USING IDENTITY PROCESSING STYLES TO BETTER UNDERSTAND A

COMPREHENSIVE STATUS MODEL OF IDENTITY DEVELOPMENT

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COMPREHENSIVE STATUS MODEL OF IDENTITY DEVELOPMENT

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Dissertation

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ABSTRACT

This study set out to investigate the process and structure of identity development based on Erikson's (1963) epigenetic theory of identity development. The present study used an updated identity status model (Luyckx et al., 2008a) and a cognitive processing styles model (Berzonsky, 1990) to explore how both models relate in order to extend our understanding of the identity development process. The Dimensions of Identity Development Scale (DIDS) and the Identity Style Inventory (ISI-3) were used to measure identity status and style in a sample of university students (N=419). Three hypotheses were tested to ascertain the relationship between style and status. A two-step cluster analysis procedure was used to determine the number of status clusters in this study. Results showed that six status clusters were evident, supporting hypothesis one. Regarding hypothesis two, although participants in three of the six different statuses reported preferring the processing style theoretically consistent with their status, participants in three of six statuses did not. In addition, all of the clusters endorsed the Informational processing style to the highest degree. Results related to hypothesis three showed that the relative level of endorsement of each processing style was consistent with predictions, past findings and theory. The present findings therefore support some tenets of Eriksonian theory and provide support for a process of identity development that includes both commitment formation and commitment evaluation. However, although evidence was found to support the comprehensive model of identity development

proposed by Luyckx et al., the utility of a combined process and structural theory of

identity development based on the work of Berzonsky (1988) and Luyckx et al. remains

unclear and warrants further research.

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CHAPTER I

STATEMENT OF THE PROBLEM

Psychologists, along with others (e.g., novelists, anthropologists, sociologists, spiritual advisors, playwrights) have long been interested in identity development during adolescence. Some have taken a very general approach, while others have looked at identity development more systematically. This latter approach can help to better understand the process of forming an identity, enhance research in this area, and guide interventions for working with individuals who are dealing with the challenges of identity development. People are often looking for models to better understand the process of forming an identity. Fortunately, perhaps due to the challenge individuals encounter at this phase of life, there is a lot of speculation and research on identity development in adolescents.

Erik Erikson's (1963) life-span development theory, specifically the identity development stage, forms the foundation for the current study. Erikson placed the individual within the social context, taking into account both internal needs and external pressures (Marcia, 2007). As will be seen, Erikson tended to write in broad terms about his theory of identity development. Others, such as Marcia (1966), Berzonsky (1988), and Luyckx (Luyckx et al., 2008a), have made efforts to operationalize Erikson's original

theory on identity development so that scientific investigations in this area might reveal more about this complex process.

In the 1950's, Erikson described the difficult crisis of forming an identity. In a society where people are constantly looking for a personal sense of who they are, he proposed general trends which captured some aspects of this crisis. The current study investigates an updated approach to identity development, while grounding it in the theories and models that have provided the groundwork for the contemporary theory. This chapter starts with a brief overview of the theories on which the current study is based in order to provide a framework for the rest of the paper. The current study aims to answer questions about the validity of a contemporary identity development model and examine the combined utility of both a cognitive process and a structural model of identity development.

Erikson (1963) described the epigenetic principle of personality which posited that our development across the lifespan occurs in a social context. Erikson postulated that individuals are faced with the developmental task of determining an identity in adolescence, a task which requires a synthesis of past experiences, present meaning and future directions (Erikson, 1963, 1968; Marcia, 2007). Marcia (1966) extended Erikson's model to determine the following statuses as part of identity development: Achievement, Foreclosure, Moratorium and Diffusion. Individuals in each status are differentiated by having either high or low amounts of exploration of their identity and a strong or weak commitment to that identity (Marcia, 2007).

Other researchers (e.g. Berzonsky, 1988, 1990; Côté & Levine, 1988; Grotevant, 1987) have pointed out that Marcia's (1966) conceptualization of Erikson's (1963) theory

on identity development is too narrowly defined and constrained by these four identity statuses, and suggest that considering other elements of identity development is also important. Berzonsky (1988) applied a social-cognitive perspective to Marcia's statuses, suggesting that the intra-individual differences between the statuses may be explained in part by differences in intrapersonal processing style. According to Berzonsky, individuals in Marcia's achievement and moratorium statuses tend to apply an Informational processing style, foreclosed individuals apply a Normative processing style, and diffused individuals apply a Diffused/Avoidant processing style. These styles have been found to be compatible with, but distinct from, Marcia's statuses (Schwartz, Mullis, Waterman & Dunham, 2000).

Schwartz (2005) and others (e.g. Côté & Levine, 1988) have suggested that identity research should go beyond Marcia's conceptualization of identity development. New research has explored and extended Marcia's (1966) work on the exploration and commitment dimensions. Luyckx and colleagues (2008a) have expanded the definitions of exploration and commitment to more accurately describe identity development with five, rather than two, dimensions. Based on theoretical and model analysis, their proposed dimensions are *Exploration in Breadth, Commitment Making, Exploration in Depth, Identification with Commitment, and Ruminative Exploration*. The work of Luyckx and his colleagues takes important steps to expand our understanding of the identity development process. Reexamining how Berzonsky's (1988) conceptualization of processing styles relate to Luyckx and colleagues' new conceptualization of identity status based on five dimensions could help further understand these expanded conceptualizations. The present study, therefore, seeks to explore how Berzonsky's

identity processing style model relates to Luyckx and colleagues' expanded identity status model in order to extend our understanding of the identity development process.

This chapter presents a brief review of identity theories and the direction of the current research. A review of Erikson's (1963) epigenetic theory of personality development across the lifespan, including the identity status, is an important place to start because Erikson is seen as a cornerstone for identity theory and research (Schwartz, 2005). Next, because Marcia (1966) began building on Erikson's identity development stage by determining two dimensions of identity development, exploration and commitment, his work is discussed. More recently, a group of authors (e.g. Bosma, 1992; Meeus, 1996) have conceptualized exploration and commitment differently than Marcia did, so a review of these alternate understandings is also presented. Luyckx and colleagues took Marcia's conceptualizations of exploration and commitment, along with Bosma and Meeus' alternative conceptualizations of exploration and commitment, and combined them into an integrative theory of identity development. Further work by Luyckx and colleagues (e.g. 2006a, 2007, 2008, 2009) has included revisions to their initial integrative theory to more accurately describe the identity development process, including cluster analysis of the five dimensions to form six statuses, which are presented next. Additionally, others have conceptualized Erikson's theory from a cognitive processing perspective, Berzonsky (1988, 1990, 1992a) in particular, so the processing style theory is described next. Just as others (Berzonsky, 1990; Schwartz et al., 2000) have examined how Berzonsky's styles relate to Marcia's statuses, the current research examines how Berzonsky's styles relate to Luyckx et al.'s (2008a) statuses. A summary and a statement of the purpose of the present study conclude the chapter.

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Early Identity Development Theories: Erikson and Marcia

Erik Erikson (1963) presented a theory of psychosocial development that spanned the lifetime. He posited lifespan development as involving the resolution of eight crises. The first five of his eight stages coincide with Freud's psychosexual stages, and draw heavily on psychoanalytic theory. Erikson viewed the stages as crises involving an interaction of an individual's psychological development with increasing social demands from the environment. Erikson (1968) considered each crisis to occur at a natural age at which exploration and resolution of a portion of life challenges facilitated psychological development. Interactions between intrapersonal development (e.g., creativity, a desire to learn) and environmental or social demands (e.g., parental or scholastic expectations) would come to a turning point at a certain age. For example, a child with an internal desire to learn and supportive external school expectations in the elementary school years "now learns to win recognition by producing things" (Erikson, 1963, p. 259). The task at any age is to develop enough of a basic strength during that stage to avoid a maladaptation; the goal is a "favorable ratio" (p. 274) of virtue to vulnerability (see Figure 1).

In adolescence, Erikson suggested that the crisis, or turning point, involved identity development in the areas of ideology, school, occupation and religion. According to Erikson (1968), the process of occupational identity development is the most distressing for adolescents: "In general it is the inability to settle on an occupational identity which most disturbs young people" (p. 132). In his theory, ego identity development is undertaken, and if this process does not progress in a healthy manner, role confusion will result. Erikson also postulated that a "moratorium" (p. 128), or "identity

crisis" (p. 134), is needed to reach a sense of fidelity, and as such, rigid conformism or extreme rebellion do not represent sufficient resolution of the crisis of identity development. Thus, in order to be adequately prepared for the next stage of development (intimacy), an individual must successfully develop a sense of identity that allows a synthesis of the roles and skills acquired thus far with the needs and expectations of the society in which he or she lives.

Marcia (1966) was one of the first to operationalize the identity development portion of Erikson's epigenetic theory of development. When Marcia first considered identity development, he knew that some *commitment* to an identity would be necessary. He also learned through his interviews collecting data on identity development that many people with a stable identity had completed some *exploration* before committing to that identity (Marcia, 2007). Marcia believed it was important that a person engage in exploration of various alternative options in a given domain before making a choice, or a commitment, in that domain, and thus achieving an identity.

Because Marcia's definitions of exploration and commitment have been questioned in recent literature, it is important to give them careful consideration here. Marcia (2007) conceptualized *exploration* as the existence of past examination of a variety of different options in a given domain. A *commitment* represented the existence of a choice made from among options in a given domain. Domains that he considered important included occupational, religious and political domains (Marcia, 1966). Through interviews, he would determine if a person had completed a high or low amount of exploration and had formed a strong or weak commitment in a domain.

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Based on the degree of these two dimensions, *exploration* and *commitment*, Marcia (1966) conceived of four identity statuses (see Figure 2). The identity Achievement status consisted of high amounts of exploration and a strong commitment; individuals in the Foreclosure status had low amounts of exploration coupled with a strong commitment; the Moratorium status consisted of high amounts of exploration and a weak commitment; while Diffusion occurred when there was a low degree of both exploration and commitment. These identity statuses have been used extensively in identity development literature, in part because they represented one possible operationalization of Erikson's theory regarding the identity stage (Côté & Levine, 1988). Marcia's work represented the first extension of Erikson's theory to generate a substantial line of research (Schwartz, 2001). However, Schwartz pointed out that by only following Marcia's line of research, researchers are missing potentially important aspects of identity development from Erikson's theory.

Contemporary Extensions of Identity Development Theory

A number of authors have expressed concerns with Marcia's status model and its definitions of exploration and commitment (e.g., Bosma, 1992; Côté & Levine, 1986; Meeus, Iedema, & Maassen, 2002). One of these concerns is in relation to Marcia's identity Achievement status, at which point Marcia believed a person had reached an endpoint based on past exploration resulting in choosing a current commitment. Bosma and others (e.g., Meeus, 1996; Meeus, Iedema, & Maassen) are not satisfied with a conceptualized end point in identity development, and instead view identity development as an ongoing process. These authors conceptualize both commitment and exploration in

the present tense; that is, current exploration of existing choices results in a growing

sense of how the individual currently identifies with her or his commitments.

Again, the definitions of exploration and commitment are important to

understand, as these authors have developed alternative explanations to those presented

earlier as Marcia (1966) conceptualized them. *Exploration* "relates to the way in which

the adolescent, consciously or otherwise, deals with the existing commitment" (Meeus,

Iedema, & Maassen, 2002, p. 772, emphasis added). This definition of exploration refers

to the maintenance of commitments, rather than Marcia's view that exploration preceded

commitment making, and was thus a part of the formation of commitments. Additionally,

the revised definition of *commitment* refers to "the extent to which the young people feel

committed to, and derive self-confidence from, a positive self-image" (Meeus, 1996, p.

585), rather than simply whether or not a commitment has been made. This

conceptualization of exploration and commitment resulted in a model that is more

process-oriented because it measures whether individuals are actively engaged in

exploring existing commitments and how much the individuals identify with their current

commitments. Thus, in this model, individuals may continuously evaluate or work to

maintain their sense of self.

Bosma (1992) and Meeus and colleagues (1996; Meeus, Iedema, & Maassen,

2002) have worked to operationalize Erikson's identity stage by investigating the

relationships among the two dimensions of exploration and commitment. They have

explored the statuses that result from high and low degrees of exploration and

commitment using their definitions of exploration and commitment. However, since these

authors' conceptualization and definitions of exploration and commitment differ from

Marcia's while the words they use remained the same, the findings that result from these two lines of identity status research can be confusing.

In addition to concerns with Marcia's (1966) definitions of exploration and commitment, other researchers (Berzonsky, 1988; Bosma & Kunnen, 2001; Côté & Levine, 1988; Grotevant, 1987) have stressed the importance of considering the process, or mechanisms of, identity development in addition to its structure. Berzonsky (1990) described how identity can be conceptualized in terms of structure, process and content. He suggested that by focusing on only one aspect of identity (i.e. statuses as an operationalization of structure), some of the complexity of identity (e.g., the process or mechanisms) is lost. Both Luyckx and colleagues' (2008a) extended definitions of exploration and commitment and Berzonsky's processing styles are explored here in more depth because they represent important elaborations on Marcia's conceptualization of Erikson's identity development theory, and represent two levels of identity (structure and process) used in the current study.

Comprehensive Five Dimensional Model of Identity Development

In an attempt to synthesize the work of Marcia (1966) and that of Bosma (1992) and Meeus (1996) on *exploration* and *commitment*, Luyckx and colleagues (2008a) proposed a model with five, rather than two, dimensions of identity development. These authors combined Marcia's conceptualizations of commitment and exploration with Bosma and Meeus' alternate conceptualizations. Thus Luyckx' model includes two conceptualizations of commitment (one from Marcia and one from Meeus) and two conceptualizations of exploration (one from Marcia and one from Meeus), as well as a third type of exploration that is predominately maladaptive. Just as Marcia's dimensions

of exploration and commitment were examined to form statuses, statuses have also been derived from an examination of Luyckx and colleagues' dimensions. The definition of each of these dimensions is presented here.

Luyckx and colleagues (2008a) distinguished between two aspects of commitment. The dimension *Commitment Making* is similar to Marcia's conceptualization in that it is the dimension demarking when individuals make choices about identity related issues. These authors expand upon this concept of commitment by adding the dimension *Identification with Commitment*, which is consistent with the work of Bosma (1992) and Meeus (1996), and as suggested by Grotevant (1987), which is the degree to which individuals identify with, feel certain about, and internalize the choices and commitments they have made. Thus, by separating these two conceptualizations of commitment, theorists are able to have more clarity in their empirical and theoretical understanding of identity commitments.

Luyckx and colleagues (2006b) also differentiated between complementary definitions of exploration. The dimension *Exploration in Breadth* resembles Marcia's dimension of exploration because it describes the process by which individuals search out various alternatives that fit with their values, goals and beliefs. Consistent with the work of Bosma and Meeus conceptualizing exploration, the dimension of *Exploration in Depth* is a process in which an individual spends time gathering information and talking with others about his or her existing commitments to determine how well these fit with internal standards. Finally, *Ruminative Exploration* is the fifth dimension, which describes a dysfunctional process that is marked by hesitation, indecisiveness and flawed decision making. This dimension of Ruminative Exploration is not as firmly grounded in

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theory as the other dimensions since it was derived empirically, but adds important depth to the model by attempting to parcel out maladaptive efforts toward identity development. Further research with this type of exploration is needed.

The combination of these two theories, Marcia's and Meeus and colleagues', both of which attempted to extend Erikson's theory, resulted in a comprehensive model that goes beyond a simple examination of statuses, or character types (Schwartz, 2001). In Schwartz' examination of the evolution of identity development research, he suggested a number of recommendations to researchers in the field of identity development. One of these recommendations was to create updated models that explore the relationships between existing models. Luyckx and colleagues (2008a) have sought a better understanding of the structure of identity development through combining two complementary identity status models: Marcia's and Meeus and colleagues' models. This effort by Luyckx and colleagues represents a great step forward and also addresses another of Schwartz' recommendations to test internal validity of identity research and increase our understanding of the structure of identity development.

In order to measure these five dimensions, Luyckx and colleagues (2006, 2008a) have developed a measure called the Dimensions of Identity Development Scale (DIDS) which is composed of five items for each dimension. Using Belgian samples of primarily Caucasian and female participants, they have determined that their proposed five factor structure (as represented by their five dimensions) is most appropriate for this measure. Additionally, the five dimensions have been examined to form clusters, which result in statuses that are complementary to those developed by Marcia (1966) (e.g., Achievement, Foreclosure).

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Luyckx and colleagues' (2008a) model remains more consistent with Eriksonian principles of personal identity development as a lifelong process than Marcia's (1966) more static status research. The research of Luyckx and colleagues represents an interesting step forward in identity research through its recognition of the potential combined utility of Marcia's and Meeus and colleagues' (e.g. 2002) separate lines of research on identity development, through combining a model of <u>identity formation</u> from Marcia with a model of <u>identity evaluation</u> from Meeus. This is consistent with Erikson's view that adolescence is the primary time identity work is attended to, but also allows for a conceptualization of continued identity work that does not stop in adolescence. What could further extend this research would be to better understand this dynamic model and how it relates to other complementary conceptualizations of Erikson's (1963) identity development stage.

Berzonsky's Social-Cognitive Processing Style Theory

Berzonsky (1989) also was dissatisfied with the reliance on Marcia's (1966) conceptualization of Erikson's (1963) identity development stage, and suggested a social cognitive process model of identity. Berzonsky contributed an alternative conceptualization of Erikson's identity development theory, one based on cognitive styles rather than on Marcia's statuses, and his contribution is described here. His theory is consistent with Erikson's epigenetic concept while also applying a model based on cognitive research to establish a greater understanding of the identity development process.

Rather than expanding the definitions of exploration and commitment to encompass a broader, iterative process of identity formation and evaluation (Luyckx,

2008a), Berzonsky (1989) proposed that the cognitive processing style preferred by an individual would influence his or her manner of interpreting and making use of identity-relevant information. From this social cognitive perspective, both assimilation and accommodation are employed based on internal style and external pressures, which is reflective of the psychosocial theory of identity development proposed by Erikson (Berzonsky, 1990). The processing orientation, or style, impacts the way an individual deals with or avoids making identity relevant decisions.

Berzonsky (1988, 1990) examined Marcia's (1966) statuses and the psychosocial variables associated with them. From these clusters of related variables, Berzonsky theorized that individuals in the four various statuses, as conceptualized by Marcia, would prefer to use different identity-relevant cognitive processing styles. Berzonsky's social cognitive processing theory of identity development was followed by empirical investigation of his concepts.

There are three primary identity processing styles proposed by Berzonsky (1988, 1990). Those with a predominantly *information oriented processing style* tend to actively seek out information, apply an active problem solving approach through evaluation of identity-relevant material, and attempt to learn new things about themselves (Berzonsky, 1988; Berzonsky & Luyckx, 2008). An informational style has been associated with rational processing, openness, and adaptation to a university context (Berzonsky & Kuk, 2000). Additionally, those utilizing an informational style have been found to be in the identity achieved and identity moratorium statuses as conceptualized by Marcia (1966; Berzonsky & Kuk; Schwartz, Mullis, Waterman, & Dunham, 2000).

The *normative oriented processing style* is characterized by a tendency to conform to norms expected by society and significant others, such as parents (Berzonsky, 1989). This processing style tends to rely on automatically adopting and internalizing the expectations of others (Berzonsky & Luyckx, 2008). Individuals who prefer a normative style have a low tolerance for ambiguity and a strong need for structure. Those in Marcia's (1966) foreclosed status usually employ a normative style (Berzonsky & Kuk, 2000).

The third orientation is the *diffuse/avoidant processing style*, which is a processing style typified by a tendency to avoid and delay decision making as long as possible (Berzonsky, 1989). These individuals tend to be influenced by short-term rewards and hedonistic concerns (Berzonsky, 1994). This style has been associated with impulsiveness, intuitive processing, and low personal expressiveness (Berzonsky & Luyckx, 2008; Schwartz, et al., 2000). Research (Schwartz et al.) has supported Berzonsky's premise that people using the diffuse/avoidant processing style tend to be in Marcia's (1966) diffused status.

The movement to build upon Marcia's (1966) work on identity statuses has led to important progress in our understanding of identity development. Berzonsky's (1988, 1990) application of social cognitive theory to determine typical processing styles is one such theory that extends the existing identity development literature. In fact, due to the flexible conceptualization of processing styles that are influenced by both internal states and external pressures, Berzonsky's theory may be more consistent with Erikson's (1963) psychosocial theory than Marcia's theory. Built into the processing style theory is the assumption that internal states, such as the existence of strong commitments, may alter

the style preference of an individual. Alternatively, external pressures, such as the need to decide a major in college, may also shift the preferred processing orientation from a diffuse/avoidant style to an informational processing style (Berzonsky, 1988). Thus Berzonsky's conceptualization of the mutual influence of the self on the environment and the environment on the self provide a clear illustration of Erikson's ideas.

Berzonsky's (1988, 1990) processing style theory is used in the current study for a number of reasons. One reason is that Berzonsky's theory offers a conceptualization in addition to the status approach of Erikson's (1963) identity development stage. Differences in cognitively-based processing styles may explain some of the differences found between the statuses in research based on Marcia's (1966) work. Interestingly, Schwartz (2000) has suggested the importance of studying the identity development process by examining overlapping theories; it is likely that understanding the type of processing style preferred in addition to the types of exploration and commitment endorsed will provide a richer sense of each identity development stage. Berzonsky's styles are used in the current study in order to learn more about how the expanded model of exploration and commitment by Luyckx and colleagues (2008a) relates to cognitive processes in the context of identity development.

Research thus far using Berzonsky's (1988) identity processing styles has used measures of identity status, which rely on Marcia's (1966) conceptualizations of exploration and commitment. Because Marcia's statuses have been expanded by the dynamic conceptualizations of exploration and commitment of Luyckx and colleagues (e.g., 2006a, 2008a), an important next step in identity development research is to apply

Berzonsky's processing styles to the statuses that result from using Luyckx' model of identity development.

Summary and Statement of Purpose

Recently, there has been a resurgence of interest in identity development in young adulthood (e.g. Berzonsky & Kuk, 2000; Crocetti, Rubini, & Meeus, 2008; Luyckx et al., 2006, 2007, 2008, 2009). Schwartz (2005) made a call for identity research to rely less on Marcia's identity statuses and to include more diverse samples. Schwartz' call to go beyond the narrowness inherent in relying on Marcia's identity statuses has been answered in many ways by Luyckx and colleagues. What has yet to be done, and which the current study will undertake, is to apply Berzonsky's (1988) processing style model to the new identity status model (Luyckx et al.) in order to further validate and better understand this more contemporary and expanded model of identity development.

The current study, then, answers the call of researchers (e.g. Côté & Levine, 1988; Schwartz, 2005) to extend the literature on identity research. In particular, this study applies Berzonsky's (1990) social cognitive processing style model to the new concept of five dimensions involved in the identity development process as postulated by Luyckx and colleagues (2008a) in order to increase the complexity of our understanding of the identity development process. Just as Berzonsky's identity processing styles increased the level of understanding of Marcia's (1966) statuses, this study should also add depth to Luyckx' status model. Additionally, if Berzonsky's styles relate to Luyckx' statuses in predictable ways, it would further validate this new identity status model. If we can better understand the various identity statuses of individuals in relation to their preferred

identity processing style, we will be able to construct and target interventions to promote

positive development.

CHAPTER II

REVIEW OF THE LITERATURE

In this chapter, the theories on which the current research is based are explored. The primary researchers whose work is explored include Erikson, Luyckx and Berzonsky. Erikson's (1963) theory of development across the lifespan provided the foundation upon which all of the other research described in this chapter is based. Thus, it is vital that a review of his theory is available to the reader so as to fit the other pieces together as this chapter continues. Each subsequent identity development researcher cited here made an attempt to operationalize some part of Erikson's theory. A new process model of identity development (Luyckx et al., 2006b) was made possible by extending the work by other researchers on identity status. Because the current study focuses on Luyckx' model, a discussion of the work by Marcia (1966), Bosma (1992), and Meeus (1996) is presented to understand the origins of Luyckx and colleagues' current model. Finally, Berzonsky (1989) postulated a line of work parallel to that of Luyckx and Marcia, which has been used in the past to better understand other models of identity development. Therefore, this identity processing style research is used in the current study as a way to examine Luyckx' model and to increase our understanding of the identity development process by including both the structural perspective from Luyckx

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and cognitive processing styles from Berzonsky. Thus, the progression of Berzonsky's work on processing styles is needed to frame the current research.

This chapter begins with an overview of Erikson's (1963, 1968) psychosocial theory of development, focusing specifically on the identity development stage in order to thoroughly ground this paper in Erikson's theory. Next, Marcia's (1966) extension of Erikson's identity development stage is described. A review of the recent literature expanding Marcia's work follows; this includes descriptions of the process of identity development and how authors, such as Bosma (1992) and Meeus (1996), have extended the early work of Marcia. This section also contains a description of Berzonsky's (1988) identity style theory in brief. Next, a description of the theory of Luyckx and colleagues that combines Marcia's and others' conceptualizations of exploration and commitment is described in detail. This is followed by a review and critique of Luyckx and colleagues' (2006b, 2008a) program of research leading to, and making use of, the Dimensions of Identity Development Scale (DIDS). Finally, Berzonsky's identity processing style theory is explored in depth to determine how this processing style can help illuminate and extend Luyckx' work. The chapter concludes with a summary and a review of the hypotheses for the current research.

Identity Development According to Erik Erikson

Erik Erikson (1963) developed an epigenetic theory of personality development. [Note, Erikson's theory was originally published in 1950, and the second published edition of this work was published in 1963, which is the date most often cited in the recent literature. The second edition is the edition referenced in the current study.] Erikson proposed an eight stage model of psychosocial development in which a moderate

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degree of success in earlier stages best facilitates success in later stages of development. Erikson depicted his developmental model in a matrix (see Figure 1), which illustrated his theory that a person was likely to be working on aspects of each crisis at any given time, but that one crisis was more central to an individual's current development, depending on the person's age and social context.

One of the contributions Erikson (e.g. 1956, 1963) made was to place the individual, with all his [sic] intrapsychic conflicts, as conceptualized by psychoanalytic theory (Schultz & Schultz, 2005), in the context of the social environment. Erikson postulated that Freud's reliance on the id as the physical and instinctual drive of personality development was insufficient. Instead, Erikson said that there were additional forces from the social and historical context that also needed to be considered (1968). He reframed the psychosexual stages of Freud, in which development of personality occurs through the inner conflicts from sexual urges in childhood, turning each stage into a psychosocial task of adequate strength development through interactions with the environment. In this paper, I am interested in adolescence, at which time Erikson postulated that the individual needs to solidify his or her identity by integrating the skills learned in childhood to prepare for the adult roles expected by society.

Erikson's eight stage model of psychosocial development. Erikson (1963) explained that each of his eight stages of development needs to be considered in the context of the lifespan. Therefore, each age is presented here briefly, along with the psychosocial conflict faced at that age. [Erikson used the words age and stage interchangeably, perhaps indicating the centrality of a given conflict at a certain age.] His theory holds that at each of the eight stages a "favorable ratio" (p. 274) of strengths to

maladaptations must be established to adequately prepare the individual for success in the subsequent stage. Additionally, tasks related to each stage may be addressed at any age, but a combination of internal and external factors lead to a turning point for a particular crisis, becoming the central task for that age (Erikson, 1968). Each stage is described below in terms of the central task and the strength that represents the desired outcome of the stage (See also Figure 1).

