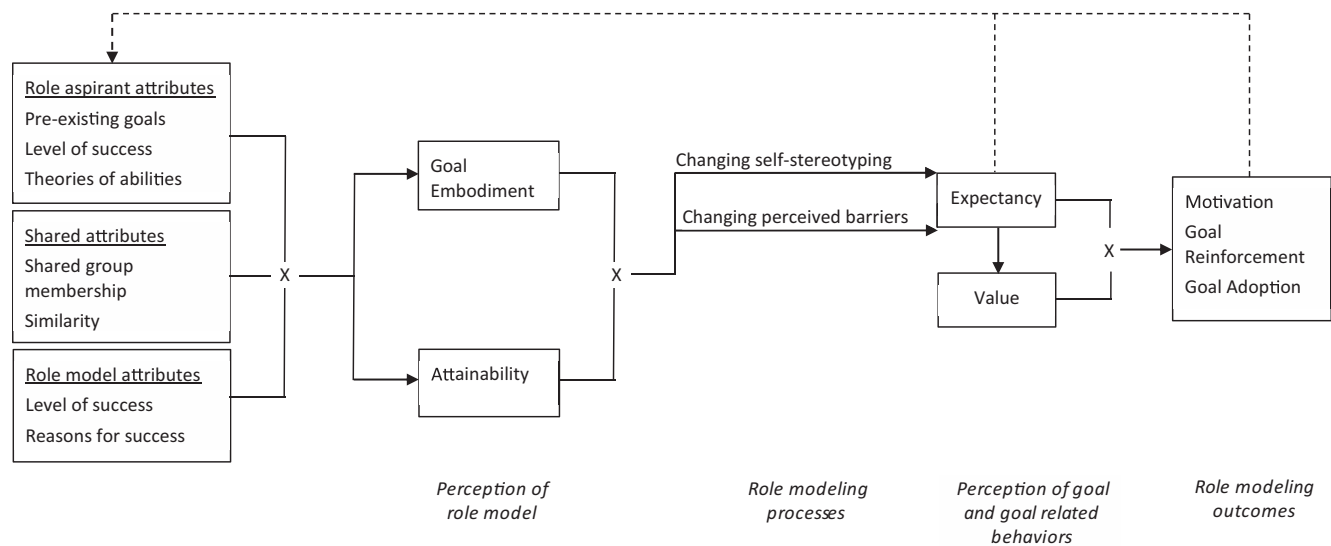


Figure 3. Role models as representations of the possible.

noted before. For example, the triadic model of opinion comparison (Suls, Martin, & Wheeler, 2000) suggests that when predicting whether one will like a certain task or activity (i.e., whether one will intrinsically value it), role aspirants look to others and their reactions to that task. However, these approaches do not discuss *inspiration*. In particular, the aspect of transcendence is missing from these analyses.

Our conceptualization of how role models can influence value is closer to the processes of identification and internalization described in the context of transformational leadership by both Shamir and colleagues (1993) and by Kelman (1958) in the context of attitude change based on social influence. Moreover, we suggest that role models also influence value through the emotional process of admiration as described by Schindler and colleagues (2013).

Identification, in this case, means personal identification, which refers to a process in which an individual (in this case the role aspirant) attempts to be like another person (in this case the role model) based on “the desire to emulate or vicariously gain the qualities of the other” (Shamir et al., 1993, p. 586). This desire is based on the attractiveness of the role model and the extent to which she or he represents desirable attributes or embodies important values (Kelman, 1958; Shamir et al., 1993). According to Kelman, identification results in satisfaction based on being like the identification target rather than the utility for any other goals. Thus, it results in an increase of what we refer to as value based on the internal attributes of a goal (i.e., enjoyment, interest, interest, and subjective importance as part of a role aspirant’s self-concept).

This is different from internalization, which refers to a process by which a person exposed to the source of social influence

adopts the induced behavior because it is congruent with his [or her] value system. He [or she] may consider it useful for the solution of a problem or find it congenial to his [or her] needs. Behavior adopted in this fashion tends to be integrated with the individual’s existing values. (Kelman, 1958, p. 53)

We would argue that internalization is therefore more likely to affect the value based on the consequences of goal attainment or behavior. According to Kelman this form of social influence is based primarily on the credibility of the source—an attribute which shares many similarities with competence and success.

A recent study by Schindler and colleagues (2013) suggests another potential route through which role models might influence the value role aspirants associate with the consequences of goal attainment: admiration, a concept very closely related to inspiration. According to the authors, admiration is an emotion that is associated with the internalization of ideals and values embodied by an outstanding role model, although the authors do not discuss what exactly makes a role model outstanding. Unfortunately, the authors do not name the attributes a role model needs to possess to inspire but we suggest that role models need to be perceived as desirable.

Desirability refers to the degree to which a role aspirant perceives a role model in a positive light, and such desirability is likely to make a role aspirant want to be like the role model. Indeed, there is evidence that demonstrates that career choices are often influenced by the desire to be like someone such as a role model (Quimby & DeSantis, 2006) and this effect of desirability is in addition to effects of self-efficacy (and thus expectancy). More-

over, research has demonstrated that the degree to which a leaders’ own behavior can change followers’ behavior depends on the degree to which they are seen as “worthy role models”—in other words, as desirable (Yaffe & Kark, 2011). This study further shows that the path between leader behavior and follower behavior is indeed explained, at least in part, by value. In other words, when leaders who were seen as desirable behaved in a certain way, followers valued this behavior more and in turn displayed such behaviors to a greater extent themselves.

However, the question remains: who do we see as desirable? Who can elicit identification, internalization, and admiration? When asking these questions, it is useful to first clarify how our concept of desirability differs from admiration. We agree with Schindler and colleagues’ (2013) definition of admiration as an emotion and suggest that desirability is what elicits this emotion. In addition, however, we suggest that desirability can also prompt identification or internalization, which could be seen as less “emotional” routes to changing value. Desirability is therefore an umbrella term which includes admirability, but also goes beyond it.

What predicts desirability? The literature on admiration (e.g., Sweetman, Spears, Livingstone, & Manstead, 2013) and impression formation and social judgment (e.g., Brambilla, Rusconi, Sacchi, & Cherubini, 2011; Brambilla, Sacchi, Rusconi, Cherubini, & Yzerbyt, 2012) suggest that there are three important factors that contribute to desirability: sociability, morality, and competence (which in this case does not refer to goal-related competence but to general attributes such as intelligence or skill). The notions of morality and competence are also in line with Kelman’s (1958) predictors for identification (embodying moral values) and internalization (credibility) respectively.

