PART I

BACKGROUND

1

Motivation for This Book

In 2008, one and a half months before their presidential campaign, the Republican presidential candidate John McCain and the Democratic candidate Barack Obama reacted very differently to the most serious U.S./world economic crisis since the Great Depression that preceded World War II. While McCain officially suspended his campaign to return to Washington, DC, on September 24, reportedly to deal with the financial crisis, and suggested that the debate scheduled for that Friday be rescheduled, Obama not only rejected the proposal for the rescheduling, but also carried out his campaign as planned. When asked by reporters about this, Obama responded by saying that presidents need to deal with more than one issue at a time. More than one month later (October 29, 2008), when former president Bill Clinton joined then-Senator Obama at a rally in Florida five days before the general election, Clinton, praising Obama's way of dealing with the financial crisis, revealed that when McCain abruptly suspended his campaign to go back to Washington, Obama was making phone calls (to Bill Clinton, Hillary Clinton, and others), trying to understand the situation before making a decision as to what to do. Obama ended up winning the election.

One way of viewing what happened is in terms of the different thinking styles of the two presidential candidates. According to Sternberg's (1997) theory of mental self-government, McCain was using a monarchic thinking style, dealing with one issue at a time. Obama, on the other hand, was using a hierarchical style, dealing with several issues, but perceiving one, in this case the presidential debate, as the most important issue at the time. Such different ways of dealing with the financial crisis are what Kagan (1965) might call acting impulsively, in the case of McCain, and acting reflectively, in the case of Obama. Similar situations abound in other walks of life as well. What we see in a campaign, we see every day in the behavior of more ordinary

people. In a more general sense, ways of reacting to a situation such as that of McCain are referred to in this book as Type II intellectual styles, which include what Sternberg calls the monarchic thinking style, what Kagan calls the impulsive style, and many other styles that denote a norm-favoring tendency and demonstrate more conventional and more rigid ways of dealing with tasks. In contrast, ways of handling a situation such as that of Obama are referred to as Type I intellectual styles, which include what Sternberg calls the hierarchical thinking style, what Kagan calls the reflective style, and many other styles that suggest a creativity-generating tendency and new ways of handling tasks.

"Intellectual style" – a term that encompasses all style constructs, with or without the root word "styles" – refers to people's preferred ways of processing information and handling tasks. Different scholars tend to adopt their own favored style terms, both in their writings and in the speeches they deliver. Examples of these terms are "cognitive style," "learning style," "thinking style," "mind style," "mode of thinking," and "teaching style." Recently, a consensus seems to have been reached (Zhang, Sternberg, & Rayner, 2012a) that all style labels can be best represented by what Zhang and Sternberg (2005) called "intellectual styles" in their "Threefold Model of Intellectual Styles" (see Chapter 2 in this book).

Can people's intellectual styles be changed? Founded on a systematic body of empirical evidence, this book focuses on examining style malleability. It will be argued that intellectual styles can be changed, both by virtue of people's natural socialization in different situations and as a result of training. Before reading the evidence concerning style malleability, readers might wish to have some general background information on the field of styles. To those readers who are already familiar with the literature on intellectual styles, I apologize for having to spend the best part of the first two chapters introducing background work on styles.

It is commonly acknowledged that the field of intellectual styles does not have a unified history and interrelated philosophical and theoretical foundations. Similarly, it is widely accepted that it was Gordon Allport (1937) who introduced the notion of styles to psychology when he compared "styles of life" to a way of identifying unique personality types or types of behaviors. A complete historical account of the various philosophical-theoretical foundations of the field is, of course, well beyond the scope of this chapter; proper historical treatments of the field can be found in a number of publications (e.g., Dember, 1964; Kagan & Kogan, 1970; Messick, 1994; Moskvina & Kozhevnikov, 2011; Nielsen, 2012; Rayner & Riding, 1997; Vernon, 1973; Zhang & Sternberg, 2006). Furthermore, the impact of these historical issues on

research activities in the field has been recounted in great depth elsewhere (e.g., Rayner, Zhang, & Sternberg, 2012; Zhang, Sternberg, & Rayner, 2012b).