In the first age, infancy, the central task faced by the individual is to develop a sense of trust based on environmental consistency and dependability; if the environment is not dependable and the infant is unable to develop enough hope, a state of mistrust will develop. Thus a favorable ratio does not imply that the infant will trust unconditionally, but that there were enough opportunities provided by the environment to establish adequate trusting relationships with others. Similarly, if too much trust and not enough mistrust in the environment are established, the person will potentially be overly naïve. Hope is the "essential strength" and "lasting outcome of a favorable ratio" (Erikson, 1963, p. 274) in stage one.

The second stage according to Erikson (1963) involves the conflict of autonomy versus shame and doubt for the toddler. Autonomy may develop through acquiring muscle control to experiment with his or her environment; the risk of shame comes primarily from a lack of sufficient success at toilet training. The essential strength of the second stage is the development of willpower. The child in stage three is expected to develop initiative, which adds a degree of intentionality and planning to the autonomy in stage two; if insufficient initiative is developed, guilt will result from planning and failing to follow through. The development of a sense of purpose is the essential strength for a

child in stage three. In the fourth stage, the school-aged child develops a sense of industry through making things or completing tasks assigned to her or him by adults; if the child does not develop confidence, a sense of inferiority and inadequacy will hinder the child in the future stages. The lasting outcome and essential strength resulting in the development of a favorable ratio at stage four is a sense of competence.

The task of interest in the current research, identity development in stage five, adolescence, involves making connections between skills developed thus far with potential occupations (Erikson, 1963). Erikson (1968) believed that identity development included many domains, including school, job, ideology and religion; however, he also stated that occupational identity development tends to cause the individual the most distress. The goal at this stage is identity synthesis, such that all parts of the developmental process so far in childhood come together and are integrated into a cohesive whole. The synthesis of identity forms the basis for values and goals as an adult, and is needed for healthy future development as an adult. Adolescents in this stage begin to realize that the world sees the individual as the individual sees him or herself, and thus work to synthesize their self-perception with their way of interacting with the outside world. The basic strength in the fifth stage is fidelity; thus the lasting outcome of a successful achievement of a favorable ratio in this stage is to be faithful to one's self and act in ways that are consistent with one's inner sense of self. The consequence if one is unable to commit to a sense of identity in this stage is that role confusion and diffusion will result.

The sixth stage is the first stage that goes beyond the age of personality development postulated in orthodox psychoanalytic theory, as Erikson (1963) added

development into adulthood to his developmental model. Erikson suggested that development progressed as the individual continued to add social roles and be influenced by the environment throughout the lifespan. In young adulthood, the sixth age, the task is to develop intimacy, which would be challenging without a favorable ratio of identity development in the previous stage. If the individual is unable to suspend or open his or her self to become involved in loving, intimate relationships, isolation may occur. The lasting strength from the sixth stage is the development of the ability to give and receive love. Generativity is the task of the seventh stage, as adults become concerned with fostering the next generation, whether through raising children of their own or through extending their interests beyond themselves. Stagnation will develop if not enough care for others takes place at this time, and care is the potential strength emerging from this stage. The eighth and final stage of Erikson's psychosocial stages involves the age of older adults who work to develop ego integrity through acceptance of the self and adaptation to live in the world. When insufficient wisdom and peace develop, which are the essential strengths of this stage, despair will result.

Thus the stage of identity development in adolescence can *successfully* transpire, according to Erikson (1963), when the tasks of childhood have been mastered. An adolescent who did not acquire an adequate degree of strengths in the tasks of childhood (e.g., hope, willpower, purpose and competence) will be ill-prepared for identity development. Similarly, successful development of identity provides a healthy foundation for the tasks of adulthood. Erikson suggested that although there are primary tasks at certain ages in the lifespan, it is not uncommon for individuals to also be working on aspects of previous or future tasks as well. For example, if previous strengths were not

developed, an individual may be working on the tasks of the previous stages in order to better address the central, age-appropriate task of the current stage.

Summary. Erikson's theory contributed to the field's understanding of psychosocial development and provided a framework for understanding development across the lifespan. His epigenetic theory of psychosocial development moved beyond the psychosexual stages of Freud and involved continual development. Not only did his theory describe psychosocial development, but it described normal development of strengths, rather than focusing solely on disordered development. His contributions to the field also involved a focus on adolescence as a time of identity development, which he placed in the context of other life-crises. He explored identity development, and conceptualized it as the establishment of the strength of fidelity on the one hand or the risk of role confusion on the other.

In addition to advantages such as providing a heuristic for future study, Erikson's (1963) theory also had shortcomings, such as a lack of specificity and testability. Erikson's framework does provide a starting point for further exploration of development, and specifically, identity development. This framework is very broad in its conceptualization, including internal and external aspects of development (Schwartz, 2001). Unfortunately, Erikson was not particularly specific about the actual process of identity development. Erikson provided examples of what this development might look like in various cultures (1968), but was often very wordy and lacked precision which might have facilitated empirical tests of his model. Schwartz pointed out that Erikson's "writings were rich in clinical and metaphorical description, but lacking in rigor and detail" (p. 11). Erikson left it for others to operationalize his concepts for the purposes of

research. James Marcia was one of the most thorough early researchers to pick up this challenge.

James Marcia's Four Identity Statuses

Several researchers have worked to refine, operationalize, and extend Erikson's initial ideas. Among the most prolific of these individuals was James Marcia, upon whose work more than 300 publications have been based (Schwartz, 2001). In 1966, Marcia published an article based on his doctoral dissertation (completed in 1964) which described four identity statuses involved in the identity crisis in an effort to operationalize the identity development process. Marcia (1980) defined identity as "a self-structure – an internal, self-constructed, dynamic organization of drives, abilities, beliefs, and individual history" (p. 159).

Marcia's (1964) conceptualization of identity involved multiple domains in a person's life. Four of the domains he considered important are those of career, politics, religion, and relationships. He postulated that identity development could be viewed in aggregate, across the domains, as well as separately for each domain. Thus, a person might be in one status for her or his vocational identity while in another status for his or her religious identity.

Marcia (1964) stated that, according to Erikson, ego identity achievement and identity diffusion are the two polar opposite outcomes from the identity crisis in adolescence. For example, in the vocational identity domain, Marcia stated that a person who is in the *identity achievement* status will have experienced a crisis in which a variety of occupations have been considered and the person "is committed to an occupation" (1966, p. 551). The identity achievement status might be viewed as the successful

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resolution of Erikson's identity stage. On the other end of the continuum, the person in the *identity diffusion* status is described as lacking any commitment and is not concerned with this lack of commitment. The identity diffusion status is frequently considered an unsuccessful endpoint to the identity development process; if an individual is still in the identity diffusion status when internal and external pressures suggest he or she begin addressing issues involved with Erikson's next stage of development, intimacy, this might represent an unsuccessful resolution of the crisis of identity development.

Marcia continued by describing two other statuses that he considered as points along the continuum between identity achievement and identity diffusion. The *moratorium* status exists when an individual is currently in an identity crisis and is actively considering among options (Marcia, 1966). The other status presented by Marcia is called *foreclosure*, which he described as the status in which a person has not experienced a crisis of identity, but has expressed commitment to an identity, often the occupation supported by the individual's parents. Marcia conceived of his statuses as "individual styles of coping with the psychosocial task of forming an ego identity" (Marcia, 1966, p. 558; as cited in Côté & Levine, 1988).

Following further extensions of his own dissertation, Marcia (2007) determined that individuals did not necessarily experience a "crisis" but instead their status could be determined by whether or not they had undertaken "exploration" in a given domain. He determined that the degree of *exploration* and *commitment* were the two defining dimensions differentiating between the four statuses. These statuses may be seen visually represented in Figure 2.

Definitions of exploration and commitment according to Marcia. Marcia began his work by considering whether individuals went through a crisis or not, and whether they were committed to their current plans. Over time, he began to see that his conceptualization of a crisis was not what he was finding through his thousands of interviews in his ongoing work (1993). He posited that his previous understanding of a crisis was better understood as "exploration," and he credits David Matteson (1977; as cited in Marcia, 1993) with the change in word choice.

Marcia (1993) described *exploration* as a consideration of available alternatives in a given domain. He postulated that this process occurs as an individual moves from late childhood into early adolescence, and experiences a need to explore the options in occupations and ideology. This involved "seriously questioning" (p. 10) life directions, approach to the world, future plans, and current values. Thus his definition of exploration involved broad examination of alternatives across a domain and appears to be conceptualized as occurring prior to making commitments.

Marcia (1993) also described a person who has made a *commitment* as one who is committed to life directions and values. His understanding of commitment can roughly be understood in terms of a dichotomy: either committed or not committed to choices in a particular domain. Through Marcia's interviews, he found that the strength or weakness of a commitment could differentiate between the various identity statuses. Marcia's conceptualization of commitment can refer to "the presence of strong convictions or choices" (Luyckx, Goossens, Soenens, Beyers, & Vansteenkiste, 2005, p. 605).

Thus, the *achievement* status involves a strong commitment following exploration of options; at the other end of the continuum, the *diffusion* status involves neither

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commitment nor exploration; in the middle of the continuum, the *moratorium* status consists of current exploration without firm commitments; and finally, the *foreclosure* status consists of a commitment made without preceding exploration of alternatives (See Figure 2).

Summary. James Marcia (1964) was able to provide an operationalization of identity development from Erikson's (1963) epigenetic theory of development. His statuses have been studied extensively as a way to conceptualize Erikson's theory of identity development (Côté & Levine, 1988). Marcia's theories have been examined to understand how they relate to indices of psychological health or disturbances, as well as personality characteristics (e.g., Marcia, 1993; Schwartz, 2001). Marcia's status theory has also been examined in concert with identity processing styles (Berzonsky, 1990; Schwartz et al., 2000). These contributions have added to the depth of our understanding of the adolescent's experience of identity development.

Although Marcia's (1964) operationalization of Erikson's (1963) theory helped enable researchers to examine the identity stage, some researchers (e.g. Côté & Levine, 1988; Schwartz, 2001) have suggested that Marcia's statuses are more similar to character types than to developmental stages. Bosma (1992) contended that the statuses appear to be construed as endpoints in development, rather than part of a dynamic process as described by Erikson. Additionally, Côté and Levine point out that Marcia focused primarily on the strength of commitments and whether any exploration of those commitments had occurred, rather than considering the process of identity development that Erikson conceptualized as an interplay between internal and external factors. Thus a major criticism is that Marcia's theoretical operationalization of Erikson's dynamic

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theory of identity development considers only the internal dimension of forming commitments. Côté and Levine suggested that identity development according to Erikson would involve a more fluid exchange between the internal forces of the person and the external pressures of the environment over time during the identity development stage.

The current study explores a modern adaptation of Marcia's (1966) conceptualization of Erikson's identity development process (Luyckx et al., 2006b). The modern adaptation of Marcia's statuses takes the aforementioned criticisms into account, while maintaining some of its structural components. The model examined in the current study combines Marcia's ideas about exploration and commitment with others' conceptualizations of what is important in identity exploration and commitments.

Other Extensions on Erikson and Marcia's Theories of Identity Development

The current study examines Luyckx and colleagues' (2008a) model of identity development, which is partially based on Marcia's (1993) operationalizations of exploration and commitment, and also partially based on others' more recent operationalizations of exploration and commitment. Alternate definitions of exploration and commitment are presented here, along with a rationale for rejecting Marcia's definitions.

Citing limitations to Marcia's (1966) identity status model, Bosma (1992) suggested a reconceptualization of identity development as a dynamic process, rather than measuring to see if the person is currently at the endpoint of identity achievement. Bosma saw the process of making choices in various domains as "a process of permanent decision making – a cyclical process" (p. 97). Bosma used the terms *exploration* and *commitment*, which was consistent with Marcia; however, Bosma's definitions and

conceptualizations of each of these terms differed from Marcia. What this reconceptualization offers is a way to examine what happens after initial identity-related commitments are made.

Building on Bosma's (1992) conceptualizations of exploration and commitment, Meeus (1996) created a measure for the new definitions of exploration and commitment. These alternate definitions of exploration and commitment are of particular importance to the current study, because Luyckx and colleagues (2006b) used both Marcia's (1993) definitions of exploration and commitment and Bosma and Meeus' definitions in their comprehensive model. The reconceptualized definitions of exploration and commitment are presented here along with items from Meeus' inventory of identity development (Utrecht-Groningen Identity Development Scale, U-GIDS).

New definitions of exploration and commitment. Meeus (1996) theorized that the aspects of commitment which were important to identity development were those related to how satisfied an individual was with the identity-relevant choices he or she already made. Therefore, Meeus needed a definition of commitment different from Marcia's (1966). Marcia measured the presence or absence of commitments, while Meeus measured the subjective certainty an individual felt about her or his commitments. In his instrument measuring commitment and exploration, *commitment* "measures the extent to which the young people feel committed to, and derive self-confidence from a positive self-image and confidence in the future from [their identity]" (Meeus, 1996, p. 585). Items measuring commitment involve evaluative components of existing choices in a given domain. For example, in the domain of relationships, a commitment item is "I'm sure my best friend/partner was the best choice for me" (p. 585). This definition differs

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significantly from Marcia's definition of commitment, which was more akin to making the actual choice, rather than Meeus' version of evaluating or associating with the appropriateness of a choice already made. The present-tense version of commitment refers to the salience of the commitment to the individual (Meeus, Iedema, & Maassen, 2002). Meeus' emphasis on continued evaluation of the appropriateness of choices made infers a more dynamic process that goes beyond the choice as an endpoint, as it was according to Marcia. However, Meeus' definition also assumes that a choice or commitment has already been made (e.g. one already has a best friend), and does not examine or explain how that choice came to be.

The definition of exploration used by Meeus (1996) also differs from Marcia's definition of exploration. According to Meeus, *exploration* "measures how much the young people are actively engaged in investigating [their identity]" (p. 585). Exploration according to Meeus relates to maintaining and validating existing commitments (Meeus, Iedema, & Maassen, 2002), as is reflected by this item measuring exploration in the domain of relationships: "I try to find out a lot about my best friend/partner" (Meeus, 1996, p. 585). Items measuring exploration gauge how much the individual is looking into existing choices. In the domain of careers, one might be engaging in active exploration, according to Meeus, if he or she were involved in shadowing a professional or completing an internship in her or his major at college. Again, this viewpoint differs from Marcia, who saw exploration as the process of considering a wide variety of options prior to making a choice; Meeus views exploration as learning more about existing choices. Meeus' definition of exploration assumes choices have already been made, and,

importantly, his theory does not provide a mechanism or structure, like that suggested by Marcia, to understand how those decisions were made in the first place.

Meeus' (1996) definitions of exploration and commitment have been used to define statuses that refer to a particular time, rather than Marcia's (1964) statuses, which were intended to describe endpoints in a developmental period (Meeus, Iedema, & Maassen, 2002). Meeus' statuses are not presented here, as they do not have historical significance, and are actually quite similar to Marcia's. Meeus' definitions of exploration and commitment, in addition to Marcia's definitions of exploration and commitment, have been combined into a single, comprehensive model in Luyckx and colleagues' (2006b) model, which is used in the current study.

With Meeus and colleagues' approach, one could evaluate developmental changes in identity status with multiple measurements across time. Meeus and colleagues presented alternate conceptualizations of commitment and exploration which address some of the weaknesses in Marcia's model; for example: using the U-GIDS, one can investigate the evaluative process of testing how choices fit with internal needs and external expectations. However, despite adhering to the Eriksonian conceptualization of considering internal and external pressures in the identity development process, Meeus' understandings do not describe the structure through which one possible identity is chosen over another, which Marcia's theory provided. What is also needed is an understanding of how these status models fit with other psychological constructs during identity development.

Berzonsky's identity processing styles. Just as Bosma (1992) and Meeus (1996) took aspects of Marcia's (1966) identity status theory and added to it through their

changed definitions of exploration and commitment, Berzonsky (1988, 1990) took

aspects of Marcia's statuses and considered the social cognitive processes that might

explain individual differences in approach to exploration. Berzonsky added a cognitive

perspective to the research on identity status when he added the layer of cognitive process

variables.

According to Berzonsky (1988), there are three ways, or styles, through which to

approach identity-relevant information. He wondered if these cognitive processes would

help explain the differences found between Marcia's (1966) statuses. He proposed that

people tend to prefer one style over another, and that these styles are parallel to Marcia's

statuses (See Figure 3). The use of a style is dependent on internal characteristics and

external pressures, and thus is consistent with Erikson's (1963) psychosocial model. An

individual using an *informational* style would be categorized into Marcia's achievement

or moratorium status, and would apply an active problem-solving approach to identity-

relevant information (Berzonsky, 1989). People using a *normative* style tend to

internalize social norms that are valued by significant others, and are typically in the

foreclosure status. Finally, a *diffuse/avoidant* style is typified by delaying decision

making in identity-relevant areas; these individuals are likely to be in Marcia's diffuse

status. As proposed by Berzonsky, the identity style preferred by an individual represents

the cognitive processing style used by those in each status.

Berzonsky's (1988) styles were mentioned here in brief to demonstrate how

Berzonsky, like Bosma and Meeus, attempted to improve upon Marcia's (1966)

conceptualization of identity development. Berzonsky's (1988, 1990) styles are explored

in more detail later, as they represent an important conceptualization of Erikson's (1963)

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psychosocial identity development theory, and because they are used in the current research. The flexibility suggested in Berzonsky's model to account for pressures of the social environment and personal characteristics is closely in line with the essence of the process behind Erikson's theory that individuals in adolescence would be faced with a task of developing a favorable ratio of identity synthesis to identity confusion. However, the continued reliance of Berzonsky and others (e.g. Schwartz, et al., 2000) on comparisons with Marcia's (1966) conceptualization of exploration and commitment represents a certain limitation to conclusions that can be drawn from this line of research. As such, the current research seeks to extend the literature by applying Berzonsky's identity processing styles to the comprehensive status model of identity development by Luyckx and colleagues (2008a).

Summary. Researchers who have attempted to expand the understanding of Erikson's (1963) theory by building on or modifying Marcia's (1966) conceptualization of the psychosocial theory proposed by Erikson have made important strides forward in our understanding of identity development. Bosma (1992) and Meeus (1996) proposed alternate conceptualizations of exploration and commitment. Their definitions of exploration and commitment allow for an examination of the process of identity evaluation and maintenance that Marcia's definitions did not provide. However, by developing alternate definitions of exploration and commitment, and not making a distinction from Marcia's choice of words, they confuse the literature and seek to create a separate line of research, rather than building upon the one started by Marcia.

Berzonsky (1988, 1990) suggested a process-oriented model of identity development that stems from Erikson's theory, and which adds to an examination of

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exploration and commitment. Berzonsky's process model stresses the reciprocal influence of the individual and the environment; however, it does not allow for the description of a person's actual identity, as is possible using Marcia's statuses. What is needed is an integrated model which takes both conceptualizations of exploration and commitment into account: Luyckx and colleagues' (2008a) model is proposed to fill this gap, and is reviewed next. What the current study seeks to do is to investigate how Berzonsky's processing styles relate to this new comprehensive status model.

A Comprehensive Model of Identity Development by Luyckx and Colleagues

As has been seen, Marcia, Meeus, Bosma and Berzonsky's extensions of Erikson's theory of identity development each added something unique to the identity development literature. Yet each is lacking because it seems to ignore the contributions of the other theoretical extensions. Fittingly, a single model integrating these contributions and adding an additional component to identity development has recently been proposed (Luyckx et al., 2006b). Luyckx and colleagues' model is used in the current research due to its superiority over other, less comprehensive, models (e.g., Marcia's). A thorough understanding of the theory is needed to understand why this model represents the state of the art in identity development research, as well as documenting how the dimensions of the model may be related to other constructs in the literature.

This section explores a combined model including both identity formation and identity maintenance in greater detail. Then a critical evaluation of the findings of Luyckx and his colleagues is presented. Finally, an examination of their measure (the Dimensions of Identity Development Scale, DIDS, Luyckx et al., 2008a) is undertaken so that the reader has a thorough grasp of how this theory relates to previous research and an

understanding of its potential for future research, including the current study, which examines the relationships between statuses derived from the comprehensive model and preferred cognitive processing styles.

The dimensions of the identity development theory of Luyckx and colleagues.
There are five dimensions in Luyckx and colleagues' (2008a) comprehensive theory. Each of these dimensions represents a type of exploration or commitment. Four of the five dimensions come from Marcia (1966) or Meeus (1996) as described above, and the fifth dimension comes out of original theory and research on identity status models. Ultimately based on Erikson's (1963) theory of identity development, Luyckx and colleagues' theory forms one aspect of the current research.

In 2006, Luyckx, Goossens, Soenens and Beyers combined two models of identity based on Erikson's theory to provide a single model including both identity formation (Marcia) and identity maintenance (Meeus). (See Figure 4 for a diagrammatic representation of these relationships). The resulting model includes the process of wide exploration (*Exploration in Breadth*) leading to commitment-making (*Commitment Making*) as suggested by Marcia (1966), and results in identity formation. The model also includes the process of more deeply examining how well those choices fit for the individual (*Exploration in Depth*) and the process of becoming comfortable with those commitments (*Identification with Commitment*), as suggested by Meeus (1996), and this results in identity evaluation or maintenance. In their original model, Luyckx and colleagues differentiate between two types of exploration (Exploration in Breadth and Exploration in Depth) and two types of commitment (Commitment Making and Identification with Commitment). Following further work on their model, Luyckx and his

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colleagues (2008a) developed a more advanced model that added a third type of exploration to their comprehensive theory (*Ruminative Exploration*). The definitions of exploration and commitment that Luyckx and colleagues use are presented here; the titles of the dimensions are first presented in italics to facilitate recognition of each dimension.

As described in chapter I, the dimension of *Exploration in Breadth* is similar to Marcia's (1966) conceptualization of exploration which involves the consideration of various alternatives. Exploration in Breadth consists of wide exploration across many options, such as exploring the university's list of all possible majors. Individuals may search for different alternatives that will be a fit with values and goals in life. Exploration in Breadth is conceptualized to first occur prior to forming commitments. Initial studies have indicated that high amounts of Exploration in Breadth are associated with negative psychological adjustment factors such as depression and substance use (Luyckx et al., 2006a), which is consistent with Erikson's and Marcia's views of identity development as a time of uncertainty and crisis.

The *Commitment Making* dimension "refers to the presence of strong convictions or choices" (Luyckx, Goossens, Soenens, Beyers, & Vansteenkiste, 2005, p. 605). Commitment Making is similar to Marcia's (1966) conceptualization of commitment, where the individual makes a commitment relevant to her or his identity. An example of Commitment Making would be choosing a major. Commitment Making is the degree to which an individual has made choices about issues relevant to his or her identity (Luyckx et al., 2008a). Exploration in Breadth and Commitment Making can be viewed as the identity *formation* aspects of the identity development model (See Figure 4).

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The dimension *Exploration in Depth* consists of learning more about existing commitments, such as by talking with others about them or observing others with that commitment. For example, a student who speaks with a professor in her major about what careers might be possible with the major would be engaging in Exploration in Depth. The process of Exploration in Depth also includes an evaluative aspect to determine the degree existing commitments fit with internal standards or goals. Exploration in Depth is similar to Meeus' (1996) definition of exploration, and is a part of the identity *evaluation* cycle of the identity development model by Luyckx and colleagues (2006b).

Through a process of deep exploration, individuals may begin to "feel certain about, can identify with, and internalize their choices" (Luyckx et al., 2008a, p. 59), which is the definition of *Identification with Commitment*. An example of Identification with Commitment might include the experience of an individual gaining self-confidence because he or she feels certain about his or her future career based on a realization that his or her choice of major matches well with his or her true interests and values. The dimension Identification with Commitment includes the process of integrating the emerging sense of self with one's identity. Identification with Commitment is also considered part of the identity maintenance/evaluation cycle, and along with Exploration in Depth has been associated with positive adjustment factors, such as positive academic adjustment and a history of supportive parenting (Luyckx et al., 2006a).

A fifth dimension to the model proposed by Luyckx and colleagues (2008a) is *Ruminative Exploration*. Ruminative Exploration is considered to be a dysfunctional type of exploration that may be associated with negative aspects of psychosocial functioning.

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As will be described below in more detail, this additional dimension is intended to help parcel out functional exploration from harmful exploration. Ruminative Exploration may consist of repetitive, brooding, worrisome and long-lasting exploration that is uncontrollable and unproductive (Luyckx et al., 2008a). An example of Ruminative Exploration might include the student who constantly worries about choosing the right major and is barely able to think about anything else. Initial findings from their research indicate that high levels of Ruminative Exploration are more closely related to low self-esteem, depressive symptoms and anxiety symptoms than are Exploration in Breadth or Exploration in Depth.

The descriptions provided here of the five dimensions of the comprehensive identity development theory (Luyckx et al., 2006b; Luyckx et al., 2008a) are central to the current research. The current research attempts to increase our understanding of the identity development process, as conceptualized by Luyckx and colleagues' comprehensive theory, by looking at Berzonsky's processing styles in relation to the five dimensions. What is needed is an understanding of how the processing styles relate to the new conceptualization of identity statuses, formed through cluster analysis of the five dimensional model. By analyzing the dimensions in the clusters they form, it will be possible to connect the current research to the strong research base on identity status and to see patterns of the dimensions and styles when individuals present in distress.

By combining Marcia's (1966) conceptualizations of exploration and commitment with Meeus and colleagues' (1996; Meeus et al., 1992) conceptualizations of exploration and commitment into one comprehensive model, Luyckx and colleagues (2008a) have created a more comprehensive model of the identity development process. This model

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now includes both the identity formation and identity evaluation components of previous models. The inclusion of both formation and evaluation of identity fits closely with Erikson's (1963, 1968) psychosocial theory of development, which posits that the identity stage, as with the other stages, is an ongoing process without a measurable endpoint. A theory, such as Erikson's, without an endpoint or even operationalization of the process, is difficult to measure; Luyckx and colleagues have provided one method for examining a person's experience in the process of identity development. The five-dimensional model (Luyckx et al.) can capture not only whether or not a person has reached a synthesized, "achieved" status, but also what types of exploration they are using and the strength and fidelity of their commitments. In this way, Luyckx and colleagues' model represents a great step forward for the identity development literature.

At the same time, there is still more to be learned about identity development using this comprehensive model. The amount of exploration and sense of connection to one's commitments might be affected by the cognitive processing style predominating for the person, as hypothesized by Berzonsky (1988). Some prior research (e.g., Schwartz et al., 2000) has examined how Berzonsky's processing styles relate to Marcia's (1966) statuses, but to date, the processing styles have not been affiliated with Luyckx and colleagues' (2008a) more comprehensive model. Research on the ways in which processing styles interact with the five dimensions would add to the literature by providing a greater understanding of the overlap between the structure and process of identity development.

In short, Luyckx and colleagues' (2006a, 2008a) five-dimensional model, including exploration and commitment in both the identity formation and identity

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evaluation and maintenance processes, makes large strides toward a more comprehensive understanding of the identity development process. Marcia's (1966) concepts of exploration and commitment were modified by Bosma (1992) and Meeus (1996), and then these two schools of thought were combined into a single model by Luyckx and colleagues. The resulting research from this model has produced some predictable, and some surprising, findings.

Findings from the research on the five-dimensional model of identity development. In this section, the findings from Luyckx and his colleagues' research using the four, and then five, dimensional model of identity development are presented. In light of the current study, it is important to understand in what ways the five-dimensional model has been investigated, and what work has yet to be done. The presentation of findings includes a chronological review of the rationale for the development of the model, support that the model represents Eriksonian ideas, as well as how the five dimensions have been used to form statuses that are comparable to Marcia's (1966) identity statuses. A greater understanding of the foundation of the comprehensive, five-dimensional model sets the stage for the current study's use of the dimensions to form statuses in order to investigate how this model fits into the greater framework of identity status research. Since the current study examines the relationships between the comprehensive status model and another construct in the identity development literature (identity processing styles), it is essential that readers are familiar with the support for the new, comprehensive status model.