The stereotype content model (Fiske, Cuddy, Glick, & Xu, 2002) would further suggest that the importance of these attributes varies depending on the target’s group membership. Evidence from the role model literature on this issue is scarce and mixed. Calvert and colleagues (2001) demonstrated that the sociability and likability of a heroine from a TV show were related to the degree to which participants perceived her as a role model. However, this does not directly speak to whether perceiving her as a role model changed participants’ goals and motivation in any way. Indeed, a study by Parks-Stamm, Heilman, and Hearn’s (2008) demonstrates that information that a potential female role model was sociable had a negative influence on women’s ratings of their own competence when combined with information about managerial competence. One potential explanation for these findings might be the fact that the role model’s likability in combination with the high levels of success made her appear unattainable. This seems a likely explanation especially in the light of a second study where the effect disappeared when participants were given fake positive feedback about their own managerial skills—thus making them more similar to the role model. However, this study does not shed light on whether or not women thought being a manager was more desirable. Nevertheless this study illustrates the complexity of the role modeling process and how some information can be positive in some respects but negative in others.

In line with Shamir and colleagues (1993), we would argue that another important factor influencing desirability is shared group membership. As we have already discussed, the social identity approach suggests that we generally want to be like those in our ingroup (Turner et al., 1994), and thus ingroup members can

function as inspirations and influence how we value different goals (Turner, 1991). Evidence for this claim comes from studies that explicitly investigate how positive associations with an area on an explicit level (e.g., asking participants to rate how much they like maths) and implicit level (e.g., by pairing “good” and “bad” with maths and English) change when role aspirants are exposed to ingroup role models. These studies demonstrate that ingroup role models can influence the valence of a domain (Stout et al., 2011) although they do not always find changes in explicit measures (in line with the stereotype inoculation model discussed above). As we would suggest, the implicit measures they record are, however, often also related to changes in goals (Dasgupta, 2011; Stout et al., 2011).

Related to, but distinct from, shared group membership, is similarity, another factor that we suggest as a predictor for desirability. It has long been established that we generally like those who are similar to ourselves more than those who are dissimilar (Byrne, 1997) and while desirability goes beyond likability, they are certainly related. After all, why would we want to be like someone we dislike? Similarity has been found to predict likability in a number of contexts, ranging from romantic attraction (Byrne, 1997; Montoya, Horton, & Kirchner, 2008) to formal mentor-mentee relationships (Lankau, Riordan, & Thomas, 2005). Findings from the role model literature support the idea that this similarity is linked to interest and thus value. For example, Cheryan, Drury, and Vichayapai (2013) found that interacting with a similar or dissimilar computer science student had lasting effects on the interest in computer science that female students showed.

The relationships outlined above can be seen in Figure 4, which once more illustrates the cyclical nature of this process. For example, once a new goal has been adopted, different role models will be seen as desirable. Moreover, it should be noted that although we have included morality as a role model attribute, this is of course not an objective quality to possess. Rather, different behaviors which can be seen as moral or amoral displayed by the role model will interact with values held by the role aspirant to influence their perceptions of whether or not the role model is desirable. Taken together, we thus propose the following:

*Proposition 4.* Perceived desirability influences value, and in turn motivation and the adoption of new goals by prompting

the related processes of personal identification, internalization, and admiration.

**Summary**

On the previous pages, we have summarized a range of definitions of role model and from these definitions derived three distinct functions that role models serve. They can act as behavioral models, as representations of the possible, and they can act as inspirations. Bringing these functions together we have recommended a definition of role modeling that focuses on motivational outcomes for role aspirants and have proposed that role models influence motivation and goals by increasing the associated expectancy and value that role aspirants attach to goals. Moreover, we have outlined the mechanisms by which the role modeling process may occur and variables which are important in these processes which are summarized in Table 1.

To function as behavioral models, potential role models need to embody a role aspirant’s already existing goals. In achievement settings, this is likely to be linked to high levels of success or goal-related competence. Through vicarious learning experiences the role aspirant’s self-efficacy, an important part of expectancy, increases. This increases motivation to work toward an already existing goal. As one generally also enjoys the things one is good at (or believes one is good at), this is also likely to increase the value role aspirants associate with the goal in question. Moreover, vicarious learning is also likely to lead to skill acquisition. It should also be noted that changes in motivation, goals, and skills is in turn likely to influence goal embodiment—once goals have changed, it might well be that a new role model is needed, a behavioral model who embodies these new goals (see Figure 2).

Moreover, role models can function as representations of the possible. Here, they need to be perceived by the role aspirant as attainable and embody an already existing or new goal to increase motivation to move toward an existing or adopt a new goal respectively. A role model’s attainability is in turn influenced by a number of factors including, but not necessarily limited to, shared group membership, similarity, level of role model and role aspirant success and attribution of this success. These factors are of course likely to be related to one another. For example, if someone shares one’s group membership, they are also likely to be perceived as

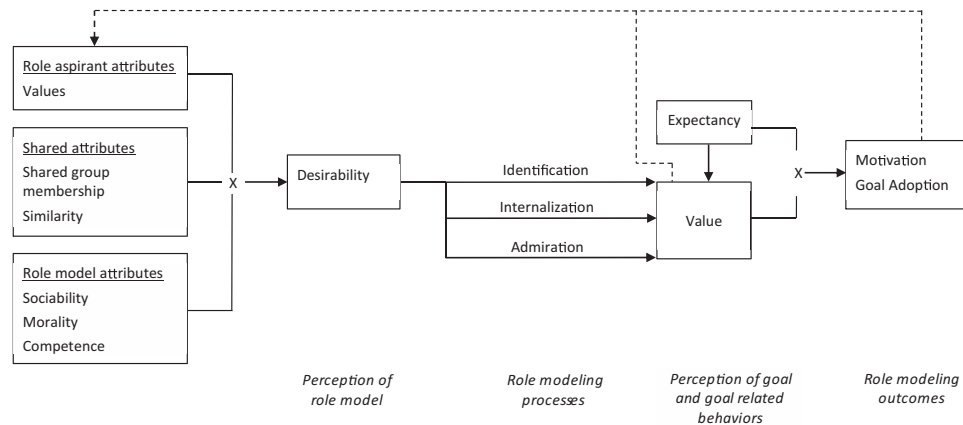


Figure 4. Role models as inspirations.