The aim of this chapter is to situate the theme of this book – style malleability – within the larger context of the major research activities in the field of intellectual styles. The chapter does this by discussing issues that tend to be confusing not only to the general public but also to researchers in the field and to practitioners who are interested in applying the notion of styles to their work. These issues include the main difficulties that have led to the lack of identity of the style construct (or broadly, the lack of identity of the field of styles) and long-term controversial issues surrounding the nature of intellectual styles. Ultimately, the chapter explains why there is an urgent need for a book on the malleability of intellectual styles.

Specifically, the remainder of this chapter is divided into four parts. The first describes three major difficulties that present challenges to the identity of the field of intellectual styles. The second describes three long-standing controversial issues in the field. The third explains why it is critical that evidence for style modifiability be provided immediately. The final part of this chapter lays out the structure of the book.

Identity Issues

In 2012, Zhang, Sternberg, and Rayner (2012b) noted that until recently, the field of intellectual styles has been searching for its identity within the larger context of education, psychology, and business literatures, largely owing to three major related difficulties. These are difficulties in: (1) distinguishing styles from abilities/intelligences and personality; (2) finding a common language and a common conceptual framework for the style construct; and (3) establishing a link between the field of styles and other allied fields.

Distinguishing Style from Ability/Intelligence and Personality

One identity issue that the field of styles has been constantly facing is the difficulty in differentiating styles from abilities/intelligences on the one hand and from personality on the other. Such a difficulty has arisen from the fact that some of the earlier theories proposed styles that could not be shown to be "pure" style constructs (Sternberg, 2001). This lack of uniqueness has led many to question the need for a distinctive area of research on styles, and resulted in a severe reduction in styles research during the 1970s. At the same time, this identity crisis has triggered much discourse on the relationships of styles to abilities/intelligences and to personality.

Discussion concerning the intricate relationships of style to ability/intelligence and personality is best manifested in relation to Witkin's construct of field dependence/independence (FDI, also widely known as psychological differentiation), commonly recognized as the pioneering style construct in the field. With respect to its relationship to ability, some scholars (e.g., Jones, 1997a; Richardson & Turner, 2000; Zigler, 1963) have contended that FDI should not be regarded as a style construct because of the essential role that intelligence plays in individuals' performance on tests of FDI. In fact, even now, more than five decades after the establishment of Witkin's theory of psychological differentiation and after the theory has already generated tens of thousands of research programs, some scholars still reject the notion that field dependence/independence is a style construct. For example, at the turn of the 21st century, Richardson and Turner (2000) elaborated at length why FDI should be regarded as analytical ability. The central argument for their position is that the measures of FDI too often fail to show discriminant validity from conventional intelligence tests.

Other scholars, however, despite acknowledging that individuals' performance on the FDI tests does correlate with intellectual tasks that require disembedding, especially visual disembedding, have strongly argued that the FDI construct plays a unique role in accounting for individual differences (e.g., Dubois & Cohen, 1970; Jones, 1997b; Satterly, 1976; Spotts & Mackler, 1967; Stuart, 1967; Weisz, O'Neill, & O'Neill, 1975). In this regard, Kagan and Kogan (1970) astated that given the evidence that the FDI indices only negligibly clustered with verbal comprehension and attention concentration factors in traditional intelligence quotient (IQ) tests, an argument could be made against the contention that there is strong association between FDI and general intelligence. They maintained, "It is doubtful whether our understanding would be advanced by reducing the constructs of field independence and analytic functioning to an amorphous 'general intelligence' construct which bears no conceptual relationship to any major psychological theory" (Kagan & Kogan, 1970, p. 1326).

At the same time, the relationship between the FDI construct and personality has also been a perpetual focal point for scholarly debates. From the very start, Witkin and his colleagues (Witkin, 1959; Witkin, Karp, & Goodenough, 1959; Witkin, Lewis, Hertzman, Machover, Meissner, & Wapner, 1954) perceived the FDI construct to be closely related to personality. As a matter of fact, in their early publications, Witkin and his research team considered psychological differentiation to be a stable, structural aspect of personality. This interest in, and indeed the need to clarify the relationship between, styles and personality have since been echoed by many scholars who have held different

views about the association (or distinction for that matter) between styles and personality.

Clearly, some scholars perceive styles as being embedded in the construct of personality. For example, Messick (1994) argued that styles should be organized within the broader personality system. Moreover, as far back as 1982, when reviewing Witkin's final book (Witkin & Goodenough, 1981), Korchin (1982) declared that "[f]ield dependence-independence theory has evolved into a major personality theory" (p. 602).