Luyckx and colleagues' first study using four identity status dimensions. In 2006, Luyckx, Goossens, Soenens, and Beyers proposed that Marcia's (1966) and

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Meeus' (1996) conceptualizations of identity development were complementary and might be combined into a single, more comprehensive model. In order to test this hypothesis and to establish a model with four dimensions (two types of exploration and two types of commitment), Luyckx and colleagues reported a study using two existing measures of identity development. For Commitment Making and Exploration in Breadth, they used the Ego Identity Process Questionnaire (EIPQ, Balistreri et al., 1995; as cited by Luyckx et al., 2006b). The Utrecht-Groningen Identity Development Scale (U-GIDS; Meeus & Dekovic, 1995; as cited by Luyckx et al.) was used to measure Exploration in Depth and Identification with Commitment. Each of these scales measured "exploration" and "commitment;" however, Luyckx and colleagues hypothesized that the two measures assessed distinct forms of exploration and commitment. Luyckx and colleagues then performed confirmatory factor analysis (CFA) to determine whether a two, three or four dimensional model best fit the data from their sample.

Luyckx and colleagues predicted that a dynamic, iterative process of identity development would include exploring broadly, making commitments, examining those commitments in depth, evaluating how those commitments fit with a person's sense of self, and returning to broad exploration if they do not fit well. The concept of returning to broad exploration following initial commitments has been described by Stephen et al. (1992) as the MAMA cycle (moratorium-achievement-moratorium-achievement). Luyckx' proposed model would essentially combine Marcia's and Meeus' alternate conceptualizations of exploration and commitment into one comprehensive model (See Figure 4).

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The sample collected by Luyckx and colleagues (2006b) consisted of 565 Belgian first-year students enrolled in a large university, comprised primarily of Caucasian, middle-class, students. Eighty five percent of the sample was women and the age range was between 17 and 22 years with a mean age of 18 years. Other demographic data were not provided.

Using four parcels of items randomly generated from their measures of identity development, Luyckx and colleagues (2006b) tested four competing models of identity formation using CFA. The model with four factors provided the best fit to the data through significant improvement in fit over the other models (Model 1 combined the two commitment scales into "Global Commitment" and the two exploration scales into "Global Exploration"; Model 2 consisted of Commitment Making, Identification with Commitment and Global Exploration; Model 3 consisted of Global Commitment, Exploration in Breadth and Exploration in Depth; Model 4 was the best fit and consisted of Commitment Making, Identification with Commitment, Exploration in Depth, and Exploration in Breadth). The four factors were interrelated in a unique pattern, indicating that, although all dimensions were related to each other in the process of identity development, each dimension measured different aspects of that process (see Figure 4). Exploration in Breadth was found to relate positively to Exploration in Depth and negatively to Commitment Making; Commitment Making was also found to relate positively to Exploration in Depth and Identification with Commitment; and Exploration in Depth was also found to be positively related to Identification with Commitment.

Psychosocial correlates were also measured in order to have a greater understanding of what the four dimensions related to. Self-esteem was measured using

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the Rosenberg Self-Esteem Scale (RSES; Rosenberg, 1965), depressive symptoms were measured using a shortened version of the Center for Epidemiological Studies Depression Scale (CES; Radloff, 1977), and social and academic adjustment at university were measured using 20 items of the Student Adaptation to College Questionnaire (SACQ; Baker & Siryk, 1984). Substance use, supportive parenting, parent-adolescent conflict and separation-individuation from parents were also measured as potential correlates (Luyckx et al., 2006b).

The relationships of each dimension to the relevant correlates measured in this study (Luyckx et al., 2006b), when controlling for the relationships of the other dimensions, provided further evidence that the four dimensions represent unique parts of the identity development process. Exploration in Breadth was related to high scores of depression and substance use, suggesting a period of crisis. The Exploration in Depth dimension was associated with individuals who seemed to be dependent emotionally and functionally on supportive parents, have positive academic adjustment and low substance use. Identification with Commitment was positively related to adjustment factors (high self-esteem, academic and social adjustment, and supportive parents) and negatively related to depression and conflict with parents. Accounting for the relationships of the other dimensions, Commitment Making did not have any significant associations with adjustment, although it was positively related to supportive parenting and emotional dependence on parents.

The authors suggested that their results support the viability of a unified model of identity development including four dimensions of exploration and commitment (Luyckx et al, 2006b). They proposed a dynamic, iterative process of identity development (see

Figure 4). Exploration in Breadth involves the consideration of a variety of identity alternatives and precedes Commitment Making, where identity relevant choices are made. Once a commitment is made, Exploration in Depth is the process of actively reflecting on those commitments and talking with others about them. Identification with Commitment occurs when an individual finds that the commitment is a good fit with the individual's values and future plans. When an individual is considering how a commitment fits with their identity, that individual may return to the process of Exploration in Depth to further solidify its fit, or to Exploration in Breadth if that commitment is not found to be satisfactory.

Luyckx and colleagues' (2006b) study represents a great step forward toward an understanding of identity development as a process by building on existing work on identity development. Luyckx, Goossens, Soenens, and Beyers (2006b) have produced evidence that by closely examining and differentiating between the definitions of exploration and commitment we have the opportunity to more closely approximate Erikson's conceptualization of identity development as a dynamic process in the context of internal and external pressures. Each of the four dimensions of identity development appears to represent unique aspects of the identity development process, and by studying these dimensions further we will be able to extend what we know about identity development.

It is unclear whether these findings (Luyckx et al., 2006b) can be generalized to university students in the United States, especially considering the sample consisted primarily of Caucasian, middle-class, female, Dutch-speaking Belgian students. There is also some question as to the appropriateness or compatibility of the U-GIDS and EIPQ

measures due to the content domains that they measure. The authors' proposed model includes assumed directionality, so longitudinal designs are necessary to test these assumptions. These and other questions have been investigated subsequently by Luyckx and his colleagues, and will be explored in the following sections.

Identity statuses based on four identity dimensions. In order to establish the external validity of their four dimensional identity development model, Luyckx, Goossens, Soenens, Beyers, and Vansteenkiste (2005) compared empirically-derived statuses using their four dimensional model with the theoretical and empirical basis provided by Marcia's (1966) status research [note: despite the 2005 publication date of this article, the research for this article actually took place after the research reported in Luyckx et al, 2006b, as described above]. Citing disadvantages to using a median split approach to identifying statuses, Luyckx and colleagues suggested applying a data-driven, rather than theoretically-driven, approach to status classification through cluster analysis. The purpose of this study was to identify clusters where the people in each cluster have more in common with each other than with people in the other clusters.

For the purposes of the current study, an understanding of how and why cluster analysis was used is important because cluster analysis of the dimensions was also conducted in the current study. In addition to understanding the cluster analytic approach, the resulting clusters, or statuses, and their relationship to Marcia's (1966) original statuses, is established in this study by Luyckx and colleagues (2005). If the statuses derived from the five-dimensional model are similar to those described by Marcia, their relationships to identity processing styles (Berzonsky, 1989) should be similar to the relationships between Marcia's statuses and Berzonsky's styles. Additionally, with the

added complexity of the new dimensions, there is the possibility that more complex relationships will be detected.

Luyckx and colleagues (2005) suggested that there are advantages to exploring statuses (such as are derived through cluster analysis) because it allows for an examination of how the dimensions relate to each other and how those interactions relate to other psychosocial variables. In their exploration, they hoped to find clusters that were similar to Marcia's (1966) statuses. They also hoped to use the four dimensions to find additional statuses that have been discussed in theory, but have not yet been identified empirically using only Marcia's two dimensional approach. For example, Marcia and others theorized that there might be a variety of diffuse identity statuses, since according to Erikson's (1963) theory, those with a diffuse identity should have adjustment difficulties; however, empirical findings demonstrate that those in Marcia's Identity Diffusion status are often fairly well adjusted (Luyckx, et al.).

The sample in this cluster analysis study using four dimensions of identity development (Luyckx et al., 2005) consisted of 553 Belgian university students from a department of Psychology and Educational Sciences in Flanders. All participants were Caucasian from middle-class backgrounds, and 85% were female, which is consistent with students in this department at this university. The average age was 18 years 8 months (SD = 7.6 months). No other demographic information was provided.

Commitment Making and Exploration in Breadth were measured using the EIPQ (Balistreri et al., 1995; as cited in Luyckx et al., 2005), and Identification with Commitment and Exploration in Depth were measured by the U-GIDS (Meeus & Dekovic, 1995; as cited in Luyckx et al.). Self-esteem was an adjustment factor that was

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measured using the RSES (Rosenberg, 1965); depressive symptoms were measured by a 12-item version of the CESD (Radloff, 1977). Substance use was measured by responses to two questions about substance use (whether they had used soft-drugs or if they had drunk too much during the past 6 months) and a global substance use score was calculated. Social and academic adjustment at university was an additional adjustment indicator, and was measured using a 20-item version of the Student Adaptation to College Questionnaire (SACQ; Baker & Siryk, 1984; as cited in Luyckx et al.). Finally, consistent with research differentiating between Marcia's (1966) statuses using personality indicators, Openness and Conscientiousness were assessed using a Dutch-version of the NEO-FFI (Hockstra et al., 1996; as cited in Luyckx et al., 2005).

Confirmatory factor analysis based on parcels of items from the measures used indicated that a four factor model best fit the data (Luyckx et al., 2005). This observation supports the evidence from the previously described study (Luyckx et al., 2006b) that the four dimensional model is the most appropriate. A hierarchical cluster analysis based on Ward's method utilizing squared Euclidian distances was performed on the data, and *k*-means clustering was used to form the final groups. Post-hoc tests of the group differences were used to determine which groups differed significantly from the others based on the criterion variables. A 5-cluster solution fit the data best, and explained 52-60% of the variance in each of the four dimensions, which was found to be adequate. Based on status theories in the literature, each cluster was named as fit best with the constellation of dimensions in the cluster (see Figure 5). No sex differences were found in this sample. Of particular note is the two distinct diffusion clusters.

Each cluster (See Figure 5) is represented by a unique configuration of identity dimensions (Luyckx et al., 2005). The Achievement cluster is characterized by relatively high amounts of all four dimensions; it is also the highest in Commitment Making, Exploration in Depth and Identification with Commitment compared to the other clusters. The Foreclosure cluster is characterized by the lowest amount of Exploration in Breadth compared to the other clusters, but also has relatively high degrees of Commitment Making; both Exploration in Depth and Identification with Commitment are at moderate levels. The cluster with the highest amount of Exploration in Breadth is the Moratorium cluster, which is also characterized by a low degree of Commitment Making; this cluster has a moderate amount of the identity evaluation dimensions. The first new diffusion cluster is called Diffused Diffusion, and is characterized by moderate amounts of Exploration in Breadth, but very low degrees of both Commitment Making and Identification with Commitment; it is also characterized by relatively low Exploration in Depth. The second new diffusion cluster, Carefree Diffusion, has low amounts of both types of exploration, and in fact has the lowest amount of Exploration in Depth compared to the other clusters; the two commitment dimensions are both at moderate levels in this cluster.

Of particular note for the clusters is that the first four clusters identified are consistent with Marcia's (1966) theory of his four identity statuses. Additionally, for the first time, two types of diffusion were evident. Diffused Diffusion had moderate amounts of Exploration in Breadth, and virtually no commitment on either commitment dimension, which might suggest a true diffuse identity as conceptualized by Marcia and Erikson (1963) as a time of crisis characterized by a lack of identity. The other new

diffusion cluster, called Carefree Diffusion, is different because it was characterized by very low Exploration in Breadth and Exploration in Depth, but by moderate amounts of Commitment Making and Identification with Commitment; this suggests that the individuals grouped into this cluster might not be experiencing a crisis of identity, but instead are simply not actively exploring.

The authors also compared the clusters based on the psychosocial variables described earlier. They found that the Diffused Diffusion cluster had the poorest social and academic adjustment at university, the highest number of depressive symptoms (along with the Moratorium cluster), and the lowest level of self-esteem (also along with the Moratorium cluster). Thus, those in the Diffused Diffusion cluster did appear to be experiencing a psychosocial crisis. In addition to high numbers of depressive symptoms and low levels of self-esteem, those in Moratorium also reported a high score for substance abuse. The Carefree Diffusion cluster did not differ from the Achievement or Foreclosure clusters on social and academic adjustment at university, on the number of depressive symptoms, or on level of self-esteem; all of these measures indicated a relatively high level of functioning for individuals in these clusters. Also, the two diffusion clusters scored low on levels of Openness and Conscientiousness, which is in contrast to the high levels of both personality variables reported by those in the Achievement cluster.

Luyckx and colleagues (2005) also investigated whether there were any differences in classifying individuals into clusters by using their four dimensions, rather than only the two dimensions used by Marcia (1966). The authors reported significant differences in classifying individuals. They found that a quarter of those who had been

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originally classified in the Achievement status using Marcia's two dimensions were re-classified as being in the Moratorium cluster using four dimensions because the new clusters included expanded definitions of exploration and commitment. Additionally, of the 170 individuals who would have been classified as being in the "Diffused" identity status using Marcia's dimensions, only 19% of them remained in the Diffused Diffusion cluster (33/170), while 41% were re-classified into the Carefree Diffusion cluster (71/170) and 24% were re-classified into the Foreclosure cluster (42/170). Since approximately 80% of Marcia's diffused individuals were re-assigned to two more psychosocially well-adjusted clusters, it could explain the difficulty Marcia had in classifying those individuals as maladjusted. Using four rather than two dimensions appears to lend accuracy and clarity to the status groupings.

According to the authors, Luyckx and colleagues' (2005) study made three major contributions to the literature on identity research: the use of four rather than two identity dimensions to determine identity statuses, the use of data-driven cluster analysis rather than median-split techniques which resulted in five distinct identity statuses, and an examination of how these five statuses related to adjustment and personality variables in order to compare new findings with the extensive literature on Marcia's (1966) research. Four of the five clusters empirically derived in this study are similar to the four that Marcia named in his theory. The fifth cluster had been mentioned in the literature, but not previously delineated through data-driven methods. Thus, this study added a new perspective to the research on identity development.

In addition to the important contributions cited by the authors, this work (Luyckx et al., 2005) also connected Marcia's (1966) work more thoroughly to Erikson's

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epigenetic theory of identity development. By finding a status (Diffused Diffusion) that is characterized by a period of crisis in adjustment, some attempt to explore aspects of identity, and yet lacking in commitments made and any evaluative components in a search for an identity, Luyckx and colleagues have empirically found what Erikson (1963) theorized was opposite from the successful resolution of the identity development stage. Only 12% of their sample was classified in the Diffused Diffusion cluster, suggesting that most of these college students may be successfully managing the identity crisis at the point in time measured by the authors. There may be many different ways to have a "favorable ratio" (Erikson, 1963, p. 274) of virtues in the identity development stage, although adolescents in some of the statuses may need to revisit the identity dilemma throughout their tenure as emerging adults (Arnett, 2000) or later on when tackling the crises in later stages of lifespan development.

The finding that statuses can be empirically derived from the four dimensions of identity development (Luyckx et al., 2005) and are similar to what Marcia (1966) found through his interviews, is important to the current study. Not only were the statuses similar to Marcia's, but they were more complex and offer an improvement to our understanding of individuals in each identity status. It will be important to test the statuses with other parallel lines of research, such as Berzonsky's (1988) processing styles, in addition to the psychosocial variables explored in this study by Luyckx and colleagues.

Luyckx and colleagues' longitudinal extension of the four dimensional model of identity development. Although the four dimensional model of identity development has been used to form statuses similar to those suggested by Marcia (1966), it is still not

clear how this model by Luyckx and colleagues (2006b) may reflect other aspects of Erikson's (1963) theory. The following study is included here, described in brief, to lend support to the idea that Luyckx' model is consistent with Erikson's psychosocial theory of development.

In order to investigate the four dimensional model's sensitivity to the environment, and thus support its stance as a model that conceptualizes Eriksonian (1963) theory, Luyckx, Goossens, and Soenens (2006a) used a developmental design to test their dual-cycle model of identity development (See Figure 4), including both identity formation and identity maintenance indicators. The authors predicted that individuals use the cycles differently depending on external contextual variables, such as success or failure in the first year at college. If external contextual variables were indeed found to affect the longitudinal pathways of the dimensions, it would provide evidence that this dual-cycle, four-dimensional model presents a possible conceptualization of Erikson's theory.

In order to investigate these relationships, the authors assessed two groups of college students four times in two years: one group (those "unsuccessful in college") changed majors or started college over (n=161), while the other group (those "successful in college") continued on their original plan of major (n=241). The sample used in this study (Luyckx et al., 2006a) was the same Dutch-speaking Belgian sample previously studied by Luyckx and colleagues (2006b), but consisted only of the 402 students who completed the measures at each of the four intervals. This group was 88.8% female, consistent with enrollment in Psychology and Educational Sciences, and likely to be Caucasian and of middle-class background, consistent with enrollment at the large

university in Flanders (Luyckx, Goossens & Soenens, 2006). The mean age at Time 1 was 18 years, 7 months old (SD = 7.1 months). No other demographic variables were described.

The measures used in this study (Luyckx et al., 2006a) were two identity development measures that have typically been used to measure one of the two identity development cycles. The EIPQ, a 28-item Dutch version, was used to measure Exploration in Breadth and Commitment Making, the commitment-formation cycle. The commitment-evaluation cycle was measured with the U-GIDS, a 26-item measure originally developed for Dutch-speaking adolescents, and included the latent variables of Exploration in Depth and Identification with Commitment.

Overall, Luyckx, Goossens and Soenens' (2006a) found a progressive trend of significant increases across time in three of the four identity dimensions across the whole sample: Exploration in Breadth, Commitment Making and Exploration in Depth. This suggests that the college environment facilitated the consideration of various alternatives, the making of identity choices and continuing to learn about those choices. Surprisingly, Identification with Commitment tended to decrease across time; however, low Identification with Commitment may be needed in order to be involved in renewed Exploration in Breadth or further Exploration in Depth. It may be that this pattern corresponds to a decrease in people in what Marcia would call the "foreclosed" identity status as students in emerging adulthood are in an environment that facilitates identity exploration.

The hypotheses that different contextual variables might cause different developmental progressions along the dimensions were also supported by the results

(Luyckx et al., 2006a). The findings indicate that for those who were *not* successful in

their first year of college, exploration of alternatives, as indicated by high initial levels of

Exploration in Breadth, may have led to an increased ability to form strong commitments,

as indicated by increased levels of Commitment Making across time. In contrast, for

those who *were* successful in their first year of college, actively considering a wide

variety of identity options, as indicated by high initial levels of Exploration in Breadth,

tended to make students feel less identified with their current commitments, as indicated

by decreased levels of Identification with Commitment. This means that for those

successful in their planned major, too much Exploration in Breadth may have diminished

their sense of security about having made a good decision. Thus, there were differences

in developmental progression of the dimensions for those who started high in Exploration

in Breadth; these differences depended on a student's status in a group who was

successful or not successful in their first year of college.

These findings support Erikson's (1963) conceptualization of identity

development as occurring in the context of both internalized processes and external

pressures. The finding that longitudinal associations between the dimensions differ along

contextual influences, such as success in college, provides support for a dynamic

interplay of variables in the identity development process; this is consistent with

Erikson's epigenetic, psychosocial theory of development. This study by Luyckx and

colleagues (2006a) made strides in supporting their dual-cycle model of identity

development, including both identity formation and identity evaluation, with a

longitudinal design.

Adding a fifth dimension: Ruminative Exploration. Luyckx and colleagues (2008a) extended their comprehensive, four dimensional, model of identity development by adding an empirically-derived, maladaptive, unproductive form of exploration as a fifth dimension in their model. The authors presented evidence that identity exploration has been found to be associated with openness and curiosity, as well as heightened anxiety and depressive symptoms. These seemingly contradictory correlates of identity exploration may be explained by parceling out reflective and ruminative types of exploration.

This study is included here to complete the description and rationale for the five-dimensional model of identity development. Luyckx and colleagues (2008a) also presented the development of an instrument to assess their five dimensions of identity development, which is also used in the current study. Thus, Luyckx and colleagues' study consists of theory building, instrument development, empirical derivation of statuses using five dimensions, and the establishment of validity through association with psychosocial variables. Their study also provided a foundation for the current study.

In addition to *Exploration in Breadth* and *Exploration in Depth*, Luyckx and colleagues (2008a) suggested that there is a *Ruminative Exploration* that consists of maladaptive exploration strategies. The authors suggested that the difference between these types of exploration may lie in different types of self-attentiveness: self-reflection tends to be motivated by curiosity and true interest in knowing the self, whereas self-rumination is motivated by fear or perceived losses and is characterized by negative, chronic brooding which can be unproductive, passive and have a repetitive focus on the self. It was hypothesized that Ruminative Exploration may be associated with negative

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aspects of psychosocial functioning, whereas the other two types of exploration may be associated with self-reflection and more positive aspects of psychosocial functioning.

The authors (Luyckx et al., 2008a) had four goals with this research. The first goal involved questionnaire development to include a measure of Ruminative Exploration; the instrument they developed is called the Dimensions of Identity Development Scale (DIDS). The second goal for their study involved determining internal construct validity by examining the relationships among the five dimensions to see if they followed expected patterns. A third goal was to establish external construct validity by investigating the associations between the dimensions and psychosocial correlates; the correlates used in this study included measures of adjustment including self-esteem, depression symptoms and anxiety symptoms, as well as the self-attentiveness factors of self-reflection and self-rumination. Finally, categorical analysis in the style of identity status research using cluster analysis of the data was the fourth goal of this study. The authors contended that the main focus of a status approach such as Marcia's is on "capturing individual differences in the way people approached and resolved identity issues at a certain time in their lives" (p. 59). These researchers hoped that adding the dimension of Ruminative Exploration would explain some of the conflicting findings among the statuses' relationships to correlates.

There were two samples in the study testing for Ruminative Exploration (Luyckx et al., 2008a). The first sample consisted of students (n = 263) who were freshmen in college in the department of Psychology at a university in Flanders. These were Dutch-speaking Caucasian individuals with an average age of 19.14 years (SD = 0.95), and 72.6% of the participants were female. The second sample consisted of students (n = 440)

who were in the 12th grade from seven different high schools in Flanders. The mean age was 17.84 (SD = 0.52); 57.5% of the participants in sample 2 were female. All of the measures were administered in Dutch, and students were assured of anonymity. The authors explained that the two samples allowed for the investigation of reliability and validity of the DIDS, as well as possible mean differences on the identity dimensions by age group.

The measures used included indices of identity development, adjustment, and self-attentiveness. For identity formation and evaluation, the authors created the DIDS (Luyckx et al., 2008a) to include items intended to measure the five dimensions. These items were inspired by material from other identity development measures currently in the literature, and revised to tap into a domain of general future plans. The DIDS has 25 items, five for each dimension (See Appendix A). Self-esteem was measured using the RSES; Depressive symptoms were measured using a 12-item version of the CES-D; and Anxiety symptoms were measured using a Dutch version of the SCL-90-R. Self-reflection and self-rumination were assessed using the Rumination-Reflection Questionnaire (RRQ; Trapnell & Campbell, 1999; as cited by Luyckx et al., 2008a).

Using Confirmatory Factor Analysis, a five-factor model was found to be the best fitting for both samples (Luyckx et al., 2008a). No gender differences in model fit were found for either sample. Mean differences were assessed and it was found that in the high school seniors sample, women scored higher on Exploration in Depth and Ruminative Exploration than men. Commitment Making was found to be higher overall in university students than high school students, while levels of Exploration in Breadth were higher in high school students. It makes theoretical sense to envision university students to have

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more strongly held commitments and for high school students to be engaging in more wide-spread exploration, which is what these findings suggest. Reliability estimates of the DIDS dimensions using Cronbach's alpha ranged from .79 to .86 in both samples, suggesting that the DIDS was a reliable instrument for these participants, and providing support that the goal of questionnaire development was met.

The second goal for Luyckx and colleagues (2008a) involved investigating the internal construct validity of the five-dimensional model. They found that all 10 of the correlations were consistent across both samples except one, and that these correlations were all consistent with the hypothesized relationships between dimensions. This lends support for internal construct validity of the five-dimensional model.

An examination of the external correlates of the five dimensions revealed findings primarily in line with predictions, and patterns that were generally consistent across the samples. Regression analysis was used to identify unique variance in the correlates explained by the dimensions when controlling for the other dimensions. The analysis reported (Luyckx et al., 2008a) indicated that Ruminative Exploration was uniquely related to maladjustment: high levels of depressive and anxiety symptoms and low levels of self-esteem. Exploration in Breadth and in Depth were not found to be related to the measures of adjustment when controlling for associations with Ruminative Exploration, except for a modest positive association between Exploration in Depth and anxiety in the sample of high school students. Consistent with hypotheses, Exploration in Breadth and in Exploration in Depth were related positively to high levels of self-reflection, and Ruminative Exploration was associated with high levels of self-rumination. Identification with Commitment was found to be the most powerful predictor of well-being, as it was

associated with low levels of depressive and anxiety symptoms, and high levels of self-esteem. Additionally, as is consistent with other research on associations with adjustment (Luyckx, et al., 2006b), Commitment Making was not associated with the measures of well-being used in this study. These relationships provide strong evidence of the external validity of the five identity development dimensions.

The fourth goal of this study (Luyckx et al., 2008a) investigating the addition of Ruminative Exploration to their four, now five, dimensional model involved cluster analysis of the dimensions. Cluster analysis allows for the formation of clusters where individuals in each cluster have more in common with each other than with individuals in the other clusters. The clusters were formed on the basis of the five dimensions in the DIDS, and then compared to see how the clusters differed from each other based on the external correlates measured in the study. A total of six clusters were retained in both samples, and each explained at least 50% of the variance in each dimension included (See Figure 6 for the university sample). Each cluster had a unique constellation of the five dimensions. Although the two samples have very similar clustering, when the dimensions were present in moderate amounts, the direction, towards the low end or towards the high end, was sometimes switched. The university sample data will be presented here, as it relates more closely to the goals of the present study.

As can be seen in Figure 6, individuals in the *achievement* cluster had the highest levels of Commitment Making and Identification with Commitment; they also had moderately high levels of Exploration in Breadth and high levels of Exploration in Depth; the achievement cluster was also characterized by moderately low levels of Ruminative Exploration. The *foreclosed* cluster was characterized by moderately high levels of both

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commitment dimensions, the lowest levels of Exploration in Breadth, moderately low levels of Exploration in Depth, and very low levels of Ruminative Exploration. A newly titled *ruminative moratorium* cluster is characterized by the highest levels of Ruminative Exploration, the highest levels of Exploration in Breadth and Exploration in Depth, moderate levels of Commitment Making, and moderately low levels of Identification with Commitment. The *diffused diffusion* cluster had the lowest levels of Commitment Making and Identification with Commitment, as well as relatively high levels of Ruminative Exploration; it was also characterized by moderate levels of Exploration in Breadth and Exploration in Depth. The *carefree diffusion* cluster was characterized by moderately low levels of Commitment Making, Identification with Commitment and Ruminative Exploration; it was also characterized by the lowest levels of Exploration in Depth, and low levels of Exploration in Breadth. Finally, the newly extracted cluster is called the *undifferentiated* cluster, and is characterized by moderate levels on all five dimensions of identity development.