Table 1  
*Role Model Functions and Associated Variables*

Functions	Role aspirant attributes	Role model attributes	Role model qualities	Mechanisms	Mediating variables	Outcomes
Behavioral models	Pre-existing goals	Level of role model success	Goal embodiment	Vicarious learning	Expectancy	Skill acquisition
Representations of the possible	Level of role aspirant success	Reasons for role model success	Attainability	Changing self-stereotypes	Value	Motivation
Inspirations	Ability beliefs	Competence	Desirability	Changing perception of external barriers		Goal reinforcement
	Theories of abilities	Sociability		Identification		Goal adoption
	Self-esteem	Morality		Internalization		
	Values			Admiration		
	Similarity between role model and role aspirant					
	Shared group membership of role model and role aspirant					

more similar. Goal embodiment and attainability interact and influences the expectancy component of motivation by changing role aspirants' self-stereotyping and perceived barriers. As already noted when discussing role models as behavioral models, the process is likely to be cyclical—once a new goal has been adopted or an old one has been reinforced, the perceived attainability and goal embodiment of available role models may change, which in turn changes motivation and goals (see Figure 3).

Finally, role models can function as inspirations. For this to occur, they need to be perceived as desirable by the role aspirant, resulting in identification, internalization, and admiration. Shared group membership, similarity, perceived morality, sociability, and competence of the role model as well as values held by the role aspirant are likely to influence this quality. Although we believe that role modeling is a general process that is not restricted to any certain group, some of these factors might play different roles based on group membership. For example, as a result of prescriptive gender stereotypes, sociability might play more into the desirability of women, whereas general competence might be more important for male role models. Desirability can then positively influence the value a role aspirant places on a goal. We propose that as inspirational figures, role models mostly contribute to role aspirants adopting new goals. The adoption of a new goal, in turn, is likely to influence who we see as desirable (see Figure 4).

It is important to note that these three functions are by no means independent of each other. As discussed above, and as illustrated in Figures 2 to 4, there is an overlap between the different functions. For example, goal embodiment is important for role models as behavioral models as well as for role models as representations of the possible. On the other hand, fulfilling one function might also hinder fulfilling another. A role model who functions as an inspiration may make a goal desirable, but at the same time negatively influence role aspirants' expectations of success when attainability is low.

### Future Research

We have provided a framework that brings together various strands of the literature. Thus, there is considerable evidence from

these strands of literature that speaks to the potential relationships proposed in our theoretical framework. Nevertheless, they need to be tested empirically, both individually and in combination with one another. Although there is strong empirical evidence for parts of the framework (e.g., the link between vicarious learning and self-efficacy), other aspects of the framework are derived primarily from theoretical analyses and specific interpretation of certain findings (e.g., the link between desirability, admiration, and value) and thus need to be examined in more detail.

Our theoretical framework introduces three new constructs for the understanding of role model effectiveness: goal embodiment, attainability, and desirability. These constructs and their predictors have not, to our knowledge, been investigated directly or systematically, especially not in relation to one another. Future research should fill this lacuna and develop reliable psychometric measures for these new constructs. Similarly, the impact of role models in general on expectancy and values needs to be examined directly. The Motivational Theory of Role Modeling provides a framework from which to do so. However, this can only be a first step in bringing the role model literature together in a theoretically grounded way.

The bulk of the motivational literature and the role model literature have focused on educational and occupational contexts and we developed our theory with achievement settings in mind. However, it is very much the case that role modeling takes place outside of these settings. For example, one could also be motivated to be a good romantic partner or to behave in altruistic ways and this could likewise be influenced by role models. Whether the same relationships hold in nonachievement settings is, however, unclear, and needs to be empirically tested.

### Practical Implications

An emphasis on motivational processes is not only relevant for furthering our theoretical understanding of role models but also has important practical implications. Role models are often claimed as a solution to the underrepresentation of stigmatized groups, yet real life role model interventions often do not yield the desired effects (e.g., Armour & Duncombe, 2012). By gaining a

better understanding of role models, role aspirants, and the process of role modeling we can develop better and more effective role model interventions.

Our theoretical framework indicates that the type of intervention that is likely to be effective will depend on whether it aims at motivating role aspirants toward an already existing goal or toward the adoption of a new goal. For example, when trying to motivate girls and women to go into STEM fields, it is important to make the goal both attainable and desirable (i.e., increase both expectancy and value). For this, role models who can act as representations of the possible and inspirations are needed and it therefore makes sense to present role models that are both desirable and attainable. Interventions aiming at retaining women in STEM fields, on the other hand, need to enhance *expectations* of success as success itself is likely to be already highly valued. Thus, potential role models should be chosen based on whether they can act as behavioral models and show how to succeed in STEM as well as whether they can act as representations of the possible and show that success is attainable. Our theoretical framework suggests that goal embodiment and attainability are likely to be the most important factors in this case.

It is also important to keep the interplay of desirability and attainability in mind. Indeed, some factors that may increase desirability may at the same time decrease attainability. For example, someone like Mother Teresa might seem extremely moral and inspirational, and role aspirants may admire her a great deal, but at the same time this level of morality is likely to seem out of reach to most of us. The same can be said for other attributes that positively influence desirability such as level of success and sociability, as discussed earlier (Hoyt & Simon, 2011; Parks-Stamm et al., 2008). A shared group membership, on the other hand, influences both attainability and desirability positively and is therefore likely to be a good mechanism through which to enhance both qualities. It has to be kept in mind, however, that role aspirants are always members of many groups and shared group membership on one dimension might not be enough. For example, women of color or women with a working-class background may not benefit from a White female role model from an upper-class background.

These practical implications are especially relevant in the context of underrepresented and stigmatized groups. First, these groups face unique obstacles which can impact on both their motivation and achievement, obstacles that other groups do not encounter, such as lacking a sense of belonging, experiencing stereotype threat, or facing discrimination. It is therefore pivotal to find ways to motivate these groups and role models in all three functions can be important tools in this quest.

Moreover, we have highlighted the effects of stereotypes and perceived discrimination on motivation throughout this study, and both of these factors are of particular relevance for those who are negatively stereotyped and discriminated against in a given domain. In their function as representations of the possible, role models can influence both the application of these stereotypes to the self and the levels of perceived discrimination. This also helps explain why role models often have considerably smaller effects on majority groups (e.g., Bagès & Martinot, 2011; BarNir et al., 2011)—these groups are often positively stereotyped (e.g., men are perceived to be good at math regardless of their performance and

math is often already part of their self-concept) and thus their expectations of success are already high.

Lastly, we have discussed how shared group membership is important for the role modeling process when role models act as representations of the possible and as inspirations and pointed out that this might particularly be the case when both the role model and the role aspirant are part of salient minority groups. Therefore, designing role model interventions which present a diverse range of potential role models is key to their effectiveness.

## Conclusions

This paper provides a novel and integrated theoretical framework from which to examine the way in which role models motivate role aspirants. It contributes to the role model literature in several ways. First, it helps to bring the literature together and give it meaning that goes beyond the impact of the individual papers. Moreover, it takes a step toward understanding the processes through which role models may influence the goals and motivations of role aspirants. Role modeling cannot be understood without an examination of role aspirants themselves and the motivational processes taking place within them. By furthering the understanding of the role model process, we have also highlighted practical implications for those developing role model interventions as well as for those who may act as role models.