Other scholars believe that personality contributes to styles. For example, in reviewing the then-existing theories of intellectual styles, Cattell (1973) affirmed that "the inevitable conclusion is that the styles are the effect of the personality factors" (p. 396). Similarly, P. L. Myers (1988) proposed a hierarchy of styles of cognition (e.g., cognitive, perceptual, and verbal) and considered personality to be a source of individual differences within styles. Likewise, Furnham (1995) pointed out that the role of personality in styles appears to be "implicit in the writings of many educational and psychological researchers" (p. 398), despite the fact that this relationship is seldom articulated as such.

A third group of scholars consider the relationship between styles and personality to be bidirectional. For example, after an extensive discussion of the development of FDI from early childhood to adolescence in relation to aspects of personality and socialization, Kogan and Block (1991) concluded that the most credible view of the relationships between FDI, personality, and socialization is that "the three variables may be linked in a completely bidirectional, interactive manner" (p. 205).

Finally, still other scholars have been more cautious and have thus offered a more tentative view regarding the relationship of styles to personality and ability/intelligence. For instance, in reviewing work on Kagan's (1965) construct of reflectivity-impulsivity vis-á-vis Riding and Cheema's (1991) concept of holistic-analytic style dimension, Jones (1997a) noted that styles, "if not directly part of the personality, or intelligence, are at least intimately associated with various non-cognitive dimensions of personality, and cognitive dimensions of intelligence and academic performance" (p. 65).

Naturally, one would want to know the consequences of these diverse views with respect to the distinction (or association) between styles and both ability/intelligence and personality. Undoubtedly, confusion over the relationship of styles to ability/intelligence and personality slowed down research activities in the area of styles for some time, as noted by Sternberg (2001). At the same time, however, this confusion has also served as the catalyst for styles researchers' attempts to clarify these relationships. At the conceptual level,

for example, Messick (1996) convincingly drew major distinctions between styles and abilities along several dimensions (see also Most & Zeidner, 1995). Jablokow and Kirton (2009) articulated the differences between styles and abilities by elucidating the relationships of creativity and problem solving to the level-style distinctions. Roodenburg, Roodenburg, and Rayner (2012) cogently elaborated how styles and personality, as two aspects of an individual, interact to influence an individual's behavior. Much earlier, Grigorenko and Sternberg (1995) asserted that styles are at the interface of ability/intelligence and personality. At the empirical level, the continuing debate over the distinction (or association) between styles and both abilities/intelligences and personality has also served as a strong impetus for researchers to conduct studies to clarify the issue (see Furnham, 2012; Roodenburg, Roodenburg, & Rayner, 2012; Zhang & Sternberg, 2006 for reviews).

Certainly, the aforementioned efforts at both the conceptual and empirical levels have been successful in highlighting the unique contributions of styles to human performance beyond ability/intelligence and personality. Nonetheless, these efforts continue to be sporadic because doubts about the uniqueness of the style construct persist (see Zhang, Sternberg, & Rayner, 2012b).

Searching for a Common Language and a Common Conceptual Framework

The fact that there was neither common language nor common conceptual framework within which work on styles could be understood was another reason why the field of styles lacked a clear identity for a long time. Some scholars (e.g., Evans & Waring, 2009; Messick, 1994; Miller, 1987; Vernon, 1963) attributed this identity issue to the immense number of style labels generated, compounded by a large number of style measures. Indeed, within the first few decades of research on styles, and especially during the "golden age" of the styles movement between the late 1950s and the early 1970s, the appearance of the large number of theories and models of styles gave rise to a correspondingly large number of labels (Messick, 1984; Riding & Cheema, 1991; Zhang & Sternberg, 2006), such as *brain dominance*, *cognitive style*, *conceptual tempo*, *defensive style*, *expressive style*, *responsive style*, *learning approach*, *learning style*, *learning pattern*, and *think style*, among others. As an indication of the large number of style labels, if one traces back some of the major reviews of the styles literature, one would realize that each time the work was reviewed, a different number of style labels would be mentioned, and that the number increased with the passage of time. As an illustration, when reviewing the then-existing work on styles, Hayes and Allinson (1994) noted that there were 22 different dimensions of "cognitive style" alone. Five years later, Armstrong (1999) identified 54 style dimensions. Finally, a review conducted by Coffield