External correlates of the six clusters were determined following significant MANOVA's, using Tukey's HSD test of significant differences. On the correlate of self-esteem, Achievement and Foreclosure clusters scored the highest and Diffused Diffusion and Ruminative Moratorium scored the lowest. In both samples, the depressive symptoms and anxiety symptoms were highest in the Diffused Diffusion and Ruminative Moratorium, while the Achievement, Foreclosure, and Carefree Diffusion clusters had the lowest scores. Surprisingly, Achievement and Ruminative Moratorium clusters had the highest self-reflection scores, and Carefree Diffusion scored the lowest. For self-rumination, Ruminative Moratorium and Diffused Diffusion scored the highest,

consistent with hypotheses; additionally, Achievement, Carefree Diffusion and Foreclosure clusters had the lowest self-rumination scores.

With this research, Luyckx and colleagues (2008a) developed a brief, reliable scale to measure the dimensions in their model. They also extended their four-dimensional identity development model to include a fifth dimension: Ruminative Exploration. It is possible that "Ruminative Exploration may hinder the formation of Identification with Commitments" (p. 75) based on the findings from this study. Additionally, controlling for the shared variance with Ruminative Exploration minimized the other two types of exploration's relationship with indices of psychological distress. The authors had hoped to find a cluster that might represent a healthy type of moratorium, but did not report finding this cluster. They theorized that it might be difficult to be in a state of indecision, with high exploration and low commitments without some degree of distress. The authors also noted that while the Ruminative Moratorium cluster represents a group of people who are experiencing some distress, it may be an appropriate developmental place during a period of identity crisis. Alternatively, high levels of Exploration in Breadth and in Depth without high levels of Ruminative Exploration are possible, as is demonstrated in the Achievement cluster, in which moderate levels of Commitment Making and Identification with Commitment are present. The authors noted that the new cluster, called Undifferentiated, which was characterized by moderate levels of all the identity dimensions, may represent individuals currently not engaging in much identity work, but who are sufficiently secure in their existing commitments to not be troubled by the lack of identity development progress.

The study presented here by Luyckx and his colleagues (2008a) represented a great step forward in identity development research. They extended their model to address conflicting findings in the identity development research, including evidence that identity exploration is not always associated with positive adjustment factors, and managed to develop a brief and reliable measure including all five dimensions of identity development. Additionally, the authors presented evidence of internal and external validity of their dimensions, and then pushed the research forward to include an examination of how the new dimension fits into existing status research.

Similar to Luyckx and colleagues' (2006a, 2006b) work with identity status development, this research on a fifth dimension by Luyckx and colleagues (2008a) fits well into Erikson's original epigenetic theory of lifespan development, and his identity development stage. The inclusion of clusters, which represent groups of individuals manifesting different approaches to the identity development process, are present as statuses in Luyckx and colleagues' (2008a) work. By applying a dynamic model of identity development, including both identity formation and identity evaluation components, to a status approach, we can see the potential clustering of dimensions at a given point in time. These observations go beyond Marcia's (1966) status approach, because they include more dynamic aspects of identity development. At the same time, these contemporary status efforts do not diminish Marcia's work; in fact, the newer research shows that the original statuses Marcia proposed are still supported by the inclusion of more descriptive dimensions of identity development.

For the purposes of the current research, Luyckx and colleagues' (2008a) work establishing the validity of the five-dimensional model is vital. Further work embedding

the model into the identity development literature is needed, now that the model has been tentatively established. Additionally, it is noteworthy that all of the research thus far has been done with European participants; it is important to learn more about the model using a sample from the United States.

Five factor model applied to a diverse, U.S. population. One limitation of the expansive work of Luyckx and his colleagues (e.g., 2006a, 2008a, d) is a restricted population of Belgian participants. Schwartz and colleagues (in press) addressed concerns about whether the model is applicable in the United States by using a diverse population of college students to test the model. Supporting the structure of the model in the United States is necessary for the current study; before comparing the five-dimensional status model to other constructs in the identity development literature with a sample in the United States, data supporting that the model is applicable with such a sample would be worthwhile.

Responding to criticisms that Marcia's status model may not address much of the basis of Erikson's (1968) theory on identity development, Schwartz and colleagues (in press) set out to further validate the expanded, five-dimensional status model of Luyckx and his colleagues (2008a). The goals of this study were four-fold: to establish concurrent validity by connecting the statuses based on a five-dimensional model to direct measures of identity synthesis and confusion; to examine construct validity through links with an expanded set of correlates that include both internalizing and externalizing symptoms and general well-being; to establish practical applicability through an exploration of how the statuses relate to health risk behaviors; and finally, to investigate whether the five-factor structure of the DIDS was supported by the English-language version developed for this

study among a sample of diverse American college students. Thus, these authors (Schwartz et al.) set out to test the model with a more diverse sample and pave the way for use of this model with English-speaking American university students through an examination of the measure's reliability and validity and the model's viability in the United States.

The participants in the American study on the identity statuses (Schwartz et al., in press) consisted of 9,170 college students from 29 colleges and universities across the United States. Seventy three percent of the sample were women, the mean age was 20.37 years (SD = 3.46), 63% of the sample identified as White, 16% as Hispanic, 10% as Black, and 10% as East or South Asian. The data were collected from colleges and universities in the Northeast, Southeast, Midwest, Southwest and Western portions of the United States, with a mix of large and small state universities, and major and small private colleges.

An English-language version of the DIDS was developed for use in this study (See Appendix A). The DIDS is a 25-item measure, with five items for each of the scales for Exploration in Breadth, Commitment Making, Exploration in Depth, Identification with Commitment and Ruminative Exploration. A confirmatory factor analysis was performed on the sample and supported the five-factor structure of this measure.

The other measures used supported the goals for this study. The Erikson Psychosocial Stage Inventory (Rosenthal, Gurney, & Moore, 1981; as cited by Schwartz et al., in press) was used to measure identity synthesis and identity confusion. Seven subscales from various questionnaires were used to measure the positive psychosocial functioning variables of self-esteem, internal locus of control, meaning in life, life

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satisfaction, psychological well-being and eudaimonic well-being. Six subscales from a variety of measures were used as indicators of negative psychosocial functioning: depressive symptoms, general anxiety, social anxiety, rule-breaking, social aggression, and physical aggression. The health risk behaviors were primarily measured by single-item scales asking about alcohol use, illicit drugs, unsafe sexual behaviors, and driving while using drugs or alcohol.

The statistical analytic strategies employed began with a multi-step process to create the identity clusters (Schwartz et al., in press). The first step consisted of a hierarchical cluster analysis on the DIDS where a six-cluster solution was requested, consistent with Luyckx and colleagues (2008a). The second step involved using the cluster centers as non-random starting points in an iterative *k*-means cluster analysis, as delineated by Gore (2000; as cited in Schwartz et al). The clusters were then named based on labels used in past research and the loadings of each dimension in each cluster. MANOVA's were used to test the relationships among the clusters and the Eriksonian and psychosocial variables of interest to this study.

The findings in this study (Schwartz, et al., in press) are remarkably consistent with theory and previous research using Belgian samples. The clusters that were empirically generated were titled *Achievement, Diffused Diffusion, Carefree Diffusion, Searching Moratorium, Undifferentiated, and Foreclosure* (See Figure 7). These clusters were very similar to others found and described in previous studies above. Of note, the *Searching Moratorium* cluster was found to be more similar to what others (e.g. Crocetti et al., 2008; as cited by Schwartz, in press) have found, which consists of active Exploration in Breadth while still maintaining substantial commitments. Also, the

Undifferentiated cluster was very close to the average on all five dimensions, and may also be conceptualized as a "low-profile moratorium" (as labeled by Adams et al., 1989; as cited by Schwartz et al.).

Through an examination of the clusters with the Eriksonian concepts of identity synthesis and identity confusion, concurrent validity was established (Schwartz et al., in press). Those participants in the Achievement cluster scored the highest on identity synthesis, and those in the Carefree Diffusion cluster scored the lowest. A similarly consistent pattern supporting identity status theory is that the Diffused Diffusion cluster scored the highest on identity confusion, while those in Foreclosure and Achievement clusters scored the lowest on identity confusion.

Gender and ethnic differences by cluster were minimal in this sample (Schwartz et al., in press). It was found that men were more frequently categorized in the Carefree Diffusion status than in the other clusters, and that women were more frequently categorized in the Achievement cluster than in the other clusters. There were small significant differences found between the ethnic groups represented, but the authors suggested that due to the large sample and small absolute differences, these differences are not likely meaningful. The authors concluded that the factor structure was very consistent across ethnicity.

Construct validity through an investigation of relationships with positive and negative psychosocial functioning also supported theoretical expectations for the clusters (Schwartz et al., in press). Marked similarities were noted for the diffusion statuses, and most indicated that they had the poorest functioning relative to the other clusters. It was found that the two diffused statuses scored the lowest on positive psychosocial

functioning, including self-esteem, internal locus of control and well-being. The Diffused Diffusion status was more likely than the Carefree Diffusion status to search for meaning in life, but also more likely to report lower levels of meaning in life. This supports the idea that those in the Diffused Diffusion cluster were actively, and unsuccessfully trying to find an identity, while those in the Carefree Diffusion cluster did not seem interested in exploring identity-relevant issues. Other differences between the diffusion clusters emerged in the negative psychosocial functioning realm: both scored high on internalizing symptoms like depression and anxiety, but the Carefree Diffusion group scored the highest on scales of externalizing problems, such as rule breaking, social and physical aggression. The Carefree Diffusion cluster also scored the highest on the health-risk behavior indicators, which further differentiates it from the Diffused Diffusion cluster.

The Achieved status was characterized by the highest scores on the positive psychosocial variables, including higher than those in Foreclosure on measures of life-purpose (Schwartz et al., in press). However, those in the Foreclosure status scored lower than those in the Achievement status on indices of negative psychosocial functioning, such as anxiety and depression. This suggests that while those who are in the Achievement status may be content and have positive well-being, they may also have some distress from the exploration dimensions. On most of the positive and negative psychosocial functioning variables, the Achievement and Foreclosure statuses were similarly well-functioning, as indicated by similarly high scores on positive variables and low scores on negative variables. Both the Foreclosure status and the Achievement status

were also associated with the lowest levels of health risk behaviors, suggesting that some degree of commitment may protect against these behaviors.

Similarities were also found between the Searching Moratorium and Undifferentiated statuses. They had similar levels of positive well-being, although those in the Searching Moratorium had higher levels than those in the Undifferentiated cluster of negative symptoms like depression and general anxiety. These similarities may support the idea of a name change for the "undifferentiated" cluster to that of a "moratorium" status similar to what Marcia (1966) might have described, where there are moderate amounts of all types of exploration and commitment, but nothing particularly strong or certain.

In summary, Schwartz and colleagues (in press) conducted an evaluation of the convergent and construct validity of an empirically based identity status solution, as proposed by Luyckx and colleagues (2008a). Using a large, ethnically and regionally diverse sample of American university and college students, they found that the six factor cluster solution was appropriate, and that many previously discussed conclusions were supported and expanded. Schwartz and colleagues extended previous research by comparing the cluster statuses to a theoretically-based Eriksonian measure of identity synthesis, and provided support that the five-dimensional status model is relevant to identity development research. They also used a much wider range of psychosocial correlates, including both positive and negative, internalizing and externalizing, and health risk behaviors, than has previously been explored. These findings represent great steps forward in the research on Luyckx and colleagues' model of identity status. Now

this model can be confidently used in a diverse, American sample of college students and further extensions of the model can be considered.

Summary. The research on the extended status model of identity development has demonstrated an impressive array of support for the model. First, Luyckx and colleagues (2006b) were able to establish their rationale for combining complementary definitions of exploration and commitment into one comprehensive model as they developed support for their four-dimensional model in a Belgian population. Second, they performed cluster analysis on their four dimensions to create statuses that did not rely on a median-split procedure common in other status research (Luyckx et al., 2005). The statuses created were similar to those proposed by Marcia, thus allowing for continuity in the status literature, but also added an additional status that had been predicted in the literature but not previously classified.

The model was then subjected to longitudinal analysis (Luyckx et al., 2006a), the results of which supported Eriksonian theory that identity development would be affected both by internal processes and external pressures. The longitudinal examination was followed by further unpacking of the exploration dimensions in the creation of a fifth identity development dimension: Ruminative Exploration (Luyckx et al., 2008a). The defining of the fifth dimension was also associated with the creation of a questionnaire for use in measuring the constructs in the model (DIDS). Finally, the model was validated on a diverse English-speaking, American sample of college students, which also expanded the known relationships between the statuses and external correlates (Schwartz et al., in press).

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This extensive line of research clearly lends support for the validity of the five-dimensional model in a variety of populations, in both cross-sectional and longitudinal methods, using various analytical procedures, and spanning two countries. Overall, the findings support the tenets of this line of research, consistent with Eriksonian theory, that there exists a process of identity development which includes both commitment formation and commitment evaluation, and which can be satisfactorily measured by the DIDS.

Berzonsky's Identity Processing Styles.

While Luyckx and his colleagues (e.g., 2006a, 2007, 2008a) have worked to illustrate and validate their five-dimensional model of identity development which stems from an extension of Marcia's (1966) identity status conceptualization of Erikson's (1963, 1968) psychosocial theory of development, others (e.g., Berzonsky, 1988; Berzonsky, 2008) have worked to propose and investigate parallel lines of research which also stem from Marcia and Erikson. Berzonsky proposed identity processing styles that are theoretically derived from cognitive theory to explain differences in cognitive processing style used by those in Marcia's statuses. This line of research stems from the 1980's and continues to be investigated in contemporary research (e.g., Berzonsky & Luyckx, 2008).

The cognitive approach to identity development presented by Berzonsky (1988) was intended to apply specifically to Erikson's (1963) identity stage. Berzonsky's identity processing styles are presented here because their relationships with the newly conceptualized statuses (e.g. Luyckx et al., 2008a) are explored in the current research. As is described, Berzonsky's styles have been evaluated in relation to Marcia's (1966)

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statuses; now that a more comprehensive model of identity status is available, it is important to learn if the styles relate in predictable ways to the new statuses. In order to understand how the current research could add meaningfully to the identity development literature, the theory behind Berzonsky's styles and the research exploring them is presented in this section. What follows is an in-depth presentation of Berzonsky's (1988, 1990) original ideas about processing styles, a description of his process of developing an inventory to measure the styles, and a summary of relevant research using this cognitive approach to identity development.

  Berzonsky's original social-cognitive theory of identity processing styles. In order to understand how processing styles might be a relevant aspect of the identity development literature, it is necessary first to understand the theory and rationale behind it. Based on Erikson's theory of identity development, Berzonsky (1988, 1990) presented a social-cognitive and process-based alternative operationalization to Marcia's (1966) identity status theory. Berzonsky (1988) suggested that there are three components to identity which are interdependent: process, structure and content. The process of identity is the means through which identity-relevant material is encoded, integrated and expanded. The structure involves the organization of identity, and the content is the actual information upon which identity is constructed. He pointed out that any operationalization of a theory, such as Marcia's, loses some of the richness and complexity of the original theory; thus, it may be important to the integrity of Erikson's theory that researchers not attend exclusively to only the structural components of identity.

Berzonsky (1988, 1990) highlighted the importance of better understanding the social-cognitive processes involved with Erikson's (1963) identity development stage. In his conceptualization of the identity process component, there are three levels: at the base is a set of behavioral patterns and cognitive responses in everyday life; one step up are social-cognitive strategies, which are composed of collections of everyday behaviors and cognitions; finally, an identity processing style represents the preferred social-cognitive strategy for the individual. Berzonsky highlighted three processing styles that are employed by the individuals in Marcia's statuses: an informational or scientific style; a normative or dogmatic style; and a diffuse or ad hoc style.

Drawing on cognitive research in general and on cognitive-based research on Marcia's (1966) identity statuses specifically, Berzonsky (1988, 1990) described and gave support for his three suggested processing styles. Berzonsky described an *information-oriented* processing style, such that they are open to and engaging in self-exploration and actively seek out, engage with, and assimilate or accommodate relevant information as appropriate. People with an information oriented style base decisions to assimilate or to accommodate on the validity and quality of objectively-viewed information. The information oriented approach has been likened to a scientific personal theorist constantly working to develop an accurate theory of self.

A *normative oriented style* is characterized by a tendency to adhere to socially or parentally espoused norms for behavior and values. These individuals hold a rigid and biased view of themselves, and thus are more apt to apply a confirmation-biased approach to encoding new information in order to facilitate assimilation and defend established belief structures.

The underlying processing style for those with a lack of commitment or exploration is a *diffuse-avoidant orientation*. Individuals utilizing a diffuse-avoidant processing style tend to delay decision making when possible, or readily accommodate their views of themselves to the demands of the situation. Berzonsky stated that a person with a diffuse style orientation "is willing to change chameleon-like from situation to situation. Such alterations, however, tend to involve transient behavioral compliance rather than stable cognitive restructuring" (Berzonsky, 1988, p. 251).

It is important to remember that these three styles represent a social-cognitive approach to processing identity-relevant information, not a structure, or status of identity. Berzonsky (1988) theorized that the preferred social-cognitive strategy employed by an individual represented a cognitive style. These three styles, informational, normative, and diffuse-avoidant, can increase the complexity of our understanding of other identity-related theories (e.g., Marcia, 1966; Luyckx et al., 2008a).

Relating Berzonsky's identity processing styles to Marcia's statuses. The current research seeks to expand the identity development literature by investigating how Berzonsky's identity processing styles relate to the complex, modern conceptualization of identity status proposed by Luyckx and colleagues (2008a). Research on ways that Berzonsky's styles have been found to relate to Marcia's (1966) statuses is explored in this section. In order to further investigate his identity style theory, Berzonsky (1989) developed an inventory to measure his constructs of informational, normative and diffused identity styles. Here the three constructs are reviewed and the research in support of the items used in the measure is described. Additionally, Berzonsky's original studies investigating the relationships between his styles and Marcia's statuses are presented. In

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order to investigate the relationships between contemporary conceptualizations of identity statuses and identity processing styles, the instrument developed (1989) and revised (1992b, 1997) by Berzonsky was used in the current study. The development of the inventory serves to further clarify Berzonsky's theory and processing style model. Additionally, the observed pattern of relationships between style and status in this study by Berzonsky is noteworthy, and informs the hypotheses of the current research.

Berzonsky (1989) theorized that persons in each of Marcia's (1966) statuses endorse a preferred identity processing style. His processing styles are described as methods of approaching problem solving, or the social-cognitive "strategy that individuals characteristically use or would prefer to employ" (Berzonsky, 1989, p. 270). Each identity style reflects a different approach to problem solving and decision making. The *informational* style is characterized by individuals who actively seek out information to process and evaluate in terms of identity-related decisions. Berzonsky suggested that individuals in Marcia's (1966) achieved and moratorium statuses may actually be employing an informational style, which may relate to an openness to explore identity-related concepts. Individuals who are in Marcia's foreclosed status may be using a *normative* style approach to identity-related decision making. The normative style is characterized by a process of making decisions that conform to social standards or are supported by respected others, such as parents. Finally, the *diffuse* style orientation is employed by individuals who delay or avoid making decisions, and is likely used by those in Marcia's diffusion status. Through labeling the cognitive style employed, Berzonsky added a process-based style to Marcia's conceptualizations of status as an outcome variable (See Figure 3).

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In support of his cognitive-processing theory, Berzonsky (1989) cited a variety of research on Marcia's statuses that relates to cognitive complexity or processing style. For example, he pointed out that research indicates that the foreclosure status has been related to rigidity in belief systems, and an intolerance of ambiguity. He also referenced research that found those in moratorium or achievement statuses demonstrated a greater integrative complexity to their reasoning than did those in the diffuse or foreclosed statuses. These findings, among others, lend support to the idea that different styles or approaches to processing identity-related information may not only differentiate between Marcia's statuses, but also suggest that perhaps the differences are process-based.

Berzonsky's (1989) theory is based on Erikson's life-span development theory in which individuals in late adolescence are faced with the task of forming and maintaining a self-identity. Berzonsky stated that Marcia's status conceptualization of Erikson's theory implies that identity status is an outcome variable. Alternatively, Berzonsky theorized that a process-oriented approach might lead one to consider the cognitive process through which identity-relevant decisions are made. Berzonsky (1989) suggested that the style preferred by an individual at one time may change based on external or internal demands. This conceptualization is consistent with Erikson's lifespan development theory, which presumes an ongoing process that is affected by both internal needs and external pressures.

Berzonsky (1989) operationalized his theory of identity styles through the creation and validation of an inventory. He stated that he attempted to separate out the exploration and commitment components that he believed were confounded in existing measures of identity status, and he used this approach to develop the items for his

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inventory. The items were created to form scores that represented the three social-cognitive strategies (six items were originally written for each scale), as well as a fourth score to represent a commitment scale (ten items were originally written for the commitment scale). The participants were asked to respond to each item on a 7-point Likert scale according to the extent to which each statement was "not like or like" them (Berzonsky, 1989, p. 271). He reported initial Cronbach's alphas from a study with college students (N=155): Informational = 0.53, Normative = 0.52, Diffuse = 0.59 and Commitment = 0.77. He also reported test-retest reliabilities over five weeks (Informational = 0.86, Normative = 0.78, Diffuse/Avoidant = 0.78, and Commitment = 0.84). Although the reliability estimates reported here are relatively low, Berzonsky considered them to be "adequate for research purposes" (p. 271).

Using correlates of authoritarianism, locus of control, facilitative and debilitative anxiety, and an identity achievement scale, Berzonsky (1989) sought evidence for the validity of his measure. By analyzing zero-order correlations between status scores and style scores on his inventory, completed by undergraduate students (N=66), Berzonsky found that the informational style and the normative styles were both negatively related to the diffuse style. Both the informational style and the normative style were positively related to commitment, and the diffusion style was negatively related to commitment. These findings were in line with his predictions. The informational style was also negatively related to authoritarianism, debilitative anxiety and external-control expectancies, while having a positive relationship with facilitative anxiety. The diffuse style was positively related to external control and debilitative anxiety, as well as authoritarianism. In this first test of validity, the normative style was not found to have

any significant relationships with the variables studied. There was also no effect of respondent sex.

In a second study, Berzonsky (1989) investigated the relationships between his styles and Marcia's status variables as assessed by the Objective Measure of Ego Identity Status (OM-EIS, Grotevant & Adams, 1984, as cited by Berzonsky). He argued that his style dimensions are the processes underlying identity status, and thus should the predicted relationships between the styles and statuses arise, it would provide further construct validity for his inventory (See Figure 3 for his predicted relationships between status and style). Both measures were administered to undergraduate students (N=86). He found the expected significant zero-order correlations between informational style and achievement status (r = 0.25), between the normative style and foreclosure status (r = 0.47), and between the diffusion style and the diffusion status (r = 0.62). However, there was a strong positive correlation found between a normative style and the achievement status (r = 0.52), and the expected relationship between the informational style and the moratorium status was not significant (r = 0.06). Through a regression analysis, it was found that an informational style accounted for a significant portion of the variance in the moratorium status when commitment was partialed out. It was also found that the normative style accounted for a significant portion of the variance in the achieved status when the effect of commitment was removed. Berzonsky suggested a possible explanation for the relationship between the normative style and the achieved status, positing that for those who have consolidated their commitments, some amount of rigidity to the processing of new identity information may be adaptive. In the case of individuals in the achievement status, Berzonsky suggested that the term "stability" might

be more appropriate than "rigidity" (1989, p. 279) to describe a preference for a normative processing style.

Conceptualizing differences in adolescents encountering the challenge of identity development as social-cognitive processing style differences represents a positive addition to a stable outcome variable in the identity status literature. Berzonsky (1989) has offered an alternative explanation to Marcia's (1966) status approach to identity development, and it appears that his approach may be measuring a similar construct. The process approach applied by Berzonsky also appears to be more consistent with Erikson's theory of identity development. However, Berzonsky also found a few unexpected relationships that may warrant further examination. In particular, it would be informative to consider how the styles relate to alternate conceptualizations of exploration and commitment (e.g., Luyckx et al., 2008a; Meeus et al., 2002). The hypotheses suggested by Berzonsky about the relationships between the normative style and those who are strongly identified with their commitments could be explored using alternate models to Marcia's. Also, the reliability and validity measures in this study are adequate, but not particularly stalwart. Since publishing his initial studies, Berzonsky has made important revisions to his inventory (*revised* ISI, Berzonsky, 1992a; and ISI-3, Berzonsky, 1992b & 1997). The relationships observed in this study by Berzonsky (1989) between the identity processing styles and Marcia's statuses serve to inform the hypotheses in the present research.

Other research using Berzonsky's identity style model. Berzonsky's (1988, 1990) social-cognitive theory of identity development was presented in the previous section. Other research on Berzonsky's styles that is relevant to identity development

coming from the theories of Erikson (1963) and Marcia (1966) is presented next. An understanding of the following studies adds clarity to Berzonsky's theory, as well as assists the reader in grounding the theory in the identity development literature. In particular, three of the following four studies include a direct comparison between Berzonsky's styles and Marcia's statuses; these studies form the basis for the rationale of the current research, which investigates how Berzonsky's styles relate to Luyckx' statuses.

Berzonsky's styles associated with coping strategies. In order to increase an understanding of what cognitive processes might be related to Berzonsky's (1988) identity processing styles, the following study is described here. This study lends increased support for the reliability and concurrent validity of Berzonsky's (1989) measure of processing styles. It also is included here to illuminate how a preferred coping strategy is related to identity processing style, a further grounding of Berzonsky's theory in cognitive psychology.

Berzonsky (1992a) predicted that the different ways individuals cope with stressors may be related to the identity style constructs in his theory. He suggested that "the manner in which individuals deal with events or stressors that may invalidate or force revisions in their self-views will vary with their identity style" (p. 774). It was hypothesized that those individuals using an informational identity style would view self-relevant problems as manageable and solvable, and thus would use a problem-focused coping strategy; that those using a normative identity style would assign preference to the source of advice received, rather than the quality, and would seek social support or avoid the source of stress; and that those using a diffuse/avoidance identity style would employ

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emotion-focused coping activities such as denial, wishful thinking, and general attempts at tension reduction.

To investigate the relationships between coping strategies and identity styles, college undergraduates (N=171) were asked to complete three measures (Berzonsky, 1992a). The first was a *revised* Identity Style Inventory, which was altered in an effort to improve the psychometric properties. Items were added with face-valid statements for each of the style scales, resulting in 10 items for the information-style scale (α=0.62), 9 items for the normative-style scale (α=0.66), and 10 items for the diffuse-style scale (α=0.73). The commitment scale remained the same, and the revised scales were strongly correlated with the original scales ($r \geq 0.70$). The test-retest reliabilities across a two-month interval also were comparable to the original scale. Two measures of coping strategies were used in this study. The first was the revised Ways of Coping checklist (Folkman & Lazarus, 1985; as cited by Berzonsky, 1992a), which contained 32-items. The second coping strategies measure was the Achievement Anxiety Test (Alpert & Haber, 1960; as cited by Berzonsky, 1992a), which consisted of a debilitative and a facilitative anxiety reactions scale.

An analysis of the zero-order correlations resulted in many relationships as predicted (Berzonsky, 1992a). The informational style was positively related to problem-focused ($r = 0.47$) and seeking-social support ($r = 0.26$) coping strategies and facilitative use of anxiety ($r = 0.17$), and negatively related to debilitative anxiety reactions ($r = -0.16$). The normative style was positively related to distancing ($r = 0.34$), wishful thinking ($r = 0.28$), and debilitative anxiety ($r = 0.18$), as well as negatively related to facilitative use of anxiety reactions ($r = -0.13$). Finally, the diffuse style was positively

related to distancing (r = 0.48), wishful thinking (r = 0.39), and tension reduction (r = 0.20), but negatively related to problem-focused coping strategies (r = -0.17). Factor analysis was also used, and resulted in factors that aligned with the correlational analyses presented.