We began by recognizing that role models are seen a panacea for the underrepresentation of stigmatized groups: do we think this is the case? We certainly believe that role models have great potential in making a difference on role aspirants' lives (otherwise we would hardly have gone through the effort of writing this article). However, on the basis of the Motivational Theory of Role Modeling, we do not believe in a one-size-fits-all approach when it comes to role modeling. Role aspirants all have different goals, belong to different groups, and find different attributes desirable and attainable.

Returning to our initial example of Barack Obama as a role model for African Americans, we would argue that he can certainly have a positive effect by acting as a representation of the possible and as an inspiration for African Americans, but this may not always be the case. African American girls may see him as unattainable because of his gender, whereas others may not agree with his political views and thus see him as undesirable. For those who do not strive for the same kind of success, he may not embody relevant goals. Taken together, we believe that there is no such thing as a perfect role model for all people. There will never be a person who will be seen as attainable and desirable by all and embody everyone's goals and nobody can fulfill all role model functions for all potential role aspirants. On a more positive note, however, we would argue that role models do not need to be outstanding to be effective. Many "ordinary Joes" and "ordinary Janes" can be role models to someone. Rather than focusing on a few exceptional individuals and assuming that they will motivate all women or all African American students, we need to provide a range of diverse people who role aspirants can make their personal role models—we need to start seeing role models through the eye of the beholder.



## References

- Ainsworth, J. W. (2010). Does the race of Neighborhood role models matter? Collective socialization effects on educational achievement. *Urban Education, 45*, 401–423. <http://dx.doi.org/10.1177/0042085910372346>
- Alfaro, E. C., Umaña-Taylor, A. J., Gonzales-Backen, M. A., Bámaca, M. Y., & Zeiders, K. H. (2009). Latino adolescents' academic success: The role of discrimination, academic motivation, and gender. *Journal of Adolescence, 32*, 941–962. <http://dx.doi.org/10.1016/j.adolescence.2008.08.007>
- Almqvist, E. M., & Angrist, S. S. (1971). Role model influences on college women's career aspirations. *Merrill-Palmer Quarterly of Behavior and Development, 17*, 263–279.
- Armour, K., & Duncombe, R. (2012). Changing lives? Critical evaluation of a school-based athlete role model intervention. *Sport, Education, and Society, 17*, 381–403. <http://dx.doi.org/10.1080/13573322.2011.608941>
- Asgari, S., Dasgupta, N., & Cote, N. G. (2010). When does contact with successful in-group members change self-stereotypes? A longitudinal study comparing the effect of quantity vs. quality of contact with successful individuals. *Social Psychology, 41*, 203–211. <http://dx.doi.org/10.1027/1864-9335/a000028>
- Asgari, S., Dasgupta, N., & Stout, J. G. (2012). When do counterstereotypic ingroup members inspire versus deflate? The effect of successful professional women on young women's leadership self-concept. *Personality and Social Psychology Bulletin, 38*, 370–383. <http://dx.doi.org/10.1177/0146167211431968>
- Atkinson, J. W. (1957). Motivational determinants of risk-taking behavior. *Psychological Review, 64*, 359–372. <http://dx.doi.org/10.1037/h0043445>
- Atkinson, J. W. (1964). *An introduction to motivation*. Princeton, NJ: Van Nostrand.
- Bagès, C., & Martinot, D. (2011). What is the best model for girls and boys faced with a standardized mathematics evaluation situation: A hard-working role model or a gifted role model? *British Journal of Social Psychology, 50*, 536–543. <http://dx.doi.org/10.1111/j.2044-8309.2010.02017.x>
- Bandura, A. (1977a). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review, 84*, 191–215. <http://dx.doi.org/10.1037/0033-295X.84.2.191>
- Bandura, A. (1977b). *Social learning theory*. Englewood Cliffs, NJ: Prentice Hall.
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York, NY: Freeman.
- Bandura, A., & Locke, E. A. (2003). Negative self-efficacy and goal effects revisited. *Journal of Applied Psychology, 88*, 87–99.
- BarNir, A., Watson, W. E., & Hutchins, H. M. (2011). Mediation and moderated mediation in the relationship among role models, self-efficacy, entrepreneurial career intention, and gender. *Journal of Applied Social Psychology, 41*, 270–297. <http://dx.doi.org/10.1111/j.1559-1816.2010.00713.x>