and his colleagues (Coffield, Moseley, & Ecclestone, 2004) showed, as Evans and Waring (2009) put it, a "bewildering library of style measures (over 71 theories of styles)" (p. 172). However, as Zhang and Sternberg (2006) pointed out, many of these styles had principally evolved from theories established on the basis of single studies with little subsequent empirical support. Moreover, different theorists emphasized different dimensions of styles in their conceptualizations, and they focused on different criterion features in their assessment of styles. Likewise, when new styles were proposed, adequate means were seldom built into the research to provide both convergent and discriminant validation, and the instruments assessing the style constructs were often introspective self-report measures.

In the history of the styles literature, this lack of a common language and of a common conceptual framework for understanding the styles literature ultimately held up progress in the field, particularly between the early 1970s and the mid-1980s (e.g., Jones, 1997a; Riding & Cheema, 1991). At the same time, however, this identity crisis arising from the absence of a common language and a common conceptual framework also motivated many scholars to endeavor to bring order to the body of styles literature. Between 1983 and 2009, six models were proposed that were aimed at systematically conceptualizing the various style concepts. These were: (1) Curry's (1983) "Onion" model; (2) Miller's (1987) model of cognitive processes and styles; (3) Riding and Cheema's (1991) model of cognitive styles; (4) Grigorenko and Sternberg's (1995) model of style traditions; (5) Zhang and Sternberg's (2005) threefold model of intellectual styles; and (6) Sadler-Smith's (2009) duplex model of cognitive styles (see Zhang, Sternberg, & Rayner, 2012b for a review; see also Chapter 2 in this volume for an introduction of three of these six models).

Linking the Field of Styles with Other Fields

Finally, the third factor that has contributed to the field's lack of identity is the limited contact that work on styles has had with the larger contexts of the business, education, and psychology literatures. For example, in the case of psychology, it is widely recognized (e.g., Kagan & Kogan, 1970; Messick, 1994; Morgan, 1997; Rayner & Riding, 1997; Vernon, 1973) that the field of intellectual styles has diverse philosophical and theoretical foundations, ranging from classical Greek literature, to the general literature on individual differences, to Jung's (1923) theory of personality styles. In the same way, work on styles has been informed by a variety of research traditions, most markedly by several branches of psychology (Messick, 1994). Despite this, there has been neither much articulation of exactly how styles are grounded in and associated

with constructs in the various domains of psychological inquiry that have supposedly been influential in research on styles, nor sufficient empirical evidence to support the claim for such a historical explanation.

Likewise, until about two decades ago, the majority of the styles work carried out in business contexts has been based almost exclusively on Jung's (1923) theory of personality styles and Kirton's (1961) theory of decision-making styles. Although research derived from these two style constructs was abundant, it was not clear whether or not the remaining massive number of style constructs would matter in business settings. Partially as a response to this circumstance, scholars have been making continuous efforts to build a bridge between the field of styles and the business world (e.g., Armstrong, van der Heijden, & Sadler-Smith, 2012; Cools, 2012).

Finally, although much of the styles literature has originated from research in education settings, until recently, it consisted mostly of studies that focused on the relationships between styles and students' academic performance. Understanding the impact of intellectual styles on students' academic achievement is certainly valuable to both styles researchers and educators. However, efforts to study styles in connection with other domains of education such as students' emotional development and career development, although equally important, are largely inadequate, as shown in several recent reviews (e.g., Gebbia & Honigsfeld, 2012; Zhang, 2011).

Controversial Issues Concerning the Nature of Intellectual Styles

Apart from having been faced with the identity issues discussed in the previous part, the field of styles has been challenged by three major controversial issues concerning the nature of intellectual styles: (1) styles as different constructs versus similar constructs with different labels (also known as the issue of style overlap); (2) styles as value-free versus value-laden (also known as the issue of style value); and (3) styles as traits versus states (also known as the issue of style malleability).

Style Overlap

As already discussed, the field's ambiguous identity has been partially attributable to the massive production of style labels. The existence of such a multitude of style labels has naturally made people wonder if there is any relationship among them. For example, if an individual had a strong preference for using the legislative style in studying biology, would this individual also be inclined to adopt the innovative decision-making style as an employee of Apple? What is the principal distinction between a learning style and, say, a