The results of this study support the hypothesis that the identity processing styles are related in predictable directions to ways of coping. Berzonsky (1992a) stated that "differences in [identity processing] strategy deployment are assumed to be influenced by motivational factors such as current situational demands, past or anticipated environmental consequences, and personal stylistic preferences" (p. 780). He elaborated on this idea by stating that "the orientation that one actually deploys may depend on a diversity of factors, including contextual demands, environmental consequences, personal involvement, cultural and social expectations, and stylistic preferences" (p. 785). These statements support the understanding of identity style as a part of the process Erikson (1963) suggested was at play in the psychosocial developmental stage for adolescents: identity consolidation. This view of style as flexible and changing depending on external and internal demands is consistent with Erikson's theory, and is supported by the findings in this study. Additionally, Berzonsky presented a revised version of his inventory with improved psychometric properties, which aids in the use of this construct in future research.

Future research could improve upon these initial ideas by using more comprehensive statistical techniques to investigate the relationships among variables. Berzonsky (1992a) made use of correlational data to provide rough approximation for

how these variables related to one another. In the future it seems important to develop hypotheses and test the extent of the relationships with more sophisticated methods.

   Identity status is found again to be compatible with identity style. Schwartz, Mullis, Waterman and Dunham (2000) investigated directly how Berzonsky's (1988) styles and Marcia's (1966) statuses relate to one another, demonstrating predictable relationships and lending support to the idea that styles and statuses may be convergent constructs. This study is particularly important because it informs the rationale and method of the current work. Given that there is a more comprehensive approach to status (e.g. Luyckx et al., 2008a) available since the research on Marcia's model, the current research was inspired in part by Schwartz and colleagues' attempt to examine the relationships among the processing styles and new statuses.

   Citing Erikson (1968) as the key linking factor, Schwartz, Mullis, Waterman, and Dunham (2000) examined how potentially conflicting conceptualizations of identity development relate to one another. They examined the ways identity status, identity styles, and personal expressiveness relate to each other. These approaches come from different perspectives operationalizing Erikson's theory of identity development, including an outcome variable in statuses, a self-constructed processing style, and a eudaimonistic sense of personally expressing one's true self.

   The three different approaches to identity development were compared to one another and examined in light of their relationships (Schwartz et al., 2000). The first conceptualization considered is Marcia's (1966) status operationalization of Erikson's theory based on the two dimensions of exploration and commitment. From these two dimensions, four statuses emerge: achievement, moratorium, foreclosure and diffusion.

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The second conceptualization examined was Berzonsky's (1988, 1990) processing style operationalization, which suggested that it is the identity processing strategy most frequently used that causes the inter-individual differences seen in Marcia's statuses. From a constructivist social-cognitive perspective, informational, normative and diffuse/avoidant processing styles were proposed by Berzonsky. Finally, a third conceptualization of identity development was examined, based on personal expressiveness; Waterman (1990) proposed a eudaimonist perspective on identity development, suggesting that people are pulled to live in harmony with their true self. Based on the eudaimonist perspective, "feelings of personal expressiveness associated with an activity or identity alternative are interpreted as indicative of a meshing of the identity element and the individual's existing potentialities" (Schwartz et al., 2000, p. 507). According to the eudaimonist perspective, a person will have varying degrees of personally expressive versus instrumental identity choices which differ in the extent to which a person is intrinsically or extrinsically motivated. All three of these constructs (i.e., statuses, styles and degree of personal expression) represent separate approaches to identity development; the authors sought to explore how they might relate to each other.

Schwartz and colleagues (2000) sampled two populations in an effort to both compare across samples, and to check for replicability of their findings. The first sample was undergraduate students (n=113) at Florida State University, which is comprised of primarily Caucasian students living on campus or in off campus housing. The second sample was undergraduate students (n=196) at Florida International University, which has an urban setting and a 60% Hispanic student population. To measure identity status as conceptualized by Marcia (1966), the Ego Identity Process Questionnaire was used

(EIPQ; Balistreri et al., 1995; as cited by Schwartz et al., 2000). Statuses were assigned based on a median-split procedure applied to the exploration and commitment scales, and were analyzed as categorical variables. Identity styles were measured using the Identity Style Inventory (ISI-3, Berzonsky, 1997), and were analyzed as both a continuous and a categorical variable. Scores were obtained by totaling the ratings for each scale and dividing them by the number of items in the scale for a continuous variable; the scale with the highest standardized value was chosen as the categorical variable. Finally, the Personally Expressive Activities Questionnaire (PEAQ; Waterman, 1993; as cited by Schwartz et al.) was analyzed as a continuous variable resulting in the amount to which the individuals engaged in personally expressive activities.

Findings were analyzed using ANOVA's and pair wise comparisons between each construct of interest to the study (See Table 1). There was no effect of respondent sex found; however, there was an effect of sample, leading to some hypotheses about what might lead to those differences. Due to these differences, the samples were analyzed separately by Schwartz and colleagues; however, results reported here are those that occurred in both samples.

The results for the analysis of the relationship between identity status and identity style were consistent with theoretical expectations (Schwartz et al., 2000), and are particularly important in guiding the hypotheses for the current research (See Table 1). Individuals in the identity achieved status were the most likely to apply an Informational processing style and those in the identity diffused status were the least likely to apply an Informational processing style. People in the foreclosed status were most likely to use a Normative processing style and the individuals with a moratorium status were the least

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likely to use the Normative processing style. Finally, individuals with a diffused status were most likely to use a Diffuse/Avoidant processing style.

The other findings are less central to the purposes of the current research. Participants who were in the achievement status had the highest levels of personal expressiveness, and those in the identity diffusion status had the lowest levels of personal expressiveness (Schwartz et al., 2000). Individuals using an Informational style had the highest personal expressiveness, and those using a Diffuse/Avoidant style had the lowest amount of personal expressiveness.

The authors (Schwartz et al., 2000) suggested that these results support their hypotheses about the linked relationships between these varied operationalizations of Erikson's (1968) identity development theory. In particular, they found continued evidence that individuals in Marcia's (1966) statuses used processing styles that would be predicted by Berzonsky (1988). They stated in conclusion, that Marcia's theory, when defined in terms of exploration and commitment, is "conceptually compatible with both Berzonsky's constructivist theory and Waterman's eudaimonist identity perspective" (Schwartz et al., pp. 518-519). In essence, Berzonsky's styles helped us to understand Marcia's statuses; what remains to be seen is whether the processing styles would relate to newer status models (e.g., Luyckx et al., 2008a) in similar ways.

Although their results continued to support Berzonsky's (1988) theory of how the styles and statuses relate to one another, some anomalies persisted in their findings (Schwartz et al., 2000). It would be useful to consider alternate conceptualizations of exploration and commitment, such as those defined by Meeus (1996), to see how the styles relate to identity evaluation and maintenance, rather than only focusing on identity

formation. As such, applying Berzonsky's identity processing styles to Luyckx and colleagues' (2008a) comprehensive five dimensional model of exploration and commitment, spanning both identity formation and identity evaluation, may add to the complexity of our understanding of how the structure and process of identity development interrelate to each other.

How do Berzonsky's (1988) identity styles relate to Marcia's (1966) identity statuses for those transitioning to college? Using Erikson's (1963) life span theory of psychosocial development as a theoretical basis, Berzonsky and Kuk (2000) investigated what role different identity development orientations might play in the transition to attending college. The authors posited that not only are late adolescents faced with a task of establishing a sense of identity, but late adolescents are also faced with the need to adapt to a new environment in college. According to Erikson's theory, the development of a congruent self-identity facilitates one's ability to cope with future problems. Thus Berzonsky and Kuk hypothesized that identity development has an impact on adaptation to college. This study is included here as further evidence of the ways that Berzonsky's styles relate to Marcia's identity statuses, and in particular, how they relate to successful transition to college.

Identity status was conceptualized using Marcia's (1966) four statuses, including Achievement, Foreclosure, Moratorium and Diffuse statuses. Marcia's identity statuses were defined based on whether an individual has engaged in exploration or formed commitments. Identity processing style was conceptualized as Berzonsky's (1988) informational, normative and diffuse/avoidant processing styles. Berzonsky suggested that the social-cognitive processing style individuals use to solve problems or make

decisions follow three different patterns, Informational, Normative, and

Diffuse/Avoidant. Berzonsky and Neimeyer (1994) have found that individuals in the

Achievement and Moratorium statuses typically use the informational style, individuals

in the Foreclosure status tend to use the normative style, and those in Marcia's Diffuse

status frequently use the diffuse/avoidant style (See Figure 3). The criterion variable in

this study (Berzonsky & Kuk, 2000) was effective adaptation to college, as

conceptualized by Winston and Miller (1987). In addition to investigating the

relationships between status and adaptation to college and style and adaptation to college,

Berzonsky and Kuk hypothesized that identity processing style might mediate any

relationships between identity status and effective adaptation to college.

Berzonsky and Kuk (2000) gathered participants from a state college in a rural

area. The participants included first-year students (N=363) who were predominantly

White, with a mean age of 18.15 years. The authors stated that the students were

generally representative of the accepted members of the freshman class. To measure

identity status, the Objective Measure of Ego Identity Status (OM-EIS) was used

(Adams, Shea, & Fitch, 1979; as cited by Berzonsky & Kuk), which yields continuous

scores for each of Marcia's identity statuses. To measure identity processing style, the

Identity Style Inventory (ISI-3) was used (Berzonsky, 1992b). The ISI-3 results in

continuous scores on each of three scales: informational style, normative style, and

diffuse/avoidant style. For effective adaptation in a college context, the Student

Developmental Task and Lifestyle Inventory (SDTLI) was used (Winston & Miller,

1987).

Consistent with expectations regarding status, in a regression analysis, higher Diffusion status scores, Foreclosure status scores and higher diffuse/avoidant style scores were associated with poorer adaptation to college. Higher informational processing style scores and normative processing style scores were associated with higher levels of academic adjustment. There was also evidence that identity processing style mediated the relationship between the identity diffusion status and adjustment to college; thus there is some variation within the identity diffusion status individuals that seems to depend on their identity processing style. This is particularly noteworthy to the current research, as the conceptualization of statuses according to Luyckx and colleagues (e.g., 2008a) has more than one diffusion status, which might capture some of the differences found in this study by Berzonsky and Kuk.

Additional analyses for each processing style were computed to investigate the instances in which style mediated the relationships between status and overall effective adjustment to college. Achievement and Moratorium statuses were positively related to the informational processing style, but the Foreclosure and Diffusion statuses were negatively related to the informational processing style. The Diffusion, Moratorium and Foreclosure statuses had indirect negative effects on adjustment to college through the diffuse/avoidant processing style. Thus, regardless of status, the preference of a diffuse/avoidant processing style likely made adjustment to college more difficult.

Berzonsky and Kuk (2000) concluded that "students' levels of personal identity development may play a role in the extent to which they experience difficulty and problems in making the transition to university" (p. 92). They pointed out that the more exploration the students engaged in (as represented by the achievement and moratorium

identity statuses), the better they were able to adapt to the college environment. Additionally, much of the variance in progress on the developmental tasks was explained by the identity processing style employed. In particular, the informational style was positively associated with adjustment to college and the diffuse/avoidance style was negatively related to adjustment. It is important to note that although the identity processing style and identity statuses were related in predictable ways, they may be measuring separate constructs. The four identity statuses together only accounted for between 15 and 31% of the variance in identity style (Berzonsky & Kuk, 2000).

Berzonsky and Kuk (2000) brought together two important conceptualizations of the identity development literature. These researchers built on Erikson's (1963, 1968) ideas that the degree of identity consolidation and congruence should be related to adapting to the challenges encountered in one's adult life. In their study, they examined both the identity status of an individual, and the cognitive processing style the individual employs to sort out identity-relevant information. These researchers also posited that the transition to university coincides with the identity development task, and thus the tasks associated with adapting to the challenges involved with transitioning to college might be reasonably considered to measure the ability to cope for the young adult participants.

Although they employed a strong use of theory and added important data to our understanding of the identity development process, there are also some weaknesses to Berzonsky and Kuk's (2000) study. First, use of a more dynamic model of identity status, or exploration and commitment, might strengthen the findings in this study providing information about how adaptation to college is affected by not only the formation of commitments, but also their maintenance. The study by Berzonsky and Kuk also

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presented some discrepancies, such that for those in the diffuse status, all the negative

effects on adaptation to college became non-significant once identity style was included

in the analysis; it is possible that some important information is being lost by using

Marcia's conceptualization of diffused status. Another point is that the achievement and

moratorium statuses both had similar relationships with the variables in this study, and

these two statuses both have a high degree of exploration present. Perhaps a more

distinctive relationship might be found if exploration is not considered as a unitary

concept, but instead different types of exploration can be considered.

It would be informative to evaluate these concepts of status, style and adaptation

with an improved conceptualization of identity status. Luyckx and colleagues (2008a)

described a dynamic model of identity formation and maintenance which involves three

types of exploration and two types of commitment. Luyckx and colleagues' model has

also resulted in breaking down the identity diffusion status into distinct groups based on

the extended conceptualizations of exploration and commitment, coming from both

Marcia (1966) and Meeus (1996). Luyckx' model is conceptually more similar to

Erikson's theory of identity development as a process, and it should prove illuminating to

see how the five dimensions of identity development relate to Berzonsky's (1988)

identity processing styles.

Identity styles, identity status and cognitive processing method. The following

study is included here, described in brief, as a representative example of a recent study

using Berzonsky's styles and Marcia's statuses. It is intended as evidence that the

relationships between styles and statuses are still being investigated, and that this

research would benefit from an updated conceptualization of identity status. In 2008,

Berzonsky examined a possible mediational relationship; he hypothesized that the relationship between general cognitive processes, such as rational or intuitive methods, and measures of identity, such as achieved status, would be mediated by differences in identity processing style.

The participants in this study included community college students (N= 238) from rural northeastern United States. The Achievement Identity Status scale from the OM-EIS (Bennion & Adams, 1986; as cited by Berzonsky, 2008) was used to measure the achieved identity status, which is a scale that measures the statuses according to Marcia's theory. The ISI-3 was used to measure identity processing styles (Berzonsky, 1992b).

The relationship between general cognitive processing and identity achievement was found to be fully mediated by an informational style (Berzonsky, 2008). This suggests that the use of specific styles of processing identity-relevant issues mediates the relationship between general processing and identity formation. An additional finding was that identity achievement was found to have a positive correlation with a normative style. This finding is consistent with other research (e.g. Berzonsky, 1990; Berzonsky, 1992a). A hypothesis that has been suggested to explain this relationship is that the commitment required to have an identity achieved status may make an informational processing style less efficient and a normative processing style more applicable. Perhaps once an individual has had adequate exploration and sufficient commitment, he or she employs a variety of strategies for processing identity-relevant information. It is possible that those with an achieved status have an increased flexibility in the processing styles regularly employed.

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It is noteworthy that in 2008, Berzonsky is still using the OM-EIS, which is based on Marcia's (1966) conceptualization of exploration and commitment, to measure identity status, when there are newer, more comprehensive measures of identity status. A more complex understanding of exploration and commitment, as measured by the Dimensions of Identity Development Scale (DIDS, Luyckx et al., 2008a) might add to our understanding of the identity styles as they relate to expanded conceptualizations of exploration and commitment.

Summary. Berzonsky (1988, 1990) approached Erikson's (1963) identity development stage from a cognitive and constructivist theoretical perspective. Berzonsky posited that the cognitive processing style with which an individual approaches the identity development period affects her or his identity. As has been explored in this section, Berzonsky has provided numerous theoretical examinations of his theory (e.g. 1988, 1990, 2004), as well as developed a measure with which to operationalize his constructs (ISI-3, 1992b). In addition, there is evidence to support the idea that processing style is related to coping strategy, Marcia's (1966) identity statuses, and transition to college.

Most notably, the relationship between Berzonsky's styles and Marcia's statuses has been repeatedly investigated through zero-order correlational analysis, analysis of variance, hierarchical regression and path analysis. The findings were consistent: individuals who have experienced exploration of their identity (achievement and moratorium statuses) tend to prefer to use an informational style; individuals who are foreclosed on their identity tend to prefer to use a normative style; and finally, those individuals who have not explored nor formed commitments (in the diffused status) tend

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to prefer to use a diffuse/avoidant style. What needs to be investigated is whether these relationships show up similarly in the new status model as proposed by Luyckx and colleagues (2008a).

There are, however, some anomalies to the findings relating status to style. Sometimes (e.g., Berzonsky, 1989; Berzonsky, 2008) those in the achieved status were found to use a normative processing style. Berzonsky speculated that once commitments are made it may be adaptive to maintain stability rather than undertake constant re-evaluation through a problem-solving-oriented informational style. Others (Berzonsky & Kuk, 2000) found some discrepancies related to those in the diffused status, such that some individuals in the diffused status (those using a normative or informational style) adjusted to college in healthy ways, while others (those using a diffuse/avoidant style) struggled. Both of these anomalies could be examined in more detail by applying Berzonsky's styles to the more comprehensive status model; Luyckx and colleagues (2008a) have found that there are two kinds of diffused statuses (i.e., a carefree, well-adjusted diffusion, and a troubled, listless diffusion). Additionally, with more precise definitions of exploration and commitment, those categorized as achieved and moratorium statuses may be more clearly differentiated. Perhaps examining these relationships between Berzonsky's styles and Luyckx' dimensions and statuses will provide clarity in the understanding of the process and structure of the identity development period.

In addition to applying Berzonsky's (1992b) styles to a more complex status model (Luyckx, 2008a), it is important to use adequate statistical methods to examine the relationships. In initial research in this area, Berzonsky (1989, 1992a) relied heavily on

zero-order correlations. Others (e.g., Schwartz et al., 2000) used median-split methodology to determine status membership. More recent work (e.g., Berzonsky & Luyckx, 2008) has used hierarchical regression and path analysis to neutralize possible confounding effects of the co-variation among the identity processing styles. Future research will also need to attend to these statistical issues.

Summary and Hypotheses

Taken together, the research on identity status and identity processing style strongly support Erikson's (1963, 1968) psychosocial theory of identity development. Luyckx and colleagues' (2006b, 2008a) identity status development and Berzonsky's identity processing style models each focus on identity as impacted by both internal needs and external pressures that arise during adolescence. The research by Luyckx and colleagues (e.g., 2006b, 2008a) on a comprehensive model of identity formation and identity maintenance provides a structure of identity development with five dimensions of exploration and commitment. The cognitively-based identity processing research of Berzonsky (e.g., 1988, 2008) depicts the social-cognitive processes that facilitate Eriksonian identity development from identity confusion to identity synthesis.

Berzonsky's (1988) and Luyckx and colleagues' (2008a) theories may be complementary approaches to Erikson's theory, and investigating how these two theories relate to each other would extend Eriksonian research. Both models have striven to remain true to the ideas of Erikson and have responded to and rejected Marcia's (1966) model as insufficient to explain the complex process of identity development. They are explored in relationship to each other in the current study in order to learn more about the

cognitive processes of individuals in each of the new clusters/statuses in order to extend identity development literature.

Berzonsky's styles have been explored in relationship to other, outdated (e.g., Marcia, 1966) status models. However, to date, no studies have been published that examine the relationship between the comprehensive, five-dimensional identity status model and the cognitive identity processing style model. Therefore, the present study sought to address this gap in the literature by extending our understanding of the identity development process by examining the relationships between the contemporary, comprehensive status model and the identity processing styles.

In the current study, I expect to find the six identity clusters found in previous research. Once establishing these clusters, I am interested in knowing what type of cognitive processing style is preferred by those in each identity cluster in order to have a better understanding of the individuals in a given cluster. I expect that each identity cluster will endorse the theoretically consistent identity processing style to a higher degree than the other processing styles. I am also interested in comparing the current research directly to that of Schwartz and colleagues (2000), and so would like to analyze the identity clusters' relative endorsement level of each identity processing style. The three identity processing styles as proposed by Berzonsky (1988) are expected to relate in theoretically predictable ways to the six identity statuses proposed by Luyckx and colleagues (2008a).

Based on a review of the relevant research, the following hypotheses were proposed.

Hypotheses:

1. Consistent with previous findings, six clusters are expected to emerge from participants' responses to the DIDS, representing six identity statuses.

2. In order to better understand the relationships between identity status clusters and preferred identity processing style, the average style scores for each cluster are analyzed. The following relationships are predicted:

   2a. Those in the Achievement cluster endorse an Informational processing style to a higher degree than a Normative or a Diffuse/Avoidant style.

       i. Those in the Achievement cluster endorse a Normative processing style to a higher degree than a Diffuse/Avoidant style.

   2b. Those in the Foreclosure cluster endorse a Normative processing style to a higher degree than an Informational or a Diffuse/Avoidant style.

   2c. Those in the Searching/Ruminative Moratorium cluster endorse an Informational processing style to a higher degree than a Normative or a Diffuse/Avoidant style.

   2d. Those in the Undifferentiated cluster endorse an Informational processing style to a higher degree than a Normative or a Diffuse/Avoidant style.

   2e. Those in the Carefree Diffusion cluster endorse a Diffuse/Avoidant processing style to a higher degree than an Informational or Normative style.

   2f. Those in the Diffused Diffusion cluster endorse a Diffuse/Avoidant processing style to a higher degree than an Informational or Normative style.

3. Additionally, to compare findings directly with Schwartz and colleagues (2000), the relative degree to which each status cluster endorses each processing style is evaluated. The following relationships are predicted:

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3a. Those in the diffusion clusters (Carefree Diffusion and Diffused

Diffusion) endorse an Informational processing style to a lesser degree

than the other status clusters endorse an Informational processing style.

3b. Those in the Achievement and Searching/Ruminative Moratorium

clusters endorse an Informational processing style to a higher degree than

the other status clusters endorse an Informational processing style.

3c. Those in the Foreclosure and the Achievement clusters endorse a

Normative processing style to a higher degree than the other status clusters

endorse a Normative processing style.

3d. Those in the diffusion clusters (Carefree Diffusion and Diffused

Diffusion) endorse a Diffuse/Avoidant processing style to a higher degree

than the other status clusters endorse a Diffuse/Avoidant processing style.

CHAPTER III

METHOD

Participants

Data for the present sample were collected from 436 university students at a mid-sized university with open admissions in the Midwest section of the United States. The undergraduate students were recruited from psychology courses. There were four univariate and multivariate outliers removed, as well as 13 blank surveys, resulting in a final sample of 419 participants (74.5% female). Ninety percent of the sample was between the ages of 18 and 27. More specific age ranges of the participants include 53.7% between the ages 17 and 19, 30.8% between ages 20 and 22, 6.5% between the ages 23 and 26, and 9.0% age 26 or more. There were 200 first year students (48.7%), 81 second years (19.7%), 57 third years (13.9%), 40 fourth years (9.7%), 22 fifth year or beyond students (5.3%), and 11 post-secondary students (2.7%) in the sample. The participants self-identified their race as follows: 80.1% as White/European American, 11.1% as Black/African American, 10.0% as Biracial, 1.9% as Asian American, 1.7% as Latino American and 3.8% as "Other", including Native American, Middle Eastern, and International students. Of the sample, 88.4% identified as exclusively heterosexual, 6.8% identified as mostly heterosexual, 1.2% identified as bisexual, 1.2% identified as mostly homosexual and 2.4% identified as exclusively homosexual. The participants were asked to consider their social class in the context of their past and present experiences and they

identified themselves as follows: 3% as Lower Class, 21% as Lower Middle Class, 54% as Middle Class, 20% as Upper Middle Class and 1% as Upper Class. Forty percent of the sample identified as a first generation college student.

In past research (Luyckx et al., 2008a; Schwartz et al., in press), when cluster analysis has been used, the smallest cluster has been composed of between 7.5% - 12.5% of the sample collected. Thus, to have a minimum of 20 participants in each of the six clusters, in order to run subsequent ANOVA's, about 200 participants were needed. Since one set of hypotheses requires within-group analysis, it was important to have more than 20 participants in each cluster. Others conducting the cluster analysis have reported sample sizes as follows: 263 and 440 (Luyckx et al., 2008a), 343 and 371 (Luyckx et al., 2009), 553 (Luyckx et al., 2005), and 9,170 (Schwartz et al., in press). The current sample of 419 was thus considered sufficient.

Instruments

Dimensions of Identity Development Scale (DIDS; Luyckx et al., 2008a). The DIDS is a 25-item self-report scale designed to assess the five identity dimensions: Exploration in Breadth, Commitment Making, Exploration in Depth, Identification with Commitment and Ruminative Exploration. Each dimension is measured by responses to five questions (See Appendix A). The content domain for this scale is "general future plans" (Luyckx et al., 2008a, p. 62).

The items for this measure were created by reviewing and revising items from the following scales: the EIPQ (Balistreri et al., 1995, as cited by Luyckx et al., 2008a), which is a measure of exploration and commitment as defined by Marcia (1966); the U-GIDS (Meeus, 1996), which is a measure of exploration and commitment as defined by

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Meeus; the ISI-3 (Berzonsky, 1992a), which was created from measures of identity status as conceptualized by Marcia; and the PEAQ (Waterman, 1993, as cited by Luyckx et al.), which is a measure of whether identity-relevant choices are made to be personally expressive or instrumental. Additionally, the items to measure Ruminative Exploration were generated to convey a repetitive, uncontrollable, and unproductive tone.

Responses are scored on a five-point Likert-type scale ranging from "strongly agree" to "strongly disagree;" there is a neutral choice of "neither disagree / agree." Scores range from 25 to 125, with higher scores for each dimension reflecting higher or stronger degrees of each dimension. Sample items from the DIDS include "I have made a choice on what I am going to do with my life," "My plans for the future match with my true interests and values," and "I worry about what I want to do with my future." None of the items are reversed-scored (Luyckx et al., 2008a).

Confirmatory Factor Analysis on the initial Belgian sample indicated that five identity dimensions best fit the data ($df = 265$, CFI = .94, RMSEA = 0.7, in two separate samples) (Luyckx et al., 2008a); CFA on the American sample also indicated that five identity dimensions fit the data adequately (χ^2 [260, N = 7950] = 1221.59, CFI = .90, RMSEA = .076) (Schwartz et al., in press). No gender differences were found in measurement using a comparison of constrained and unconstrained models in CFA (Luyckx et al.). No extant information about test-retest reliability data for the DIDS could be found. Internal consistency estimates for the dimensions in the Belgian sample were 0.86 (Commitment Making), 0.86 (Identification with Commitment), 0.86 (Ruminative Exploration), 0.81 (Exploration in Breadth), and 0.79 (Exploration in Depth). Additionally, Schwartz and colleagues found reliability estimates in an English-language

version that ranged from 0.81 for Exploration in Depth to 0.93 for Identification with

Commitment. Alphas for the current sample were in a reasonable range, with Exploration

in Depth ($\alpha = 0.66$) the lowest and Commitment Making ($\alpha = 0.92$) the highest; reliability

estimates for Identification with Commitment ($\alpha = 0.90$), Ruminative Exploration ($\alpha =$

0.87) and Exploration in Breadth ($\alpha = 0.85$) falling in the upper end of the range. This

indicates that this measure is relatively reliable with these populations.

Both internal and external construct validity evidence has been reported (Luyckx

et al., 2008a). The relationships among the dimensions follow expected patterns,

supporting internal construct validity. Additionally, external construct validity was tested

using indices of adjustment, self-reflection and self-rumination in the original Belgian

sample. The relationships between the five dimensions and the indices of adjustment and

self-reflection/self-rumination were generally consistent with hypotheses. For example,

Ruminative Exploration was associated with low levels of adjustment and high levels of

self-rumination; Identification with Commitment was the best predictor of positive

adjustment factors; and Exploration in Breadth and Exploration in Depth were both

associated with high levels of self-reflection (Luyckx et al., 2008a). These relationships

support the external construct validity of the dimensions.