- Bartsch, R. A., Case, K. A., & Meerman, H. (2012). Increasing academic self-efficacy in statistics with a live vicarious experience presentation. *Teaching of Psychology, 39*, 133–136. <http://dx.doi.org/10.1177/0098628312437699>
- Basow, S. A., & Howe, K. G. (1980). Role-model influence: Effects of sex and sex-role attitude in college students. *Psychology of Women Quarterly, 4*, 558–572. <http://dx.doi.org/10.1111/j.1471-6402.1980.tb00726.x>
- Bell, A. P. (1970). Role modelship and interaction in adolescence and young adulthood. *Developmental Psychology, 2*, 123–128. <http://dx.doi.org/10.1037/h0028613>
- Bøe, M. (2012). Science choices in Norwegian upper secondary school: What matters? *Science Education, 96*, 1–20. <http://dx.doi.org/10.1002/see.20461>
- Bosma, N., Hessels, J., Schutjens, V., Van Praag, M., & Verheul, I. (2012). Entrepreneurship and role models. *Journal of Economic Psychology, 33*, 410–424. <http://dx.doi.org/10.1016/j.joep.2011.03.004>
- Brambilla, M., Rusconi, P., Sacchi, S., & Cherubini, P. (2011). Looking for honesty: The primary role of morality (vs. sociability and competence) in information gathering. *European Journal of Social Psychology, 41*, 135–143. <http://dx.doi.org/10.1002/ejsp.744>
- Brambilla, M., Sacchi, S., Rusconi, P., Cherubini, P., & Yzerbyt, V. Y. (2012). You want to give a good impression? Be honest! Moral traits dominate group impression formation. *British Journal of Social Psychology, 51*, 149–166. <http://dx.doi.org/10.1111/j.2044-8309.2010.02011.x>
- Brewer, M. B., & Weber, J. G. (1994). Self-evaluation effects of interpersonal versus intergroup social comparison. *Journal of Personality and Social Psychology, 66*, 268–275. <http://dx.doi.org/10.1037/0022-3514.66.2.268>
- Brooks, L., & Betz, N. E. (1990). Utility of expectancy theory in predicting occupational choices in college students. *Journal of Counseling Psychology, 37*, 57–64. <http://dx.doi.org/10.1037/0022-0167.37.1.57>
- Brown, J. D., Novick, N. J., Lord, K. A., & Richards, J. M. (1992). When Gulliver travels: Social context, psychological closeness, and self-appraisals. *Journal of Personality and Social Psychology, 62*, 717–727. <http://dx.doi.org/10.1037/0022-3514.62.5.717>
- Buunk, A. P., Peiró, J., & Griffioen, C. (2007). A positive role model may stimulate career-oriented behavior. *Journal of Applied Social Psychology, 37*, 1489–1500. <http://dx.doi.org/10.1111/j.1559-1816.2007.00223.x>
- Byrne, D. (1997). An overview (and underview) of research and theory within the attraction paradigm. *Journal of Social and Personal Relationships, 14*, 417–431. <http://dx.doi.org/10.1177/0265407597143008>
- Calvert, S. L., Kondla, T. A., Ertel, K. A., & Meisel, D. S. (2001). Young adults' perceptions and memories of a televised woman hero. *Sex Roles, 45*, 31–52. <http://dx.doi.org/10.1023/A:1013008300927>
- Campbell, D. E., & Wolbrecht, C. (2006). See Jane run: Women politicians as role models for adolescents. *The Journal of Politics, 68*, 233–247. <http://dx.doi.org/10.1111/j.1468-2508.2006.00402.x>
- Chamorro-Premuzic, T., Harlaar, N., Greven, C. U., & Plomin, R. (2010). More than just IQ: A longitudinal examination of self-perceived abilities as predictors of academic performance in a large sample of UK twins. *Intelligence, 38*, 385–392. <http://dx.doi.org/10.1016/j.intell.2010.05.002>
- Cheryan, S., Drury, B., & Vichayapai, M. (2013). Enduring influence of stereotypical computer science role models on women's academic aspirations. *Psychology of Women Quarterly, 37*, 72–79. <http://dx.doi.org/10.1177/0361684312459328>
- Cheryan, S., Siy, J. O., Vichayapai, M., Drury, B. J., & Kim, S. (2011). Do female and male role models who embody STEM stereotypes hinder women's anticipated success in STEM? *Social Psychological and Personality Science, 2*, 656–664. <http://dx.doi.org/10.1177/1948550611405218>
- Collins, R. L. (1996). For better or worse: The impact of upward social comparison on self-evaluations. *Psychological Bulletin, 119*, 51–69. <http://dx.doi.org/10.1037/0033-2909.119.1.51>
- Dasgupta, N. (2011). In-group experts and peers as social vaccines who inoculate the self-concept: The stereotype inoculation model. *Psychological Inquiry: An International Journal for the Advancement of Psychological Theory, 22*, 231–246. <http://dx.doi.org/10.1080/1047840X.2011.607313>
- Dean, J. (2014, March 14). Girls need 'cool' role models in math and engineering. *The Times*. Retrieved from <http://www.thetimes.co.uk/tto/business/industries/engineering/article4033193.ece>
- Eccles, J. (1983). Expectancies, values, and academic behaviors. In J. T. Spence (Ed.), *Achievement and achievement motivation* (pp. 75–146). San Francisco, CA: Freeman.