A six factor cluster solution has been supported by the data (see Figures 6 & 7)

using the five dimensions measured by the DIDS. Additionally, Schwartz and colleagues

compared the cluster solutions as created from two separate samples, and reported

agreement rates of classifying a case into the same cluster using the two cluster centers;

they found agreement rates of Cohen's κ 0.76 and 0.77, which are considered

"substantial" levels of agreement (in press, p. 16 of manuscript). Based on the highly

similar cluster solutions, they combined the two samples and recalculated the cluster solution using the entire sample. The final cluster solution reported by Schwartz and colleagues was found to explain between 59% (Exploration in Depth) and 70% (Ruminative Exploration) of the variance in the five identity dimensions of the model. Since the cluster solution explains the majority of the variance in each dimension, the cluster solution represents an adequate representation of the dimensions (Schwartz et al.).

Concurrent validation of the six cluster solution, using the DIDS, has included examining the extent to which the clusters could be differentiated by identity synthesis and identity confusion, as measured by the Erikson Psychosocial Stage Inventory (Rosenthal, Gurney, & Moore, 1981; as cited by Schwartz et al., in press). Identity synthesis and identity confusion represent the two poles of the identity stage as conceptualized by Erikson (1963). Schwartz and colleagues found that those in the Achievement cluster scored the highest on identity synthesis and those in the Carefree Diffusion cluster scored the lowest. Additionally, identity confusion was highest for the cluster of Diffused Diffusion, and the lowest in both Foreclosure and Achievement clusters. These patterns reflect identity status theory (e.g. Erikson; Marcia, 1993), and thus support the concurrent validity of the six cluster solution. In this study the DIDS was used to measure the five dimensions, for the cluster analysis.

Identity Style Inventory – Third Revision (ISI-3; Berzonsky, 1992b). The ISI-3 is a measure of the three identity styles: Informational, Normative, and Diffuse/Avoidant (See Appendix B). This 40-item inventory actually results in four scales, but the commitment scale was not analyzed in this study because commitment was measured by the DIDS.

The items for this measure were created by Berzonsky (1989) in an effort to pull apart the constructs of exploration and commitment as measured in identity status inventories. He created a *revised* scale that he used in 1992 in an effort to improve the ISI's psychometric properties. The revision included generating face-valid statements reflecting the theory behind each of the three processing styles. Items that did not correlate strongly with the total scale were eliminated. The Informational style and Normative style scales underwent further revisions to raise the quality of the scale (Berzonsky, 1997), resulting in the ISI-3 used in the current research.

Each item is rated by the participant on a 5-point Likert-type scale, ranging from 1 (Not at all like me) to 5 (Very much like me). The Informational processing scale consists of 11 items ($\alpha=0.70$, N=618), the Normative scale consists of 9 items ($\alpha=0.64$), and the Diffuse/Avoidant scale consists of 10 items ($\alpha=0.76$) (Berzonsky, 1997). There are no reverse-scored items in the three style score scales. In the current study, the reliability estimates were 0.68 (Informational), 0.71 (Normative), and 0.81 (Diffuse/Avoidant). Test-Retest values over a two week interval for the scales have been reported as follows (N=94): 0.87 (Informational), 0.87 (Normative), 0.83 (Diffuse/Avoidant) (Berzonsky). To calculate a continuous score for each identity processing style, each participant's responses on each scale of the ISI-3 (informational, normative and diffuse/avoidant) are summed and divided by the total number of items on that scale. Analyses are calculated separately for each identity processing style (see Schwartz et al., 2000).

Both internal and external construct validity has been supported for the *revised* ISI (Berzonsky, 1992a) and for the ISI-3 (Berzonsky, 1992b). The commitment scale was

found to be positively correlated with both the Normative and the Informational style scales, suggesting that one can be committed in either fashion. Commitment was found to be negatively correlated with the Diffuse/Avoidant style scale, suggesting that it is less likely to find individuals using this style to be committed to identity-relevant domains. These relationships support the internal construct validity of the ISI as suggested by the processing style theory of Berzonsky (1988, 1990). External validity of the ISI has been supported by research investigating the relationships between the processing styles and Marcia's (1966) statuses (e.g. Berzonsky, 1989; Schwartz et al., 2000). Additionally, the coping styles employed by individuals utilizing the three processing styles were consistent with predictions (Berzonsky, 1992a). Thus, the ISI has been found to have good construct validity.

>   *Demographic data*. Participants were asked to provide demographic information. The demographic questionnaire included questions about gender, age, race, sexual orientation, year in school, major in college, social class, and whether the students are first generation college students (see Appendix C).

Procedure

>   The surveys for participants were administered via a secured website (Survey Monkey). Instructors of Introduction to Psychology classes at a large public university were contacted by email by the primary researcher and asked to mention the study and provide a link to the website or to welcome a researcher into their class to describe the study and provide a link to the website. The link to the website for the current study was also available to students taking psychology classes and who were interested in extra

credit for research participation through a department website for advertisement of research opportunities.

When accessing the link to the current study, participants were directed to the informed consent page (see Appendix D), where the risks and benefits to the study were explained. Then the measures were presented online. After completing the questionnaires, participants were provided with debriefing information (see Appendix E). Participants received course credit for participation in the study. The time to complete the questionnaires should have ranged from 10-20 minutes.

Preliminary Analyses

Confirmatory Factor Analysis was used on the DIDS and the ISI-3 to verify their factor structure; Structural Equation Modeling (SEM) in M-Plus was used to determine model fit. Each dimension of the DIDS was represented by the five items measuring the dimension; the items were used as the indicators for the dimensions. This represents adequate measurement, as each construct should be represented by at least three items (Kline, 2006). Indices of fit included the chi squared indicator, the comparative fit index (CFI), and the root mean square error of approximation (RMSEA); these were used by Schwartz and colleagues (in press) and recommended by Kline (2006).

Primary Analyses

Cluster analysis was conducted to establish the participants' statuses from their responses to questions about the five dimensions of the DIDS. A two-step cluster analysis procedure was used; Ward's method based on squared Euclidian distances was computed first, followed by *k*-means clustering. This method has been used by other researchers (e.g. Luyckx et al., 2008a; Schwartz et al., in press) to establish groups of people who

cluster together based on the scores for each dimension, and results in profiles of the dimensions for each cluster. Individual responses to the DIDS were predicted to produce six identity statuses (cluster analysis as described above).

To address the second hypothesis, t-tests were used. There are several sub-hypotheses for which the t-tests were necessary, so a more conservative alpha level of 0.01 was used for these tests. The analysis examined whether each identity status cluster endorsed the theoretically predicted identity processing style to a higher degree than the other identity processing styles.

Consistent with the process of Schwartz and colleagues (2000), in order to compare relative identity status clusters' endorsement for each identity processing style for the third hypothesis, three between-subjects ANOVA's were calculated, one for each identity processing style. Relationships between the variables in any significant ANOVA's were analyzed using Tukey tests, consistent with the analyses of Schwartz and colleagues. Calculating separate analyses is also consistent with Berzonsky and Kuk's (2000) investigation of style and status as related to adaptation to college.

CHAPTER IV

RESULTS

The results of the data analysis are presented in this chapter. First, the process of data screening and preparation is described. Second, a description of the measurement model testing process and findings is presented. Third, the cluster analysis procedure used to test hypothesis one is described and the results of this analysis are presented. Each of the resulting clusters is described in terms of the relative levels of the five dimensions of the DIDS. The findings from testing hypothesis two, the predicted identity style preference for each cluster, are presented next. Finally, the results from testing hypothesis three are presented; predictions for the third set of hypotheses were based on findings by Schwartz and colleagues (2000) related to the relative preferences of the identity clusters for an identity processing style. A summary of the results concludes the chapter.

Data Screening and Preparation

All data for this study were collected electronically using Survey Monkey software and then downloaded for analysis. Thus it can be concluded that the data file is accurate in so far as participants responded accurately to the questions. Thirteen cases were eliminated from the file due to lack of response to any survey question, indicating that the participants opened the survey and did not answer any survey questions.

Tabachnick and Fidell (2007) suggest that if 5% or fewer of the data points "are missing in a random pattern from a large data set, the problems are less serious and almost any procedure for handling missing values yields similar results" (p. 63). Only 1.1% of the data points were missing in the current study (311 missing values from a total of 27,235 data points). The pattern for these missing data appeared to be random. Four individuals completed only the DIDS, and did not answer any questions on the ISI-3 or from the demographics page. Removing these individuals had a minimal impact on the analysis, so they were maintained in the analysis. The software used in this study is sophisticated enough to use the data when available and ignore the missing values in a pair-wise fashion (Personal communication, Dr. Rosalie Hall, 2010).

It is important for analysis of the data that a range of responses exists on the Likert-type scales for the questions. According to personal communication with Dr. Hall, the default Maximum Likelihood (ML) Estimator is appropriate in cases where three or more response options per item were used. The response patterns to all survey questions in the current study utilized all five Likert-type scale options except one question of the DIDS where only four options were used. As a result of this analysis, the ML estimator was an appropriate choice for use in the current study.

Univariate and multivariate normality are also important assumptions to check, and can be done by examining the scatterplots and the skewness and kurtosis of the variables (Kline, 2005; Tabachnick & Fidell, 2007). In the current study, the variables do not appear to be abnormally skewed or kurtotic by: a) graphic examination and b) examining a z-test of the null hypothesis which showed no excessive skewness or kurtosis ($p < 0.05$). Multivariate normality is more difficult to test directly; however, the

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univariate normal distributions suggested a strong likelihood of multivariate normality, and further tests for outliers were performed to increase multivariate normality of the sample (Kline), as described below.

Examination of the data set for outliers is a vital part of data screening because outliers can have undue influence on statistical analyses (Kline, 2005; Tabachnick & Fidell, 2007). Kline suggested examining univariate outliers for which the absolute value of the standard score is greater than three. Tabachnick and Fidell suggested that "cases with standardized scores in excess of 3.29 are potential outliers" (p. 73). Univariate outliers in the current study were identified when standardized scores on a scale were more extreme than 3.3, and by using analysis of box plots. Multivariate outliers were identified by examination of Mahalanobis D values in excess of three standard deviations from the mean. There were four individuals whose responses were identified as outliers and who might have had undue impact on the analysis: these were removed from further analyses. Analyses were run both with these four outliers included and excluded; the measurement models of the DIDS and ISI-3 had a better fit when excluding these four extreme outliers (See Table 2). Three of the four extreme outliers were both univariate and multivariate outliers, and the fourth was a particularly extreme univariate outlier (z = -4.12) on the Commitment Making scale. Due to the undue influence of these four outliers, they were removed from data analysis, resulting in the sample size of 419 participants.

Other potentially less extreme outliers, both univariate (z-scores greater than 3.0) and multivariate, were identified but were not excluded from data analysis because they did not have an undue influence on the analyses. That is, data analyses were run with and

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without the most extreme five of the remaining possible nine outliers and the models had

a worse fit when they were excluded than when they were included (See Table 2). Thus

these cases were left in the sample.

Tests of the Measurement Models

Testing the measurement model of the DIDS through a confirmatory factor

analysis (CFA) using Mplus was important for assessing the psychometric properties of

the DIDS with this sample. In the CFA, each of the five dimensions was defined by the

five items that were hypothesized to measure the dimension in order to verify the five-

factor model in this sample. According to Kline (2006), using a variety of fit indices to

test model fit is important due to limitations with any one index. The indices used in the

current study in addition to chi squared include: the comparative fit index (CFI), the root

mean square error of approximation (RMSEA), and the standardized root mean square

residual (SRMSR). A good heuristic for the tests is to obtain a CFI value of at least 0.90,

a RMSEA of less than 0.05, which suggests a good fit (less than 0.10 represents an

acceptable fit), and a SRMR less than 0.10 (Kline).

The basic measurement model of the DIDS in the current study had a chi squared

value of 1236.431 with 265 degrees of freedom (CFI = 0.851, RMSEA = 0.093, SRMR =

0.115, see Table 2). Based on modification indices indicating that a number of the items

measuring similar constructs were correlated, 10 correlated uniquenesses were allowed to

improve model fit. Each of the items with error terms allowed to correlate were

measuring the same dimension, and thus should theoretically be more closely related than

items measuring different dimensions. The improved measurement model resulted in an

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improved and acceptable fit to the data: χ^2 (255 df, N= 423) = 771.856, CFI = 0.935, RMSEA = .063, SRMR = 0.100).

The measurement model of the DIDS was tested again removing the four most extreme outliers: χ^2 (265 df, N= 419) = 1191.021, CFI = 0.855, RMSEA = 0.091, SRMR = 0.114). The data with the four outliers removed represented a slightly improved fit (See Table 2). After adjusting for the modification indices indicating nine highly correlated residuals of items measuring the same dimension, an even better fit to the data was revealed: χ^2 (256 df, N = 419) = 668.467, CFI = 0.935, RMSEA = 0.062, SRMR = .010). The fit of this improved model was comparable to, and stronger than, the model including all outliers. The range of standardized pattern coefficients in the current study is 0.627 – 0.845, except for three standardized Exploration in Depth coefficients, which were lower than 0.400. These values are comparable to indices of fit reported by both Luyckx and colleagues (2008a) and Schwartz and colleagues (in press) for the DIDS, and represent an acceptable fit to the data.

The initial measurement model for the ISI-3, including all participants except the four who did not complete any questions on the ISI, was a poor fit to the data, due in part to many correlated residuals, χ^2 (734 df, N= 419) = 3158.071, CFI = 0.538, RMSEA = .089, SRMR = 0.105, see Table 2. After allowing 19 residuals to correlate (each pair of correlated residuals were measuring the same dimension, thus theoretically expected to have some overlap), the improved measurement model resulted in a better fit to the data χ^2 (715 df, N= 423) = 2518.953, CFI = 0.656, RMSEA = .078, SRMR = 0.099). Again, the most extreme outliers were removed from analysis, and resulted in an improved fit: χ^2 (734 df, N= 415) = 3061.515, CFI = 0.534, RMSEA = 0.087, SRMR = 0.102. Allowing

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for indicated correlated residuals, the final model represents an improved, although still

sub-par, fit to the data due to a CFI below 0.90, and SRMR of less than 0.10: χ^2 (704 df,

N= 415) = 2309.483, CFI = 0.697, RMSEA = 0.072, SRMR = 0.091. Since the model is

still not a good fit to the data, the ISI-3 was tested again using only the three dimensions

used in the data analysis of the current study (Informational, Normative, and

Diffuse/Avoidant) and leaving out the dimension of "commitment." As is evident in

Table 2, this did not significantly improve the fit of the model to the data.

Based on the tests of the measurement models, both the DIDS and the ISI-3 were

used in the current study. The data showed a good fit to the DIDS model and the indices

of fit are comparable to those reported by others using this instrument. The data showed a

poorer fit to the ISI-3 model, thus the ISI-3 was used in the current study with extreme

caution employed when drawing conclusions from the results.

Cluster Analysis and Test of Hypothesis One

Cluster analysis is similar to factor analysis, where similar items or people are

grouped together (Field, 2000). With cluster analysis, groups of people with similar

responding patterns to a set of variables are clustered, or grouped together. In the current

study, participants who responded in similar ways to the five identity development

dimensions of the DIDS were clustered into six groups. Cluster analysis in the current

study was performed in a manner similar to Luyckx and colleagues (2005, 2008a) and

Schwartz and colleagues (in press) in order to examine the multivariate, or grouped,

characteristics of the five identity dimensions. Variables are frequently standardized prior

to performing a cluster analysis (Norušis, 2010; Steinley, 2006); however, this step was

not required in the current study because all of the dimensions used in the analysis were measured within the same potential value range.

The first step in the cluster analytic procedure is called agglomerative hierarchical clustering where every individual starts as his or her own cluster (in this case, we started with 419 clusters). Using Ward's method, participants were then combined into clusters based on the squared error distance between them in an effort to minimize variance within a cluster (Field, 2000). A coefficient was calculated in the agglomeration schedule when clusters combine, representing the within-cluster sum of squared Euclidian distances (Norušis, 2010). A good indicator of when enough clusters have formed is when the dendogram (See Figure 8) displays large horizontal lines indicating that dissimilar clusters are being combined (Norušis, p. 370).

In the current study, the dendogram (See Figure 8) provided support for a five or six cluster solution. Analyses were run with both five and six clusters, and it was found that the five-cluster solution was uninterpretable (see Figure 9); thus, the five cluster solution was not supported by the current study. The six-cluster solution paralleled strongly with theory and past findings (see Figure 10), in addition to the evidence from the dendogram for a six-cluster solution. Thus, in addition to past research and a theoretical basis for six clusters, the current data provide support for the six cluster solution. A six cluster solution was predicted in hypothesis one of the current study, and the analysis described here of the hierarchical clustering provides support for the first hypothesis of the current study.

There is strong support in the literature for using hierarchical clustering in combination with k-means clustering in an effort to benefit from the advantages of both

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clustering techniques and to outweigh the potential limitations encountered when using only one (Beyers, 2010; Norušis, 2010; Steinley, 2006). Once the number of clusters is identified through hierarchical clustering, the second step of the clustering procedure can be performed. In the current study, the six hierarchically generated clusters were created using the appropriate function in SPSS and the cluster membership information was saved to the data file. The average score on each dimension was calculated for each cluster; these average dimension scores for each cluster were then used as non-random starting points in the second step of the clustering procedure.

Once the appropriate number of clusters have been determined and generated, those cluster centers are analyzed in a second step of clustering, called an iterative k-means clustering procedure. K-means clustering allows cases, or participants, to move to a better-fitting cluster if one is formed later on throughout the iterative process; in contrast, in a hierarchical clustering procedure, once clustered, each case stays in that original cluster (Norušis, 2010). In k-means clustering, "a case is assigned to the cluster for which its distance to the cluster mean is the smallest. The action in the algorithm centers around finding the [cluster] means" (p. 374). In the current study, k-means clustering was performed using SPSS on the six clusters generated in the hierarchical clustering step. The resulting cluster means were then standardized using the means and standard deviations of the dimensions. Each case was assigned to a cluster using the methods described here. The cluster solution is presented in Figure 10, where the height of each dimension is represented as a standardized z-score for ease of data interpretation.

The clusters formed with the current sample mirror the clusters formed in previous research (i.e. Luyckx et al., 2008a; Schwartz et al., in press), and, in fact, show

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more similarities with the clusters formed by Luyckx and his colleagues than with

Schwartz and his colleagues. Consistent with previous research, the clusters were named

Achievement (n = 67), Foreclosure (n = 27), Ruminative Moratorium (n = 80), Diffused

Diffusion (n=51), Carefree Diffusion (n = 77), and Undifferentiated (n = 117). The

current sample's cluster solution explained between 30% (Exploration in Depth) and 73%

(Ruminative Exploration) of the variance, which is similar to the variance explained as

reported by Schwartz and colleagues (In press). The Undifferentiated cluster was the

largest group, making up nearly 30% of the sample, which is consistent with the findings

of Luyckx and Schwartz and colleagues.

Each cluster is described here in terms of the dimensions used to create the

clusters so that a better understanding of each cluster is possible. These descriptions also

facilitate comparisons with cluster solutions found in previous research using the DIDS.

As would be expected, the Achievement cluster was greatly above average in both

indices of commitment, moderately above average in Exploration in Depth and

Exploration in Breadth, and well below average on Ruminative Exploration. The results

suggest that those in the Achievement cluster are confident in their commitments and

engaging in moderate levels of functional exploration of their commitments (see Figure

10).

The Foreclosure cluster scored well above average on both commitment

dimensions, well below average on Exploration in Breadth and Ruminative Exploration,

and in the average range for Exploration in Depth (see Figure 10). These results are

consistent with theory and past findings (i.e. Luyckx et al., 2008a; Schwartz et al., in

press) that these individuals have formed and identified with some commitments but

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engage in minimal exploration of either the productive or ruminative type. Interesting and unique to the current study, the Foreclosure cluster did endorse an average level of Exploration in Depth of their existing commitments, suggesting a moderate level of exploration of current commitments, which is not inconsistent with theory.

In the Ruminative Moratorium cluster, the commitment dimensions were just below average and the exploration dimensions were well above average, including endorsing the highest level of Ruminative Exploration for any of the clusters. Thus, those in the Ruminative Moratorium cluster are engaging in exploration, particularly Ruminative Exploration, and may have formed only very modest commitments, which is consistent with theory.

The Diffused Diffusion cluster endorsed the lowest commitment levels. This cluster endorsed only moderate levels of Exploration in Breadth, low levels of Exploration in Depth, and well above average levels of Ruminative Exploration. This would suggest those in the Diffused Diffusion cluster may engage in some exploration, particularly of the ruminative type, without forming or identifying with any commitments.

The Carefree Diffusion cluster was below average on all three exploration dimensions, while endorsing average levels of both commitment dimensions. Consistent with theory and past findings, the Carefree Diffusion cluster is not involved in identity exploration; however, the Carefree Diffusion cluster in the current study endorsed average levels of commitment, which is unusual given past findings.

Finally, the Undifferentiated cluster found in past research, with average levels of all five dimensions, was also found in the current sample. These individuals are modestly

committed to aspects of their identity and engaged in moderate amounts of exploration of their identity. Consistent with other studies, this cluster was the largest cluster in the current sample. The Undifferentiated cluster may represent what others (Adams et al., 1989; as cited by Schwartz et al., in press) have called a "low profile moratorium" (p. 17). Individuals in the Undifferentiated cluster are engaged in average levels of all three types of exploration and have average levels of both types of commitment, which may be a form of moratorium as they are stuck in an exploration mode without strong commitments.

In summary of the cluster analysis, the clusters identified in the current sample are highly similar to those reported by Luyckx and colleagues in Belgium and by Schwartz and colleagues in the United States. Hypothesis I is fully supported such that six clusters were formed using the five dimensions of the DIDS. The six clusters classified here represent six identity statuses as described above.

Test of Hypothesis Two

The correlations between the identity dimensions of the DIDS and identity styles of the ISI-3 are presented in Table 3. In order to test the second and third sets of hypotheses, the average identity style scores for each cluster were analyzed. The mean identity style and the standard deviations for each cluster are presented in Tables 4.

The second set of hypotheses posited that each cluster would have a predictable style preference and would endorse the theoretically predicted style to a higher degree than the other two styles. In this data set, all clusters endorsed the Informational processing style to the highest degree, the Diffuse/Avoidant processing style the least, with the Normative style endorsement level being in the middle (see Figure 11). As such,

the general tenet of hypothesis two was not supported fully by the data; the results for the

specific hypotheses are described in more detail in the following paragraph.

Four of the seven specific hypotheses were supported by the data, all significant at

the $p<0.01$ level (see Table 4). Hypothesis 2a, which was supported by the data, stated

that the Achievement cluster would endorse the Informational style to a higher degree

than a Normative ($t_{(59)}=7.64$) or a Diffuse ($t_{(59)}=17.53$) style; Hypothesis 2ai, also

supported by the data, stated that in the Achievement cluster, the Normative style would

be endorsed to a higher degree than a Diffuse style ($t_{(59)}=10.50$). Hypothesis 2c was

supported such that for the Ruminative Moratorium cluster, the Informational style was

endorsed at a higher level than a Normative ($t_{(59)}=10.87$) or a Diffuse/Avoidant

($t_{(59)}=9.94$) style. Finally, Hypothesis 2d was supported such that in the Undifferentiated

cluster, the Informational style was also endorsed to a higher degree than the Normative

($t_{(59)}=10.14$) and the Diffuse/Avoidant ($t_{(59)}=15.62$) styles. Hypothesis 2b was not

supported because those in the Foreclosure cluster did not endorse the Normative style to

a greater degree than the other styles. Hypotheses 2e and 2f were also not supported

because the diffuse clusters did not endorse the Diffuse/Avoidant style to a higher degree

than the other styles.

In Hypothesis two, it was predicted that each identity status cluster would endorse

the theoretically consistent identity processing style to a higher degree than the other,

theoretically incompatible, identity processing styles. The overall hypothesis did not

receive the support expected. Although four of the seven specific hypotheses were

supported, the general principle behind Hypothesis two was not supported by the data.

Test of Hypothesis Three

Finally, hypothesis three, which stated that the relative level of endorsement of an identity processing style was predictable for the clusters based on theory and past research, was tested. To test this set of four predictions pertaining to the pattern of ways the styles and clusters related to each other, three analyses of variance (ANOVAs) were performed (see a graphical representation of this test in Figure 12). This analysis was consistent with the analysis of Schwartz and colleagues (2000). All three one way ANOVAs were significant, (Informational: $F_{(5,385)} = 8.417$, $p < .001$; Normative: $F_{(5,395)} = 8.379$, $p < .001$; Diffuse/Avoidant: $F_{(5,391)} = 15.989$, $p < .001$) so post hoc analysis was required to identify which clusters differed from each other for each identity style. See Table 5 for the mean, standard deviations, the F-test from the ANOVAs, and post hoc analyses. Hypothesis 3 was partially supported by the data.

For the Informational identity processing style, mean differences were observed between the identity clusters (see Table 5); these mean differences were analyzed to test Hypothesis 3. Hypothesis 3a, which predicted that the diffusion clusters would endorse the Informational processing style to a lesser degree than the other status clusters, was observed by the trends in the data which did not all reach statistical significance. More specifically, Hypothesis 3a was only supported in part by the data: the diffusion clusters did indeed endorse the Informational processing style to a lesser degree than the other status clusters, but this difference was only significant when compared with the Achievement and Ruminative Moratorium clusters. Hypothesis 3b stated that the Achievement and Ruminative Moratorium clusters would endorse the Informational processing style to a higher degree than the other status clusters and was fully supported

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by the data. The Achievement and Ruminative Moratorium clusters displayed the highest endorsement of the Informational processing style; this finding provided support for Hypothesis 3b.

In an analysis of the Normative identity processing style, the findings are more complex (see Table 5). Hypothesis 3c, which stated that the Foreclosure and Achievement status clusters would endorse the Normative processing style to a higher degree than the other status clusters, was only partially supported. The Foreclosure cluster's endorsement of the Normative identity processing style is not significantly different from any other cluster's endorsement of that processing style except for being more likely to endorse the Normative style than the Diffuse Diffusion cluster. The Achievement cluster had the highest endorsement level of the Normative processing style, and endorsed it to a significantly higher degree than both of the diffusion clusters and the Undifferentiated cluster.

Finally, Hypothesis 3d, which stated that the diffusion statuses would endorse the Diffuse/Avoidant identity processing style to a higher degree than the other status clusters, was not supported in full by the data. The two diffusion clusters did endorse the Diffuse/Avoidant processing style to a higher degree than the Achievement or Foreclosure clusters, the two clusters least likely to endorse the Diffuse/Avoidant style, but did not differ significantly from the Undifferentiated cluster (see Table 5and Figure 12).

In hypothesis 3, it was predicted that the relative degree to which the identity clusters endorsed the identity styles would follow theorized relationship patterns. Hypothesis 3b was fully supported by the data such that those in the Achievement and

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Ruminative Moratorium clusters endorsing an Informational processing style to a higher degree than the other clusters. The other hypotheses were partially supported by the data, and when the support was not statistically significant, the trends in the data followed the hypothesized relationships.

Summary of Results

The results of the data analysis process were described and presented in this chapter. The data were thoroughly screened, including the removal of four outliers and resulted in a data set consisting of 419 participants. Tests of the measurement models indicated that the DIDS' five-factor model is a good fit to the data. The ISI-3's four factor model, including a commitment scale in addition to the three style scales, was an acceptable, although poor, fit to the data. Using cluster analytic procedures consistent with past research, a two-step process was performed including a hierarchical process using Ward's method followed by a k-means clustering procedure. Six clusters were formed using this analysis, providing support for hypothesis one. These six clusters were highly consistent with theory and past research (i.e., Luyckx et al., 2008a; Schwartz et al., in press).

Hypothesis two predicted that each cluster would endorse the identity processing style created by Berzonsky (1988) that is theoretically consistent with the identity status to a higher degree than the other styles; this hypothesis was not fully supported by the data. The data indicated that each cluster endorsed the Informational processing style to the highest degree, the Normative processing style at a mid-level, and the Diffuse/Avoidant processing style at the lowest level. However, four of the seven sub-

hypotheses, which related specific processing styles with identity clusters, were supported by the data.

Finally, hypothesis three was tested using ANOVA's and the resulting Tukey tests to ascertain the relative style preferences of the clusters. Hypothesis three was only supported by trends in the data, since some of the predicted relationships did not reach statistical significance. Thus, hypothesis 3 was not fully supported by the data. These findings, as well as potential explanations and implications, will be explored in the following chapter.

CHAPTER V

DISCUSSION

The current study was conducted to extend the literature on Eriksonian identity development. I set out to collect a large sample of college students and was successful in gathering data about their identity development and identity processing style. Confirmatory factor analysis was performed on the data to assess whether the data were a good fit to the models represented by the instruments; it was determined that there was an adequate fit. I was interested in reproducing the six identity clusters from the extended identity dimensions (Luyckx, et al., 2008a), and through a two-step cluster analysis, the same clusters found by others in the literature (e.g. Schwartz, et al., in press) emerged from these data. Additionally, I had specific hypotheses about the clusters, the processing styles and their relationships, which I was able to test. In short, I accomplished the tasks I set for myself in this project.

What follows is an examination of the hypotheses tested, my findings, some interpretation of these findings, and what might be some possible implications of the findings. Each of the three hypotheses is reviewed and discussed, including referring back to the review of the literature in chapters one and two of this paper. Following a review of the hypotheses, general implications of the study are discussed. Finally, some

potential limitations of the study and future directions for research and practice are explored.

Specific Hypotheses Tested

There were three hypotheses in the current research and findings related to each are reviewed and explored in this section. The first hypothesis, which was supported, was that six clusters would emerge based on participant responses to the Dimensions of Identity Development Scale (DIDS; Luyckx et al., 2008a). The second hypothesis, which was not fully supported by the data, was the prediction that each cluster would demonstrate a clear preference for a theoretically related identity processing style. The third and final hypothesis predicted that for each of the three identity processing styles, the clusters endorsing the style most and least compared to the other clusters would conform to the relationships predicted by the theories; the third hypothesis was partially supported by the data.

Hypothesis 1: Would I find six clusters? I was curious as to whether the identity status clusters found by others in the literature (e.g. Luyckx et al., 2008; Schwartz et al., in press) would be similar to clusters in the current sample. The statuses proposed by Marcia (1966) reflected a limited view of exploration of and commitment to an identity. Using the extended theory proposed by Luyckx and colleagues' (2006b; 2008a) exploration and commitment dimensions, those authors were able to reconstruct Marcia's original statuses (Luyckx et al., 2005) while also identifying two additional statuses. Much of the research on the extended statuses was conducted in Belgium (e.g. Luyckx et al., 2005, 2006a, 2006b, 2008b); although a study by Schwartz and colleagues, which is submitted for publication and under review, also found a comparable set of six

statuses in a representative United States sample. I was interested in using the status clusters for analysis and comparison with processing styles, and wanted to test first if there would be support for six clusters in the current sample.

Using a two-step cluster analytic procedure, I tested the data to assess the number of statistically occurring clusters. Six clusters emerged from my data, which is consistent with my hypothesis and the findings of others. After determining the number of status clusters, it was necessary to examine the clusters for content. The clusters identified in the current research show remarkable similarities with the clusters identified by Luyckx and Schwartz and colleagues. The clusters were named to be consistent with theory and past research resulting in the following status clusters: Achievement, Foreclosure, Ruminative Moratorium, Diffused Diffusion, Carefree Diffusion and Undifferentiated (see Figure 10).

Two of the clusters differed slightly in unique ways from the similar clusters found by others: the Carefree Diffusion cluster and the Foreclosure cluster. The Carefree Diffusion cluster in the current study had slightly above average levels of Commitment Making and Identification with Commitment; in contrast, both Luyckx and Schwartz's Carefree Diffusion clusters were below average on both indices of commitment, with Schwartz's American sample well below average. The Carefree Diffusion cluster in the current sample also indicated lower levels of Ruminative Exploration than the parallel cluster in past research. These differences may have a significant effect on other psychosocial variables for individuals in this identity status cluster, as the Ruminative Exploration dimension has been associated with high levels of depression and anxiety symptoms (Luyckx et al., 2008a; Schwartz et al., in press). The higher levels of

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Commitment Making and lower levels of Ruminative Exploration may serve as protective factors and may cause the cluster to be associated with psychosocial variables in different ways than in past research. Schwartz and colleagues (in press) found that the Carefree Diffusion cluster in their American sample was associated with low psychological well-being and high drug use. It is possible that with fewer depression and anxiety symptoms, the individuals in the Carefree Diffusion cluster in the current study may not have such significantly low psychological well-being. This clearly needs further research to gain a better sense of what the Carefree Diffusion cluster may be associated with.

The difference between Foreclosure cluster participants in the present study and that described by others is that the cluster formed in the current study had a more exaggerated pattern than that found by Luyckx and Schwartz and colleagues. In the Foreclosure cluster in the current study, the levels of commitment were both above a z-score of +1.0, whereas in the past research, the Foreclosure clusters were typically getting commitment z-scores in the range of +0.5. Thus the current cluster was indicating above average levels of commitment as would be expected, but endorsing stronger Commitment Making and Identification with Commitment levels than was found in past research. Additionally, the level of Exploration in Breadth, theoretically predicted to be below average, was extremely low in the current sample, at -1.7 z-score as compared with z-scores in the range of -1.0 in past research. Finally, the level of Exploration in Depth was only just below average in the current sample, as opposed to the previously indicated levels in the range of -0.7 z-scores. The pattern of the Foreclosure cluster in the current study is consistent with past theory and research; it is slightly more extreme on the

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dimensions measured by the DIDS but not out of character. The number of participants in the Foreclosed cluster is average in size (n = 59) for the current sample, and is consistent in relative size with the other research. It is possible that there is something about the region the sample was measured from that facilitates the foreclosed identity status.

Although some aspects of the Foreclosure and Carefree Diffusion clusters in the current sample exhibited slight differences from those found in previous research, the clusters in the current study were remarkably similar overall to the parallel clusters in past research. It is helpful to have a description of each cluster, and to know that the ones identified in the current sample are primarily consistent with past research. This consistency allows many parallel conclusions to be drawn about the clusters based on findings from past research.

The characteristics of the clusters in the current sample will be reviewed here. The Achievement cluster was notable for its high levels of commitment and above average levels of positive exploration, while having a below average level of Ruminative Exploration; this cluster might be described as relatively well adjusted, well explored and strongly committed (See Figure 10). The Foreclosure cluster was predictably characterized by strong levels of commitment, but the lowest levels of Exploration in Breadth, below average levels of Exploration in Depth, and very low levels of Ruminative Exploration; this cluster could be described as having done little or no exploration yet having strong commitments and minimal rumination or worry about one's identity. The Ruminative Moratorium cluster had the highest levels of Ruminative Exploration, below average levels of commitment and the highest levels of exploration; individuals in this cluster might be experiencing distress and be actively engaged in

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searching for a fitting identity while having few current commitments. The Diffused Diffusion cluster had the lowest levels of commitments, average levels of Exploration in Breadth, below average levels of Exploration in Depth and the second highest level of Ruminative Exploration; those in this cluster are unlikely to have made any meaningful commitments toward their identity development, although they may be considering a few options in a ruminative fashion. The Carefree Diffusion cluster had average levels of commitments and below average levels of all three types of exploration; this cluster may be noted for being content with the few commitments currently held while not being particularly interested in strengthening their commitments or considering other options. Finally, the Undifferentiated cluster had an average level of all five dimensions; this would imply that the individuals in the Undifferentiated cluster are doing some exploration and have some commitments to identity-related constructs. It is possible that the cluster currently labeled as undifferentiated based on consistently average levels of all five dimensions could actually be considered as a midpoint in Erikson's (1968) theory; the individuals may be conceptualized as being engaged in an identity crisis, and managing it. In general, the descriptions here of each of the clusters in the current sample are very consistent with the parallel clusters found in past research.

Post hoc analyses of the demographic characteristics of the clusters were performed to see if any notable differences in cluster composition could be found. Through informal qualitative analysis of the cluster membership demographics, it is possible that differences may be seen on such variables as gender and race/ethnicity. Subsequent chi squared analyses did not reveal any significant differences by gender or race, although the relationships may trend such that placement in a cluster may depend

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somewhat on gender. For example, it appears as though there were fewer women and more men than would be expected in the Ruminative Moratorium cluster and more women and fewer men than would be expected in the Undifferentiated cluster. These relationships are only trends that merit further research.

Due to measurement of a relatively consistent set of clusters by a number of researchers in various parts of the world (i.e. Luyckx et al. 2008b sampled in Belgium; Schwartz et al. in press sampled across the United States; and the current study localized in the Midwestern United States), one might have some confidence in the clusters. Additionally, the Achievement, Foreclosure and Moratorium clusters are similar to what Marcia (1966) predicted and found using only two dimensions (exploration and commitment) rather than the five used in more contemporary studies. Furthermore, differentiating between two diffusion clusters was predicted in the literature (Erikson, 1963; Marcia 1966; Luyckx et al., 2005), but had not been measured using Marcia's theory. These six clusters, or identity statuses, appear to be relatively robust and favorably reflect the strength of the expanded model developed by Luyckx and colleagues (2008b).

Hypothesis 2: Would each identity cluster endorse the theoretically parallel identity processing style? I set out to test if the individuals in the clusters would demonstrate a clear preference for an identity processing style that would be consistent with the theories behind each model (i.e. Berzonsky, 1989; Luyckx et al., 2008a). I was hoping that by knowing identity status, I could predict identity processing style, as the two lines of research are closely related. There are a number of advantages to knowing the relationships between the two identity constructs. For example, if working with a

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college student client who is in the Diffused Diffusion identity status characterized by an Avoidant identity processing style and which is associated with a variety of negative psychosocial variables, a clinician could encourage and model an Informational identity processing style to facilitate movement into an Achieved identity status that is associated with more positive psychosocial variables. Another advantage to knowing the relationship between these variables is being able to apply what is known about one set of variables to the other in both research and practice contexts.

The second hypothesis was not supported by the data. Four of the seven sub-hypotheses tied to Hypothesis 2 were supported, but three sub-hypotheses were not supported. An overall pattern emerged in the results providing evidence contrary to the general tenet of the second hypothesis: Rather than each status cluster (such as the Foreclosed cluster) endorsing the theoretically parallel identity processing style (such as the Normative style), all of the clusters endorsed the Informational processing style to the highest degree. Thus, my predictions that specific status clusters would endorse the Informational processing style more than the other two styles were supported; however, my predictions that given status clusters would endorse the other two processing styles the most were not supported. Given these findings, the relationships expected were not found in the data. There are many possible explanations for these findings.

For instance, the lack of expected relationships between the clusters and the identity processing styles as measured by the ISI-3 may be due to the poor measurement characteristics of the ISI-3 instrument. The internal consistency values on this measure were low in past research as well as in the current study, and the model was a poor fit to the data as measured through CFA. The unsatisfactory validity and model fit indicators

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may explain the lack of expected relationships, and lead to inconclusive and findings which were difficult to interpret. The weaknesses in the ISI-3 instrument created by Berzonsky may have precluded findings in the predicted relationships which actually do exist.

Another possible explanation for the consistently high endorsement of the Informational processing style by participants in each status cluster could be tied to the items themselves. It appears that many of the Informational style questions may have some degree of an impression management element tied to them, which may make them particularly attractive for college students to endorse. For example, question number 37 says, "When making important decisions I like to have as much information as possible" (ISI-3). Although it may be true that those in the Carefree Diffusion or Diffuse Diffusion statuses typically do not take the time to gather all of the identity-relevant information available when making identity-relevant decisions like choosing a major or voting in an election, I would guess that they still might not "Strongly Disagree" with the above statement. To do so might appear to be lazy or that they can not to be trusted to make important decisions. Additionally, the part of the statement that reads, "as much information as possible" may be considered differently for someone in the Achievement status than in a diffused status.

Another possible explanation for the lack of overall support for my hypothesis is that Berzonsky's (1989) theory of identity processing styles was based on Marcia's (1966) theory of identity status, and it may not be compatible with an updated model, such as that of Luyckx and colleagues' (2008a). Berzonsky created the cognitively-based identity processing styles to provide an explanation for the differences between the

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identity statuses as defined by Marcia. His model may be limited to this context, rather than being a more global or sophisticated model.

It is also possible that the ISI-3 itself may not be a good measure of Berzonsky's (1966) theory. In addition to having some degree of impression management to them, Berzonsky's method of developing the measure was to remove any element of commitment from the items, which may not have been successfully accomplished. It is certainly possible that a better measure of the elements of Berzonsky's theory may facilitate support for the expected relationships. All of these possibilities represent concerns with Berzonsky's instrument as an indicator of identity processing styles, and limit the interpretability of the findings of this and other studies using his instrument.

Each identity status cluster did not endorse the theoretically predicted identity processing style. The general tenet to Hypothesis 2 was not supported by the data because all of the status clusters endorsed the Informational processing style the most. Four of my seven sub-hypotheses were supported in my predictions that the Achievement, Ruminative Moratorium and Undifferentiated status clusters would endorse the Informational style the most and my prediction that the Achievement cluster would endorse the Normative style to a greater degree than the Diffuse/Avoidant style. Some of the sub-hypotheses would have been supported by chance alone, and so the findings appear to be spurious. Four of the seven sub-hypotheses received support, but the relationships between the identity styles and the identity status clusters were not found to be as they were predicted to be. Thus the results are mixed on Hypothesis 2 with a variety of possible explanations, in particular are concerns about Berzonsky's measure of the identity processing styles.

Hypothesis 3: Could I extend the theoretical propositions of Schwartz et al. (2000) to predict the relative levels of endorsement of the processing styles by the six status clusters? In an exploration of Hypothesis 3, it is important to note that the analysis is similar to the analysis of Hypothesis 2, but the analysis is "turned on its side" to look at the relationships between the status clusters for their endorsement of each of the three identity styles. Schwartz and colleagues (2000) looked at the relationships between Berzonsky's (1990) processing styles and Marcia's (1966) identity statuses to examine the relative levels of endorsement of each status for the styles. I was curious to see if the same relationships could be found when the statuses were expanded using Luyckx and colleagues' identity status model. In general, a similar pattern of relationships was indeed found in the current study. The clusters' relative endorsement level of the Informational processing style is explored first, their relative endorsement level of the Normative processing style is discussed second, and finally an exploration of the relative endorsement level of the Diffuse/Avoidant processing style by the clusters is presented.

The endorsement level of the Informational processing style was analyzed for the clusters. As predicted, the Achievement and Ruminative Moratorium clusters endorsed the information-rich Informational processing style to a greater degree than any of the other clusters. Additionally, because there are now two, rather than one, Diffused statuses, I wanted to know if individuals in these two diffused status clusters endorsed Berzonsky's (1990) Informational processing style to a lesser degree than the other status clusters did as would be predicted by past research (Schwartz et al., 2000) and theory (Berzonsky). The current study found that the Carefree Diffusion and Diffused Diffusion status clusters did indeed endorse the Informational processing style the least compared

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to the other clusters, although this relationship only reached statistical significance when compared with the Achievement and Ruminative Moratorium clusters. Thus, for the Informational processing style, the predictions were generally supported.

The finding that those participants who are in the new Achievement and Ruminative Moratorium status clusters are the ones most strongly endorse an Informational processing style that involves active engagement with self-reflection and evaluation of the quality of identity-related information (Berzonsky, 1990) is consistent with the updated model of Luyckx and colleagues (2008a). Similarly, one would expect those in a diffusion status, who Marcia (1966) would have said are doing no exploration, to endorse self-reflection and thorough information gathering less than those in the other status clusters, which could be inferred from the data in the current study. These findings provide content validity to the expanded model by examining the relationships between the statuses and Berzonsky's (1988) cognitive theory.

I next analyzed the data in terms of the relative endorsement level of the Normative processing style by the identity status clusters. I predicted that the Foreclosure and Achievement status clusters would endorse the Normative identity processing style more strongly than the other clusters based on past findings (Schwartz et al., 2000) and theory (Berzonsky, 1988). These findings were supported by trends in the data, but not supported by statistically significant differences to a degree that reached significance. An examination of the data revealed a trend that does support hypothesis 3c such that the Achievement and the Foreclosure clusters reported endorsing the Normative style more than the other clusters (see Figure 12). However, the Foreclosure status cluster's endorsement of the Normative identity processing style was not different from the

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endorsement level by any other cluster. This is interesting since the Normative processing style is conceptualized by Berzonsky as rigid adherence to socially constructed norms for behavior, which one would expect from Foreclosed individuals. This type of cognitive processing would not be predicted to be employed as often or as strongly by those in a Ruminative Moratorium or diffused status. Thus the finding that the Foreclosure status cluster's endorsement of the Normative processing style did not differ from the endorsement level of the other clusters is unexpected.

Finally, some of the relationships between the status clusters' relative endorsement of the Diffuse/Avoidant identity processing style were also unexpected. I hypothesized that the diffusion clusters of Carefree and Diffuse Diffusion would endorse the Diffuse/Avoidant processing style to a higher degree than the other status clusters. It follows from theory and research that the two diffuse status clusters would most strongly endorse the style characterized by delayed decision making and an easily changing sense of self based on the context or environment. The diffusion status clusters did indeed endorse the Diffuse/Avoidant processing style more strongly than the Achievement and Foreclosure clusters, but less strongly than the Ruminative Moratorium status cluster. Interestingly, the Ruminative Moratorium cluster endorsed the Diffuse/Avoidant processing style to a significantly higher degree than the other clusters.

It was not predicted that those in the Ruminative Moratorium status cluster, a status characterized by high levels of productive and non-productive exploration, would prefer cognitive strategies based on delaying or avoiding identity-related decisions to a higher degree than the other clusters. However, since the Ruminative Moratorium cluster has the highest levels of Ruminative Exploration, it is possible that delaying tactics would

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facilitate further rumination and allow more time for exploration. The expanded model by Luyckx and colleagues (2008a) allows for a more nuanced understanding of this Ruminative Moratorium cluster than was possible of Marcia's (1966) Moratorium cluster.

Some potential reasons for the lack of strong support for my hypotheses could stem again from the lack of strength of Berzonsky's (1988, 1989) theory and measure. Limitations in the potential for Berzonsky's theory to extend to an expanded model beyond that suggested by Marcia were discussed earlier, as were the limitations of his measure. It is also possible that the findings by Schwartz and colleagues (2000) which reached significance, and where my comparable findings did not reach significance, might be limited to their specific sample. Our results may also have differed due to methodology of status classification; Schwartz and colleagues used a median-split procedure to classify individuals into statuses, whereas I used cluster analysis for status assignment designation.

In conclusion of the exploration of Hypothesis 3, the general tenets of the hypothesis were supported by trends in the data, but not by statistically significant relationships. In fact, all of the sub-hypotheses were also supported by trends in the data, if not actual statistical significance, except for the finding that the Ruminative Moratorium status cluster endorsed the Diffuse/Avoidant style to a higher degree than the diffusion statuses. Hypothesis 3b, the hypothesis that the Achievement and the Ruminative Moratorium clusters would endorse the Informational processing style to a higher degree than the other clusters would endorse this style, was the only sub-hypothesis fully supported by the data.

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Theoretical and Practical Implications from the Current Study

As the expanded identity development model (Luyckx et al., 2008a) is highly consistent with Eriksonian theory, an epigenetic process of identity development, the support for this model in the current study has a number of theoretical and practical implications. The implications discussed in this section involve the basic theoretical underpinnings for researchers, as well as macro-level implications for administrators and micro-level implications for clinicians. Specific implications of the findings from the hypotheses are also discussed.

If we related the current study back to Erikson and his theory, what we find is support for an epigenetic process of identity development. Erikson (1968) theorized that an individual would respond to pressure from the environment and to pressure from within to come to a sense of fidelity with his or her identity. His model which suggested that development is a process of exploring a variety of options and making initial commitments, in addition to a process of exploring those commitments in more depth until integrating them or rejecting them for more exploration, whether productive or unproductive, is supported by the comprehensive model of identity development.

The comprehensive model created by Luyckx and colleagues (2008a) has the advantage of offering a way to objectively evaluate and test Eriksonian ideas. This advantage of objectivity would help overcome one of the most frequently cited weaknesses of Erikson's work. Having precise instrumentation can help further clarify questions that remain in Erikson's theory.

Support for the comprehensive model provides further support for a model that fits with Erikson's theory. The Diffused Diffusion status is characterized as a period of

crisis in adjustment, which is what Erikson (1963) theorized would be at the opposite end from a successful resolution to the identity development stage. Marcia (1966) was unsuccessful at classifying individuals into statuses in which one was in crisis. Those in the Diffused Diffusion status in the current study have completed some Exploration in Breadth but made absolutely no commitments. Other researchers (i.e. Luyckx et al, 2008a; Schwartz et al., in press) have found that those in this status are experiencing psychological distress, such as the highest levels of depression and anxiety symptoms, thus providing support for what Erikson theorized would take place. Interestingly, those in the Carefree Diffusion cluster have been found to have some of the lowest depression and anxiety symptoms (Luyckx et al.), but high levels of risky behaviors (Schwartz et al., in press). Luyckx and colleagues (2005) found that individuals who would have been classified into Marcia's Diffusion status were reclassified into these the new statuses, which afford more clarity. My findings reflect what Erikson might have predicted for individuals experiencing identity confusion.

Erikson suggested that if ego identity development did not progress in a healthy manner, that role confusion would result. The identity status clusters of Ruminative Moratorium, Carefree Diffusion and Diffuse Diffusion provide support that when there is a high level of rumination or a lack of commitments, a status of "role confusion" can result. Erikson's concept of "inner sameness and continuity" (Erikson, 1963, p. 261) is consistent with Luyckx and colleagues' (2008a) concept of Identification with Commitment such that both involve the integration of aspects of one's identity into an integrated sense of self. The current study relates to the Eriksonian concepts by exploring a period of emerging adulthood (Arnett, 2000) and the identity development process in

college students, and found support for the expanded model of identity development including both identity formation and identity evaluation, as is consistent with Eriksonian theory.

Also at the theoretical level, support for Hypothesis 1 and the six status clusters resulting from the comprehensive model of identity development indicates that researchers may want to consider using the expanded model rather than one based on Marcia's (1966) material. One of Luyckx and colleagues' (2008a) expanded theory's strengths is its inclusion of both functional and non-functional forms of identity exploration. Non-productive exploration, or rumination, is differentiated from productive exploration of identity options and identity details. Learning more about the expanded theory and using it in place of Marcia's theory allows for greater inclusion of individuals' experiences and also allows for an expanded capacity to understand identity development. Another strength of the five-dimensional comprehensive theory of identity development is its inclusion of both identity formation and identity evaluation components (Luyckx et al., 2006a). A model that includes multiple aspects of the process of identity development is more in line with Erikson's (1963) theory than one, like Marcia's (1966), that includes only one aspect of the identity development process.

In the realm of practical implications, there are both macro and micro-level considerations. At the macro-level, administrators working with college student populations may consider directly encouraging exploration in breadth or in depth through programming, and may be able to explain their rationale for such programming by using the comprehensive identity development model. What we know from past research (Luyckx et al., 2006b, 2008a; Schwartz et al., in press) is that commitment is associated

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with positive psychosocial factors, and that those individuals in the Achievement status have high levels of positive adjustment indicators. This would imply then that helping students move from one status of low psychosocial adjustment to one of higher psychosocial adjustment might be done by encouraging functional exploration and initial formation of and identification with commitments. For example, a workshop for sophomores who have not yet chosen a major could be offered in which the students take a short assessment instrument, get a short interpretation, and then have access to representatives from each major; this guided exploration could model and make available resources for further functional exploration. Thus knowing what status an individual is in and helping him or her to consider moving into another status by use of the dimensions of identity development may be a useful specific intervention toward growth and improved functioning, and could be possible at a macro or program-based level.

At the micro level, an additional practical implication of the current research involves applications to clinical work. Clinicians may benefit from conceptualizing clients in terms of the five dimensions and six clusters to better ascertain which identity status their clients represent. When working with a student or student-client, it may be useful to conceptualize the student based on her/his likely current identity status to guide interventions with the student. An understanding of whether the individual is in the Ruminative Moratorium or the Diffuse Diffusion status may be helpful to guide interventions such as working on diminishing Ruminative Exploration or encouraging greater Exploration in Depth. For example, encouraging a student to conduct an informational interview may be a tangible form of Exploration in Depth that could facilitate movement from one status to another. Similarly, joining a student group

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sponsored by a chosen major may aid with Identification with Commitment, and may lead to better psychosocial adjustment. It may also be useful to explain the five dimensions to a student struggling with identity issues, and invite her or him to consider dimensions he or she might want to work on more intentionally. Briefly explaining the dimensions to a student client may help to engage the student in the process and help to raise his or her awareness when opportunities for exploration or commitment arise. Additionally, explaining to a student the rationale behind homework assigned can increase the student's autonomy and internal motivation, both considered facilitative of positive change (Ryan, Lynch, Vansteenkiste, & Deci, 2011). These represent potential clinical implications of the current line of research.

Finally, specific to the findings from the second and third hypotheses are additional practical implications. Based on the lack of support for the ISI-3, researchers may need to discontinue using this instrument in research. The issue of possible social desirability implied in the items deserves caution and possible future investigation. Additionally, attempting to use identity status to predict identity processing style is not warranted based on the findings of the current study, including the possibility that Berzonsky's identity processing style theory has a number of downfalls as outlined above.

Some Limitations and Future Directions

One limitation of the current study involves the characteristics specific to the sample. The current sample was collected in the Midwest and only students at a single university who were motivated to earn extra credit and were currently enrolled in a psychology course were represented. The sample consisted of mostly women (74.5%

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female) and 80% of the sample was White/European American. The demographic

information known about the current sample includes more diversity (i.e. social class,

race, year in school, and first generation college student status) than the demographic

information known about the Belgian samples (e.g. Luyckx et al., 2006, 2008a). Thus,

although the current sample extends the literature by surveying an American college

population, broad generalizations need to be made with caution.

Another limitation of the current study stems from its reliance on the ISI-3 for

measurement of Berzonsky's (1990) styles because of concerns about its validity and

model fit. The current study found that the data had a weak fit to the model. The data

screening and allowance for correlated residuals improved the model fit to a level that

would allow examination; however, common indices of fit (i.e. CFI and SRMR)

indicated a poor fit such that caution should be employed. The indices of internal

consistency also indicated low reliability. Future research may also examine the

possibility of social desirability in the items measuring informational processing style. It

is possible that improvements to Berzonsky's ISI-3 may establish more clearly

predictable relationships between the status clusters and the processing styles. However,

it is also possible that the instrument does not represent his theory. An observation of this

type would suggest that a different measurement instrument is needed. It is unclear

whether the lack of predicted relationships in this study was due to the measurement

instrument or a lack of alignment of theoretical ideas.