- Eccles, J., Barber, B., & Jozefowicz, D. (1998). Linking gender to educational, occupational, and recreational choices: Applying the Eccles et al. model of achievement-related choices. In W. B. Swann, J. H. Langlois, & L. A. Gilbert (Eds.), *Sexism and stereotypes in modern society: The gender science of Janet Taylor Spence* (pp. 153–192). Washington, DC: American Psychological Association.
- Eccles, J. S., & Wigfield, A. (2002). Motivational beliefs, values, and goals. *Annual Review of Psychology*, *53*, 109–132. <http://dx.doi.org/10.1146/annurev.psych.53.100901.135153>
- Eden, D., & Kinnar, J. (1991). Modeling Galatea: Boosting self-efficacy to increase volunteering. *Journal of Applied Psychology*, *76*, 770–780. <http://dx.doi.org/10.1037/0021-9010.76.6.770>
- Else-Quest, N. M., Hyde, J. S., & Linn, M. C. (2010). Cross-national patterns of gender differences in mathematics: A meta-analysis. *Psychological Bulletin*, *136*, 103–127. <http://dx.doi.org/10.1037/a0018053>
- Erikson, M. G. (2007). The meaning of the future: Toward a more specific definition of possible selves. *Review of General Psychology*, *11*, 348–358. <http://dx.doi.org/10.1037/1089-2680.11.4.348>
- Feather, N. T. (1982). Expectancy–value approaches: Present status and future directions. In N. T. Feather (Ed.), *Expectations and actions: Expectancy–value models in psychology* (pp. 395–420). Hillsdale, NJ: Erlbaum.
- Festinger, L. (1954). A theory of social comparison processes. *Human Relations*, *7*, 117–140. <http://dx.doi.org/10.1177/001872675400700202>
- Fishbach, A., & Ferguson, M. F. (2007). The goal construct in social psychology. In A. W. Kruglanski & E. T. Higgins (Eds.), *Social psychology: Handbook of basic principles* (pp. 490–515). New York, NY: Guilford Press.
- Fiske, S. T., Cuddy, A. J., Glick, P., & Xu, J. (2002). A model of (often mixed) stereotype content: Competence and warmth respectively follow from perceived status and competition. *Journal of Personality and Social Psychology*, *82*, 878–902. <http://dx.doi.org/10.1037/0022-3514.82.6.878>
- Foley, S., Kidder, D., & Powell, G. (2002). The perceived glass ceiling and justice perceptions: An investigation of Hispanic law associates. *Journal of Management*, *28*, 471–496. <http://dx.doi.org/10.1177/014920630202800401>
- Foley, S., Ngo, H., & Loi, R. (2006). Antecedents and consequences of perceived personal gender discrimination: A study of solicitors in Hong Kong. *Sex Roles*, *55*, 197–208. <http://dx.doi.org/10.1007/s11199-006-9073-4>
- Gauntlett, D. (2002). *Media, gender, and identity*. London, UK: Routledge. <http://dx.doi.org/10.4324/9780203360798>
- Gibson, D. E., & Cordova, D. I. (1999). Women's and men's role models: The importance of exemplars. In A. Murrell, F. Crosby, & R. Ely (Eds.), *Mentoring dilemmas: Developmental relationships within multicultural organizations* (pp. 121–142). Mahwah, NJ: Erlbaum.
- Gomstyn, A. (2008, November 5). Obama as a role model: Students, educators share excitement. *ABC News*. Retrieved from <http://abcnews.go.com/US/story?id=6184328>
- Groenendijk, T., Janssen, T., Rijlaarsdam, G., & van den Bergh, H. (2013). The effect of observational learning on students' performance, processes, and motivation in two creative domains. *British Journal of Educational Psychology*, *83*, 3–28. <http://dx.doi.org/10.1111/j.2044-8279.2011.02052.x>
- Harackiewicz, J. M., Durik, A. M., Barron, K. E., Linnenbrink-Garcia, L., & Tauer, J. M. (2008). The role of achievement goals in the development of interest: Reciprocal relations between achievement goals, interest, and performance. *Journal of Educational Psychology*, *100*, 105–122. <http://dx.doi.org/10.1037/0022-0663.100.1.105>
- Haslam, S. A. (2004). *Psychology in organizations: The social identity approach* (2nd ed.). London, UK: Sage.
- Haslam, S. A., Reicher, S. D., & Platow, M. J. (2011). *The new psychology of leadership: Identity, influence and power*. London, UK: Psychology Press.
- Henry, C., Hill, F., & Leitch, C. (2005). Entrepreneurship education and training: Can entrepreneurship be taught? *Education & Training*, *47*, 98–111. <http://dx.doi.org/10.1108/00400910510586524>
- Hoyt, C. L. (2013). Inspirational or self-deflating: The role of self-efficacy in elite role model effectiveness. *Social Psychological and Personality Science*, *4*, 290–298. <http://dx.doi.org/10.1177/1948550612455066>
- Hoyt, C. L., Burnette, J. L., & Innella, A. N. (2012). I can do that: The impact of implicit theories on leadership role model effectiveness. *Personality and Social Psychology Bulletin*, *38*, 257–268. <http://dx.doi.org/10.1177/0146167211427922>
- Hoyt, C., & Simon, S. (2011). Female leaders: Injurious or inspiring role models for women? *Psychology of Women Quarterly*, *35*, 143–157. <http://dx.doi.org/10.1177/0361684310385216>
- Huguet, P., & Régner, I. (2007). Stereotype threat among schoolgirls in quasi-ordinary classroom circumstances. *Journal of Educational Psychology*, *99*, 545–560. <http://dx.doi.org/10.1037/0022-0663.99.3.545>
- Ibarra, H., & Petriglieri, J. L. (2008). *Impossible selves: Image strategies and identity threat in professional women's career transitions (INSEAD Working Paper)*. Retrieved from the INSEAD website: [http://www.insead.edu/facultyresearch/research/details\\_papers.cfm?id=18683](http://www.insead.edu/facultyresearch/research/details_papers.cfm?id=18683)
- Irvine, J. J. (1989). Beyond role models: An examination of cultural influences on the pedagogical perspectives of black teachers. *Peabody Journal of Education*, *66*, 51–63. <http://dx.doi.org/10.1080/01619568909538662>
- Jacobs, J. E., Lanza, S., Osgood, D. W., Eccles, J. S., & Wigfield, A. (2002). Changes in children's self-competence and values: Gender and domain differences across grades one through twelve. *Child Development*, *73*, 509–527. <http://dx.doi.org/10.1111/1467-8624.00421>
- Javidan, M., Bemmels, B., Devine, K. S., & Dastmalchian, A. (1995). Superior and subordinate gender and the acceptance of superiors as role models. *Human Relations*, *48*, 1271–1284. <http://dx.doi.org/10.1177/001872679504801102>
- Kelman, H. C. (1958). Compliance, identification and internalization: Three processes of attitude change. *The Journal of Conflict Resolution*, *2*, 51–60. <http://dx.doi.org/10.1177/002200275800200106>
- Kemper, T. D. (1968). Reference groups, socialization and achievement. *American Sociological Review*, *33*, 31–45. <http://dx.doi.org/10.2307/2092238>
- Lankau, M. J., Riordan, C. M., & Thomas, C. H. (2005). The effects of similarity and liking in formal relationships between mentors and protégés. *Journal of Vocational Behavior*, *67*, 252–265. <http://dx.doi.org/10.1016/j.jvb.2004.08.012>
- Latu, I. M., Schmid Mast, M., Lammers, J., & Bombari, D. (2013). Successful female leaders empower women's behavior in leadership tasks. *Journal of Experimental Social Psychology*, *49*, 444–448. <http://dx.doi.org/10.1016/j.jesp.2013.01.003>
- Law, B., & Hall, C. (2009). Observational learning use and self-efficacy beliefs in adult sport novices. *Psychology of Sport and Exercise*, *10*, 263–270. <http://dx.doi.org/10.1016/j.psychsport.2008.08.003>
- Lent, R. W., Lopez, F. G., & Bieschke, K. J. (1991). Mathematics self-efficacy: Sources and relation to science-based career choice. *Journal of Counseling Psychology*, *38*, 424–430. <http://dx.doi.org/10.1037/0022-0167.38.4.424>
- Lewin, K., Dembo, T., Festinger, L., & Sears, P. S. (1944). Level of aspiration. In J. M. Hunt (Ed.), *Personality and the behavior disorders* (pp. 333–378). New York, NY: Ronald Press.
- Lin, E., Shi, Q., Wang, J., Zhang, S., & Hui, L. (2012). Initial motivations for teaching: Comparison between preservice teachers in the United States and China. *Asia-Pacific Journal of Teacher Education*, *40*, 227–248. <http://dx.doi.org/10.1080/1359866X.2012.700047>

- Lockwood, P. (2006). "Someone like me can be successful": Do college students need same-gender role models? *Psychology of Women Quarterly*, 30, 36–46. <http://dx.doi.org/10.1111/j.1471-6402.2006.00260.x>
- Lockwood, P., Jordan, C. H., & Kunda, Z. (2002). Motivation by positive or negative role models: Regulatory focus determines who will best inspire us. *Journal of Personality and Social Psychology*, 83, 854–864. <http://dx.doi.org/10.1037/0022-3514.83.4.854>
- Lockwood, P., & Kunda, Z. (1997). Superstars and me: Predicting the impact of role models on the self. *Journal of Personality and Social Psychology*, 73, 91–103. <http://dx.doi.org/10.1037/0022-3514.73.1.91>
- Lockwood, P., Sadler, P., Fyman, K., & Tuck, S. (2004). To do or not to do: Using positive and negative role models to harness motivation. *Social Cognition*, 22, 422–450. <http://dx.doi.org/10.1521/soco.22.4.422.38297>
- MacIver, D., Stipek, D., & Daniels, D. (1991). Explaining within semester changes in student effort in junior high school and senior high school courses. *Journal of Educational Psychology*, 83, 201–211. <http://dx.doi.org/10.1037/0022-0663.83.2.201>
- Maddux, J. E., Norton, L. W., & Stoltenberg, C. D. (1986). Self-efficacy expectancy, outcome expectancy, and outcome value: Relative effects on behavioral intentions. *Journal of Personality and Social Psychology*, 51, 783–789. <http://dx.doi.org/10.1037/0022-3514.51.4.783>
- Manz, C. C., & Sims, H. P. (1981). Vicarious learning: The influence of modeling on organizational behavior. *Academy of Management Review*, 6, 105–113.
- Markus, H., & Nurius, P. (1986). Possible selves. *American Psychologist*, 41, 954–969. <http://dx.doi.org/10.1037/0003-066X.41.9.954>
- Marx, D. M., & Roman, J. S. (2002). Female role models: Protecting women's math test performance. *Personality and Social Psychology Bulletin*, 28, 1183–1193. <http://dx.doi.org/10.1177/01461672022812004>
- McIntyre, R. B., Paulson, R. M., Taylor, C. A., Morin, A. L., & Lord, C. G. (2011). Effects of role model deservingness on overcoming performance deficits induced by stereotype threat. *European Journal of Social Psychology*, 41, 301–311. <http://dx.doi.org/10.1002/ejsp.774>
- Meece, J. L., Wigfield, A., & Eccles, J. S. (1990). Predictors of math anxiety and its influence on young adolescents' course enrollment intentions and performance in mathematics. *Journal of Educational Psychology*, 82, 60–70. <http://dx.doi.org/10.1037/0022-0663.82.1.60>
- Merton, R. K. (1957). *Social theory and social structure*. New York, NY: Free Press.
- Miller, C. T. (1982). The role of performance-related similarity in social comparison of abilities: A test of the related attributes hypothesis. *Journal of Experimental Social Psychology*, 18, 513–523. [http://dx.doi.org/10.1016/0022-1031\(82\)90070-1](http://dx.doi.org/10.1016/0022-1031(82)90070-1)
- Montoya, R. M., Horton, R. S., & Kirchner, J. (2008). Is actual similarity necessary for attraction? A meta-analysis of actual and perceived similarity. *Journal of Social and Personal Relationships*, 25, 889–922. <http://dx.doi.org/10.1177/0265407508096700>
- Nagengast, B., Marsh, H. W., Scalas, L. F., Xu, M. K., Hau, K. T., & Trautwein, U. (2011). Who took the "x" out of expectancy-value theory? A psychological mystery, a substantive-methodological synergy, and a cross-national generalization. *Psychological Science*, 22, 1058–1066. <http://dx.doi.org/10.1177/0956797611415540>
- Neff, A., Niessen, C., Sonnentag, S., & Unger, D. (2013). Expanding crossover research: The crossover of job-related self-efficacy within couples. *Human Relations*, 66, 803–827. <http://dx.doi.org/10.1177/0018726712465095>
- Oyserman, D., Bybee, D., & Terry, K. (2006). Possible selves and academic outcomes: How and when possible selves impel action. *Journal of Personality and Social Psychology*, 91, 188–204. <http://dx.doi.org/10.1037/0022-3514.91.1.188>
- Paice, E., Heard, S., & Moss, F. (2002). How important are role models in making good doctors? *BMJ: British Medical Journal*, 325, 707–710. <http://dx.doi.org/10.1136/bmj.325.7366.707>
- Pang, B., & Sau Ching Ha, A. (2010). Subjective task value in physical activity participation: The perspective of Hong Kong schoolchildren. *European Physical Education Review*, 16, 223–235. <http://dx.doi.org/10.1177/1356336X10382971>
- Parkes, K., & Jones, B. (2012). Motivational constructs influencing undergraduate students' choices to become classroom music teachers or music performers. *Journal of Research in Music Education*, 60, 101–123. <http://dx.doi.org/10.1177/0022429411435512>
- Parks-Stamm, E. J., Heilman, M. E., & Hearn, K. A. (2008). Motivated to penalize: Women's strategic rejection of successful women. *Personality and Social Psychology Bulletin*, 34, 237–247. <http://dx.doi.org/10.1177/0146167207310027>
- Parsons, J. E., Adler, T., & Meece, J. L. (1984). Sex differences in achievement: A test of alternate theories. *Journal of Personality and Social Psychology*, 46, 26–43. <http://dx.doi.org/10.1037/0022-3514.46.1.26>
- Peacock, L. (2012, April 14). Women need role models who can juggle home and work life, says Rothschild MD Sian Westerman. *The Telegraph*. Retrieved from <http://www.telegraph.co.uk/finance/jobs/9203658/Women-need-role-models-who-can-juggle-home-and-work-life-says-Rothschild-MD-Sian-Westerman.html>
- Plante, I., O'Keefe, P., & Théorêt, M. (2013). The relation between achievement goal and expectancy-value theories in predicting achievement-related outcomes: A test of four theoretical conceptions. *Motivation and Emotion*, 37, 65–78. <http://dx.doi.org/10.1007/s11031-012-9282-9>
- Quimby, J. L., & DeSantis, A. M. (2006). The influence of role models on women's career choices. *The Career Development Quarterly*, 54, 297–306. <http://dx.doi.org/10.1002/j.2161-0045.2006.tb00195.x>
- Ragins, B. R., & Cornwell, J. M. (2001). Pink triangles: Antecedents and consequences of perceived workplace discrimination against gay and lesbian employees. *Journal of Applied Social Psychology*, 86, 1244–1261.
- Renko, M., Kroeck, K. K., & Bullough, A. (2012). Expectancy theory and nascent entrepreneurship. *Small Business Economics*, 39, 667–684. <http://dx.doi.org/10.1007/s11187-011-9354-3>
- Robertson, M., & Collins, A. (2003). The video role model as an enterprise teaching aid. *Education & Training*, 45, 331–340. <http://dx.doi.org/10.1108/00400910310495987>
- Rudman, L. A., & Phelan, J. E. (2010). The effect of priming gender roles on women's implicit gender beliefs and career aspirations. *Social Psychology*, 41, 192–202. <http://dx.doi.org/10.1027/1864-9335/a000027>
- Schindler, I., Zink, V., Windrich, J., & Menninghaus, W. (2013). Admiration and adoration: Their different ways of showing and shaping who we are. *Cognition and Emotion*, 27, 85–118. <http://dx.doi.org/10.1080/02699931.2012.698253>
- Schokker, M. C., Keers, J. C., Bouma, J., Links, T. P., Sanderman, R., Wolffenbuttel, B. H., & Hagedoorn, M. (2010). The impact of social comparison information on motivation in patients with diabetes as a function of regulatory focus and self-efficacy. *Health Psychology*, 29, 438–445. <http://dx.doi.org/10.1037/a0019878>
- Sealy, R. H. V., & Singh, V. (2010). The importance of role models and demographic context for senior women's work identity development. *International Journal of Management Reviews*, 12, 284–300.
- Shamir, B., House, R. J., & Arthur, M. B. (1993). The motivational effects of charismatic leadership: A self-concept based theory. *Organization Science*, 4, 577–594. <http://dx.doi.org/10.1287/orsc.4.4.577>
- Shapira, Z. (1976). Expectancy determinants of intrinsically motivated behavior. *Journal of Personality and Social Psychology*, 34, 1235–1244. <http://dx.doi.org/10.1037/0022-3514.34.6.1235>
- Shapiro, E. C., Haseltine, F. P., & Rowe, M. P. (1978). Moving up: Role models, mentors and the "patron system." *Sloan Management Review*, 19, 51–58.
- Steele, C. M., & Aronson, J. (1995). Stereotype threat and the intellectual test performance of African Americans. *Journal of Personality and*

- Social Psychology*, 69, 797–811. <http://dx.doi.org/10.1037/0022-3514.69.5.797>
- Stout, J. G., Dasgupta, N., Hunsinger, M., & McManus, M. A. (2011). STEMing the tide: Using ingroup experts to inoculate women's self-concept in science, technology, engineering, and mathematics (STEM). *Journal of Personality and Social Psychology*, 100, 255–270. <http://dx.doi.org/10.1037/a0021385>
- Suddaby, R. (2010). Editor's comments: Construct clarity in theories of management and organization. *The Academy of Management Review*, 35, 346–357. <http://dx.doi.org/10.5465/AMR.2010.51141319>
- Suls, J., Martin, R., & Wheeler, L. (2000). Three kinds of opinion comparison: The triadic model. *Personality and Social Psychology Review*, 4, 219–237. [http://dx.doi.org/10.1207/S15327957PSPR0403\\_2](http://dx.doi.org/10.1207/S15327957PSPR0403_2)
- Sweetman, J., Spears, R., Livingstone, A. G., & Manstead, A. S. (2013). Admiration regulates social hierarchy: Antecedents, dispositions, and effects on intergroup behavior. *Journal of Experimental Social Psychology*, 49, 534–542. <http://dx.doi.org/10.1016/j.jesp.2012.10.007>
- Thrash, T. M., & Elliot, A. J. (2004). Inspiration: Core characteristics, component processes, antecedents, and function. *Journal of Personality and Social Psychology*, 87, 957–973.
- Trautwein, U., Marsh, H. W., Nagengast, B., Lüdtke, O., Nagy, G., & Jonkmann, K. (2012). Probing for the multiplicative term in modern expectancy–value theory: A latent interaction modeling study. *Journal of Educational Psychology*, 104, 763–777. <http://dx.doi.org/10.1037/a0027470>
- Turner, J. C. (1991). *Social influence*. Milton Keynes, UK: Open University Press.
- Turner, J. C., Oakes, P. J., Haslam, S. A., & McGarty, C. (1994). Self and collective: Cognition and social context. *Personality and Social Psychology Bulletin*, 20, 454–463. <http://dx.doi.org/10.1177/0146167294205002>
- Vallerand, R. J., & Reid, G. (1984). On the causal effects of perceived competence on intrinsic motivation: A test of cognitive evaluation theory. *Journal of Sport Psychology*, 6, 94–102.
- van Auken, H., Fry, F. L., & Stephens, P. (2006). The influence of role models on entrepreneurial intentions. *Journal of Developmental Entrepreneurship*, 11, 157–167. <http://dx.doi.org/10.1142/S1084946706000349>
- Vroom, V. H. (1964). *Work and motivation*. New York, NY: Wiley.
- Vroom, V. H. (1966). Organizational choice: A study of pre- and post-decision processes. *Organizational Behavior & Human Performance*, 1, 212–225. [http://dx.doi.org/10.1016/0030-5073\(66\)90013-4](http://dx.doi.org/10.1016/0030-5073(66)90013-4)
- Wang, M. T. (2012). Educational and career interests in math: A longitudinal examination of the links between classroom environment, motivational beliefs, and interests. *Developmental Psychology*, 48, 1643–1657. <http://dx.doi.org/10.1037/a0027247>
- Wang, M. T., & Degol, J. (2013). Motivational pathways to STEM career choices: Using expectancy–value perspective to understand individual and gender differences in STEM fields. *Developmental Review*, 33, 304–340. <http://dx.doi.org/10.1016/j.dr.2013.08.001>
- Weaver, G. R., Treviño, L., & Agle, B. (2005). 'Somebody I look up to': Ethical role models in organizations. *Organizational Dynamics*, 34, 313–330. <http://dx.doi.org/10.1016/j.orgdyn.2005.08.001>
- Weber, H. S., Lu, L., Shi, J., & Spinath, F. M. (2013). The roles of cognitive and motivational predictors in explaining school achievement in elementary school. *Learning and Individual Differences*, 25, 2585–2592.
- Weiner, B. (1979). A theory of motivation for some classroom experiences. *Journal of Educational Psychology*, 71, 3–25. <http://dx.doi.org/10.1037/0022-0663.71.1.3>
- Wheeler, L., Martin, R., & Suls, J. (1997). The proxy model of social comparison for self-assessment of ability. *Personality and Social Psychology Review*, 1, 54–61. [http://dx.doi.org/10.1207/s15327957pspr0101\\_4](http://dx.doi.org/10.1207/s15327957pspr0101_4)
- Wohlford, K. E., Lochman, J. E., & Barry, T. D. (2004). The relation between chosen role models and the self-esteem of men and women. *Sex Roles*, 50, 575–582. <http://dx.doi.org/10.1023/B:SERS.0000023076.54504.ca>
- Wood, J. V. (1989). Theory and research concerning social comparisons of personal attributes. *Psychological Bulletin*, 106, 231–248. <http://dx.doi.org/10.1037/0033-2909.106.2.231>
- Wright, S., Wong, A., & Newill, C. (1997). The impact of role models on medical students. *Journal of General Internal Medicine*, 12, 53–56. <http://dx.doi.org/10.1007/s11606-006-0007-1>
- Xiang, P., Chen, A., & Bruene, A. (2005). Interactive impact of intrinsic motivators and extrinsic rewards on behavior and motivational outcomes. *Journal of Teaching in Physical Education*, 24, 179–197.
- Yaffe, T., & Kark, R. (2011). Leading by example: The case of leader OCB. *Journal of Applied Psychology*, 96, 806–826. <http://dx.doi.org/10.1037/a0022464>
- Zimmerman, B. J., & Kitsantas, A. (2002). Acquiring writing revision and self-regulatory skill through observation and emulation. *Journal of Educational Psychology*, 94, 660–668. <http://dx.doi.org/10.1037/0022-0663.94.4.660>

Received February 10, 2015

Revision received October 20, 2015

Accepted October 22, 2015 ■