It is possible that the comprehensive identity development model by Luyckx and

colleagues (2008) or the identity style model by Berzonsky (1990) reflects a viewpoint

coming from viewing development through a privileged status. That is, the theories

described here may reflect the privileged status of the majority culture. For example, the informational style or the implied desirability for the achieved status cluster deriving from Erikson's (1968) theory may be a function of Western bias. Caution should be employed when using these models with diverse groups without understanding the limitations and possible biases. This would be a potentially fruitful area for future research.

Other future directions for this line of research certainly might include further inquiry into the correlates of the expanded identity status clusters. Much has been learned about the correlates of Marcia's statuses (see for example, Marcia, 1993, 2007), and some exploratory work has already begun to investigate with the expanded statuses (e.g., Luyckx et al., 2006b; Schwartz et al., in press). Knowing what psychosocial correlates are related to each status cluster would add substantially to this line of research. The initial work with post hoc examinations in the current study which related cluster membership to gender also warrants future research. Larger sample sizes will be needed to test other demographic variables as well. Consistent with examining the role of culture on identity development suggested above, it might be meaningful to have a better understanding of the demographic composition of the clusters; future research may set out specifically to investigate this area. Additionally, work from longitudinal designs investigating whether it is possible or desirable to guide individuals toward further functional exploration and/or commitment is also needed.

It would be interesting to know more about how university-based clinicians and administrators might make use of knowledge of a young adult's identity status in order to guide work with university students. Research with university students might include

investigating academic indicators of success, risk factors of drop-out, and facilitative factors in relation to identity status. There is support for the idea that poorer adaptation to college is related to status designation as would be predicted by theory (Berzonsky & Kuk, 2000). Using the comprehensive status approach and path modeling statistical methods, trends in adjustment to and success in college is a line of work that warrants examination.

There is support that different contextual variables, such as success in college, are related to different developmental progressions along the identity dimensions (i.e. Exploration in Breadth, Exploration in Depth, etc.; Luyckx et al., 2006a). This lends support to the idea that the dual-cycle model, one of commitment formation and commitment evaluation, may actually exist as a psychosocial process as Erikson (1963) predicted. Longitudinal designs that include an analysis of the five dimensions over time in concert with contextual variables are necessary to more fully test the dual-cycle model. Longitudinal research may be especially useful for parceling out the differences found with those in the Achievement status employing less Exploration in Breadth over time (Luyckx et al., 2006b).

Non-university-based personnel working with individuals addressing identity-related issues would benefit from knowing more about non-student populations. Research with young adults who are not university students using the DIDS and other identity-related models would help to understand if the status clusters found in the current research exist only with university students or if they exist more broadly among young adults. Staff and administrators of programs with young adults not in school may then

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know more about the identity development process of the individuals with whom they work.

In keeping with Erikson's approach to identity development as a crisis or developmental task in the context of self and the environment, combining a dynamic status model such as that by Luyckx and colleagues (2008a) with a process framework would be a fruitful future research direction. Grotevant (1987) proposed such a "developmental, contextual and life-span in scope" (p. 203) identity formation model. Grotevant conceptualized five processes, including exploration, as essential to the development of an identity. Understanding the ways that this model might contribute further depth to the expanded identity status model and ways that the dynamic identity status model may operationalize aspects of Grotevant's framework would constitute worthwhile pursuits.

Schwartz, Zamboanga, Weisskirch, and Wang (2010) studied cultural identity and personal identity; however, they continue to use Marcia's conceptualization of personal identity, the EPIQ and a conceptualization of identity development as an endpoint. Including conceptualizations of personal and cultural identity *processes*, rather than simply endpoints, is more congruent with an Eriksonian model. Luyckx and colleagues' (2008a) identity formation and identity evaluation model may add an interesting dimension to this current line of research.

One last suggested future direction for research stemming from the current study lies in the clinical realm. In the spirit of research informing practice and practice informing research, clinicians may want to consider how this conceptualization of identity formation and evaluation could contribute to guiding their work with clients, and

then reporting on these experiences to provide feedback to researchers. Anecdotally, I have already found the comprehensive model to be a helpful tool in both conceptualizing and treating college students struggling with identity-related issues. I have described the dimensions to students when I see them stuck in a moratorium or diffuse status to encourage them to consider if they might be interested in adding exploration in breadth or in depth of their identity-relevant options. I have also talked with clients about making initial commitments, reminding them that they could change them in the future, knowing that Commitment Making has been found to relate to psychosocial indices of well-being. These interventions have been well received by the clients I have worked with. Case examples, participatory action research, or other clinically-driven information about the application of this model in practice would add substantially to the field and the line of identity development research stemming from Luyckx and colleagues' identity development model.

Summary

One of the goals of the current project was to see if Berzonsky's (1990) identity processing styles could help to better explicate Luyckx and colleagues' (2008a) comprehensive model of identity development. The findings related to Hypothesis 3 and the questions about the relative endorsement level of the identity processing styles by the identity status clusters added to the depth of understanding of the identity status clusters based on Luyckx and colleagues' model, and also built on the research of Schwartz and colleagues (2000). However, the poor results of the model testing of Berzonsky's ISI-3 measure, and the inconclusive findings in relation to Hypothesis 2, which was the idea that each identity status cluster would endorse its theoretically consistent identity

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processing style, did not provide a strong basis for the idea that combining these two models increases our understanding of the comprehensive identity model.

What can be gained from the current research is further validation of the six status clusters based on the five dimensions posited by Luyckx and colleagues (2008a). The data in the current sample were a good fit to Luyckx and colleagues' model using their DIDS measure, and the same status clusters emerged from the data as in previous samples in Belgium. It appears that college students in the United States might be categorized into the status clusters identified in the current study based on their levels of Exploration in Breadth, Exploration in Depth, Ruminative Exploration, Commitment Making and Identification with Commitment.

In response to the goals stated for the current study, the following conclusions can be made. There is evidence to suggest the validity of the comprehensive model of identity development proposed by Luyckx and colleagues (2008a). The college students in the current sample were categorized into identity status clusters quite consistent with those found in other research (e.g. Luyckx et al., Schwartz et al., in press). However, the combined utility of identity development based on Berzonsky's (1988) process theory and a structural theory of identity based on Luyckx and colleagues' model remains unclear following the current study. Findings similar to those of Schwartz and colleagues (2000) lend support that the updated status clusters parallel Marcia's (1966) status conceptualizations, and that what we know from years of research on Marcia's statuses may also apply in predictable ways to the statuses identified by Luyckx and colleagues' model. The lack of predicted relationships between Berzonsky's processing styles and the status clusters might indicate that these relationships may still need to be tested, perhaps

with other instrumentation. The current findings might also indicate that Berzonsky's processing styles may be too closely derived from Marcia's statuses to be compared with updated models.

Overall, the findings support the tenets of a line of identity development research, consistent with Eriksonian theory, within which there exists a process of identity development which includes both commitment formation and commitment evaluation, and that this model applies to an American college student sample. Theoretical, macro- and micro-level implications stem from the current study. There are also many fruitful lines of research that may be inspired by the comprehensive identity development model used in the current research.

TABLES

Table 1

Pairwise Comparisons for Identity Style Variables by Ego Identity Status

Style	Ego Identity Status Group				F Ratio
	Diffused	Foreclosed	Moratorium	Achievement	
Informational					
Sample 1	3.09^a	3.39^b	3.60^b	3.61^b	8.62***
	(1.61)	(1.15)	(1.74)	(1.37)	
Sample 2	3.25^a	3.55^b	3.75^c	3.97^c	19.67***
	(1.42)	(1.62)	(1.40)	(1.38)	
Normative					
Sample 1	2.99^a	3.26^b	2.74^c	3.26^b	8.34***
	(1.72)	(1.25)	(1.37)	(1.94)	
Sample 2	2.78^a	3.15^b	2.54^b	2.77^{ac}	12.50***
	(1.56)	(1.70)	(1.76)	(1.94)	
Diffuse/Avoidant					
Sample 1	3.32^a	2.90^b	2.92^b	2.93^b	3.09*
	(1.86)	(1.97)	(1.92)	(1.98)	
Sample 2	3.08^a	2.59^b	2.58^b	2.50^b	8.95***
	(2.01)	(1.67)	(1.98)	(2.53)	

Note: Within each row, means with the same superscript are not significantly different from one another. Numbers in parentheses are standard deviations.

*p < .05.   *** p < .001

Adapted from: Schwartz, Mullis, Waterman, & Dunham, 2000, p. 514

Table 2

Tests of Measurement Models for DIDS and ISI-3

Model	χ2	degrees of freedom	CFI	RMSEA	90% CI	SRMR
DIDS						
Initial Measurement	1236.43	265	0.851	0.093	0.088 – 0.098	0.115
Improved Measurement	677.94	255	0.935	0.063	0.057 – 0.680	0.100
4 outliers removed	1191.02	265	0.855	0.091	0.086 – 0.097	0.114
4 outliers, improved*	668.47	256	0.935	0.062	0.056 – 0.068	0.100
9 outliers removed	1492.24	265	0.782	0.106	0.101 – 0.111	0.145
9 outliers, improved	1204.12	252	0.831	0.096	0.090 – 0.101	0.131
4 outliers + 4 incompletes	999.63	265	0.772	0.116	0.108 – 0.123	0.161
4outliers4incomplete, improved	926.60	262	0.794	0.111	0.103 – 0.118	0.157
ISI-3						
Initial Measurement	3158.07	734	0.538	0.089	0.086 – 0.092	0.105
Improved Measurement	2518.95	715	0.656	0.078	0.074 – 0.081	0.099
4 outliers removed	3061.52	734	0.534	0.087	0.084 – 0.091	0.102
4 outliers, improved*	2209.48	698	0.697	0.072	0.069 – 0.076	0.091
ISI-3 without Commitment	1292.99	402	0.662	0.073	0.069 – 0.078	0.082
ISI-3 w/o Comm, improved	957.99	390	0.784	0.059	0.055 – 0.064	0.074

Note. N = 419

* denotes final model used, representing best fit to the data and including as many cases as possible

Table 3

Correlation Table for Identity Dimensions from DIDS and Identity Styles from ISI-3

	ComMak	IDwComm	ExpBreadth	ExpDepth	RumExpl	Info	Norm	Diffuse
ComMak		.71***	-.12**	.22***	-.51***	.26***	.30***	-.22***
IDwComm			-.15***	.16***	-.54***	.28***	.26***	-.24***
ExpBreadth				.32***	.46***	.25***	.06	.15***
ExpDepth					.16***	.33***	.23***	.06
RumExpl						.02	-.09*	.40***
Info							.36***	.01
Norm								.14**
Diffuse								

Note. ComMak = Commitment Making; IDwComm = Identification with Commitment; ExpBreadth = Exploration in Breadth; ExpDepth = Exploration in Depth; RumExpl = Ruminative Exploration; Info = Informational; Norm = Normative; Diffuse = Diffuse/Avoidant. N = 419
* $p < 0.05$, ** $p < 0.01$, *** $p \leq 0.001$.

Table 4

Test of Hypothesis 2: Means for Style Endorsement Level by Cluster

Cluster	Identity Style		
	Informational	Normative	Diffuse/Avoidant
Achievement	40.27^a	32.28^b	20.97^c
	(6.05)	(5.83)	(6.31)
Foreclosure	37.46	31.84	20.77
	(7.15)	(5.43)	(5.60)
Ruminative Moratorium	38.59^a	30.23^b	29.16^b
	(4.55)	(4.83)	(6.77)
Diffuse Diffusion	35.06	26.51	26.09
	(5.23)	(4.63)	(5.18)
Carefree Diffusion	35.72	29.07	25.07
	(5.38)	(5.07)	(6.80)
Undifferentiated	36.45^a	30.03^b	26.08^b
	(4.71)	(4.74)	(5.18)

Note: Within each row, numbers with the same superscript (or no superscript) are not significantly different from one another using t-tests ($p < 0.01$). N = 419.
Numbers in parentheses are standard deviations.

Table 5

Test of Hypothesis 3: Average Identity Style Scores for each Identity Cluster, including ANOVA F-test

Identity Style	Cluster						F Ratio
	Achievement (A)	Foreclosure (F)	Ruminative Moratorium (RM)	Diffuse Diffusion (DD)	Carefree Diffusion (CD)	Undifferentiated (U)	
Informational	40.27	37.46	38.59	35.06	35.72	36.45	8.417***
	(6.05)	(7.15)	(4.55)	(5.23)	(5.38)	(4.71)	
	DD, CD, U	n/a	DD, CD	A, RM	A, RM	A	
Normative	32.28	31.84	30.23	26.51	29.07	30.03	8.379***
	(5.83)	(5.43)	(4.83)	(4.63)	(5.07)	(4.74)	
	DD, CD	DD	DD	A, F, RM, U	A	DD	
Diffuse/Avoidant	20.97	20.77	29.16	26.09	25.07	26.08	15.989***
	(6.31)	(5.60)	(6.77)	(5.18)	(6.80)	(5.18)	
	RM, DD, CD, U	RM, DD, U	A, F, DD, CD	A, F	A, F, RM	A, F, RM	

Note: Standard Deviations are in parentheses. For each row, cluster abbreviations indicate which cluster means that cluster differs from. A = Achievement; F = Foreclosure; RM = Ruminative Moratorium; DD = Diffuse Diffusion; CD = Carefree Diffusion; U = Undifferentiated.

*** $p < .001$

FIGURES

	1	2	3	4	5	6	7	8
VIII								Ego Integrity vs. Despair
VII							Generativity vs. Stagnation	
VI						Intimacy vs. Isolation		
V					Identity vs. Role Confusion			
IV				Industry vs. Inferiority				
III			Initiative vs. Guilt					
II		Autonomy vs. Shame, Doubt						
I	Basic Trust vs. Mistrust							
	1	2	3	4	5	6	7	8

Figure 1

Erikson's Epigenetic Matrix of Development

Note. Adapted from Erikson, 1963, 1968.

		Commitment	
		Strong	Weak
Exploration	High	**Achievement**	**Moratorium**
	Low	**Foreclosure**	**Diffusion**

Figure 2

The Four Identity Statuses as Conceptualized Using Marcia's (1993) Two Dimensions of Exploration and Commitment

Marcia's (1966) Identity Status	Berzonsky's (1988) Processing Style
Achieved	Informational
Foreclosed	Normative
Moratorium	Informational
Diffused	Diffuse/Avoidant

Figure 3

Identity Processing Style Berzonsky (1988) Predicted Would be Preferred by Individuals in Each of Marcia's (1966) Identity Statuses.
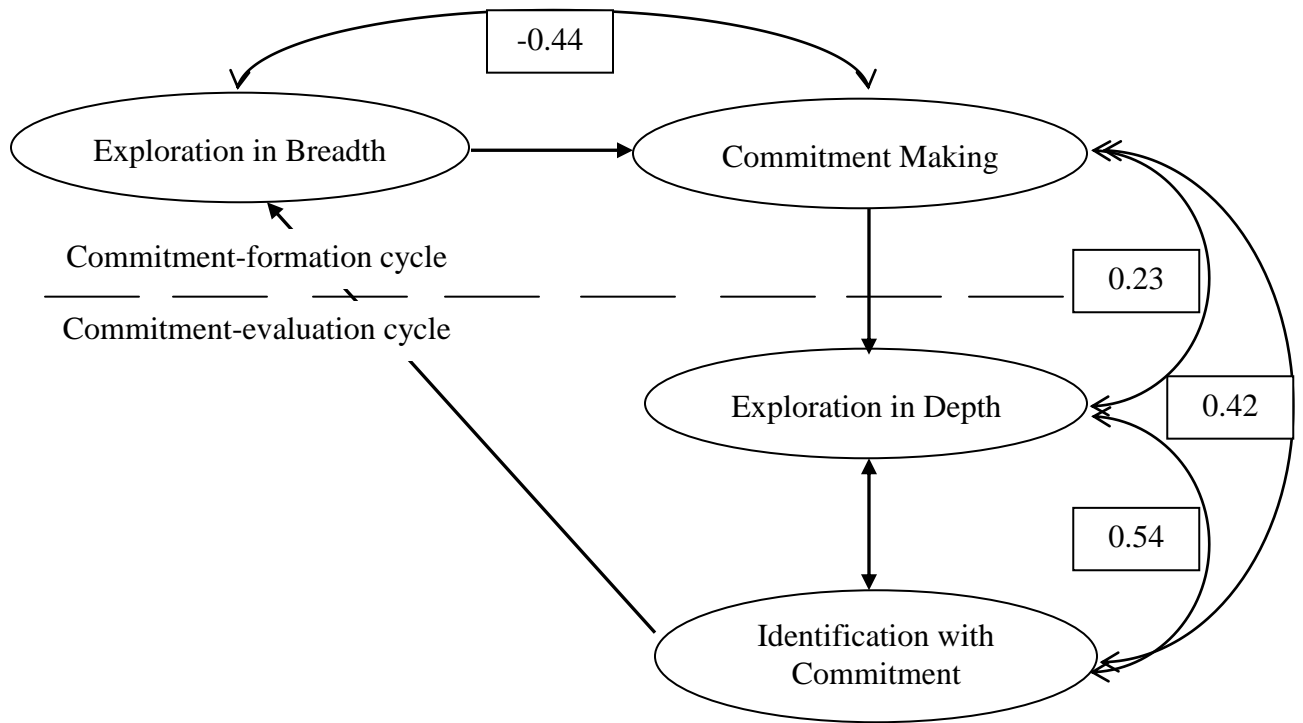
Figure 4

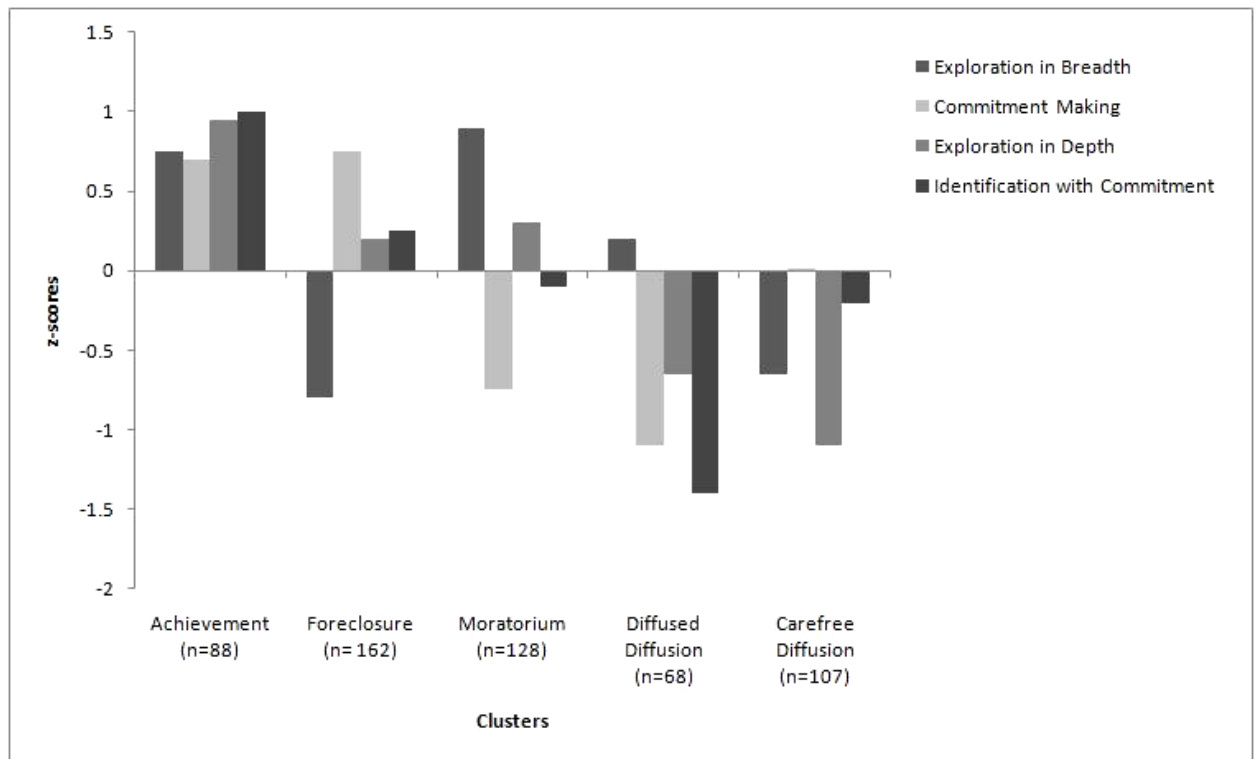*A Diagrammatic representation of Luyckx, Goossens and Soenens' (2006) Proposed Iterative Process Model of Identity Development Using Four Dimensions*

Figure 5

Five Identity Clusters Formed by Using Four Dimensions of Identity Development (N = 553).

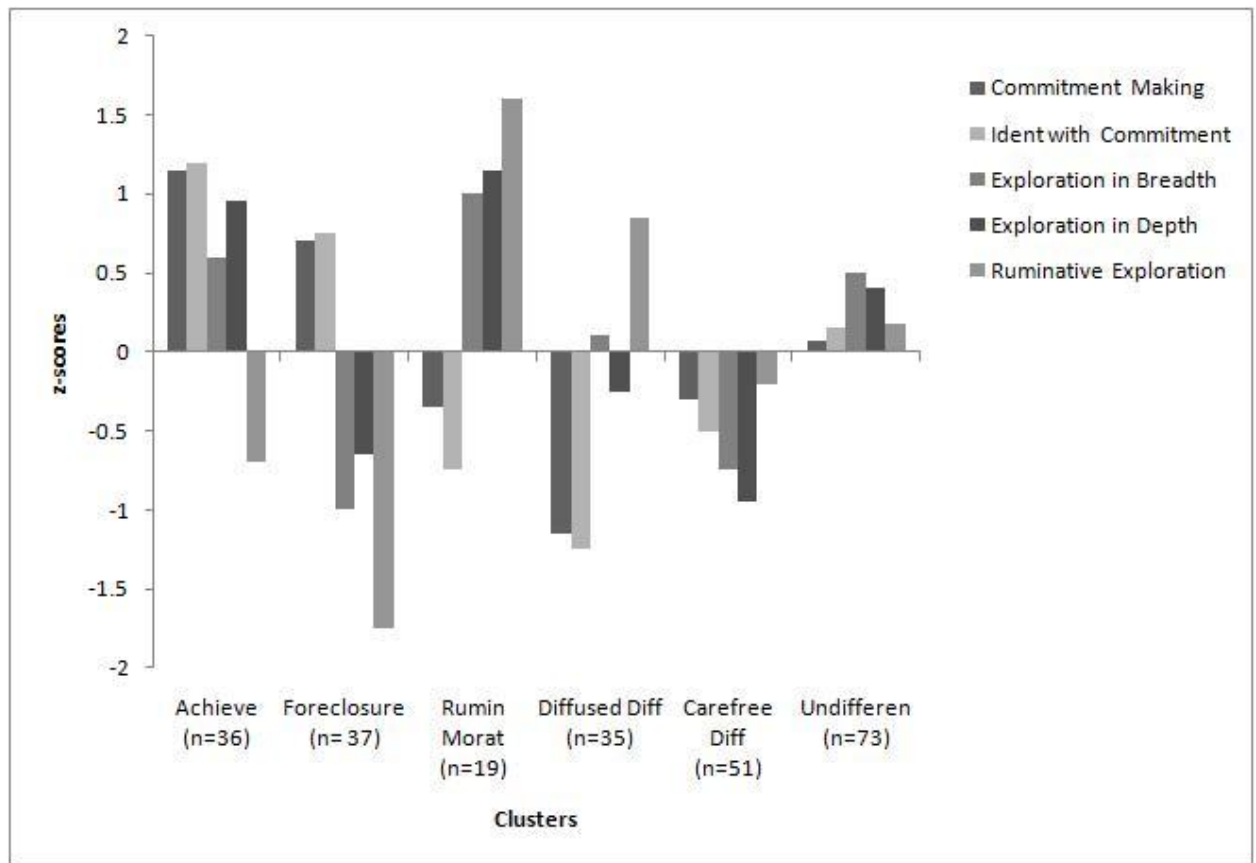*Note.* Figure based on Luyckx, Goossens, Soenens, Beyers and Vansteenkiste (2005, p. 612).

Figure 6

Six Identity Clusters Formed by Using Five Dimensions of Identity Development in a Belgian Sample (N = 251).

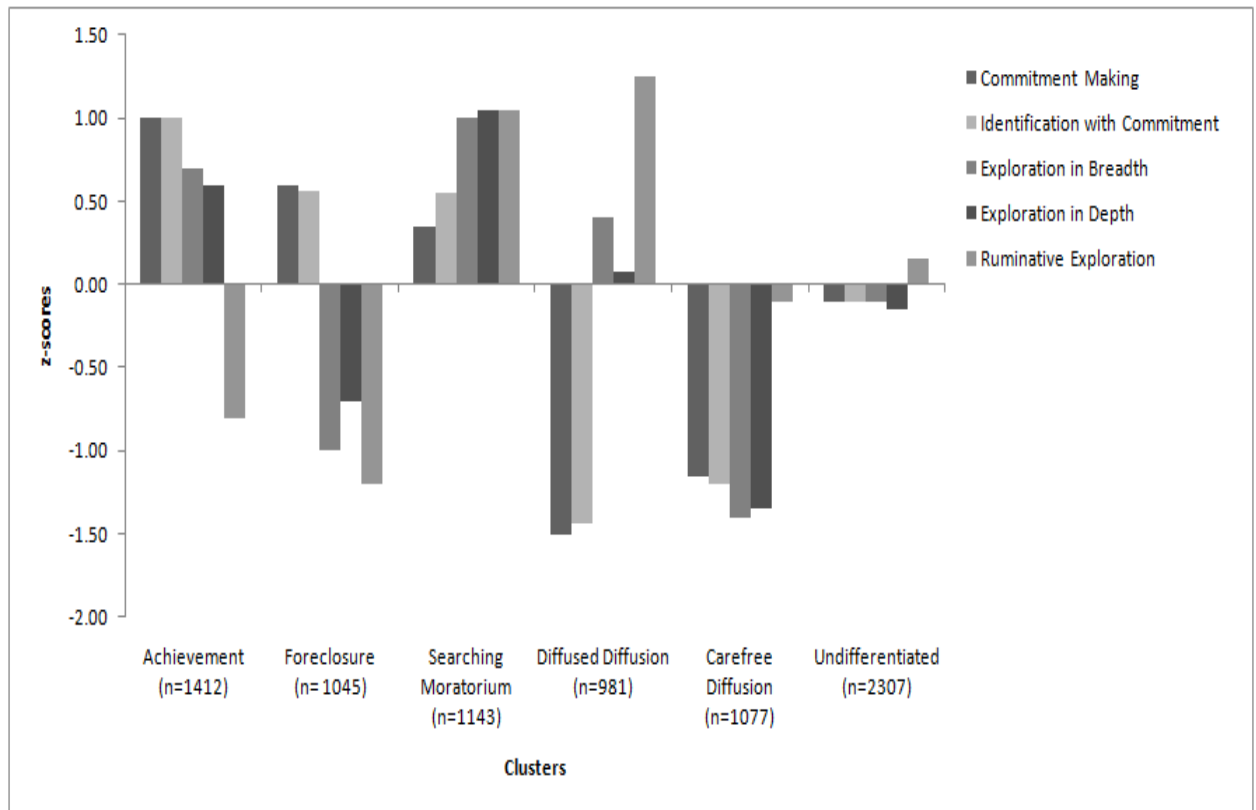*Note*. Figure based on Luyckx and colleagues (2008a, p. 72).

Figure 7

Six Identity Clusters Formed by Using Five Dimensional Model in a Diverse, American Sample (n = 7,965).

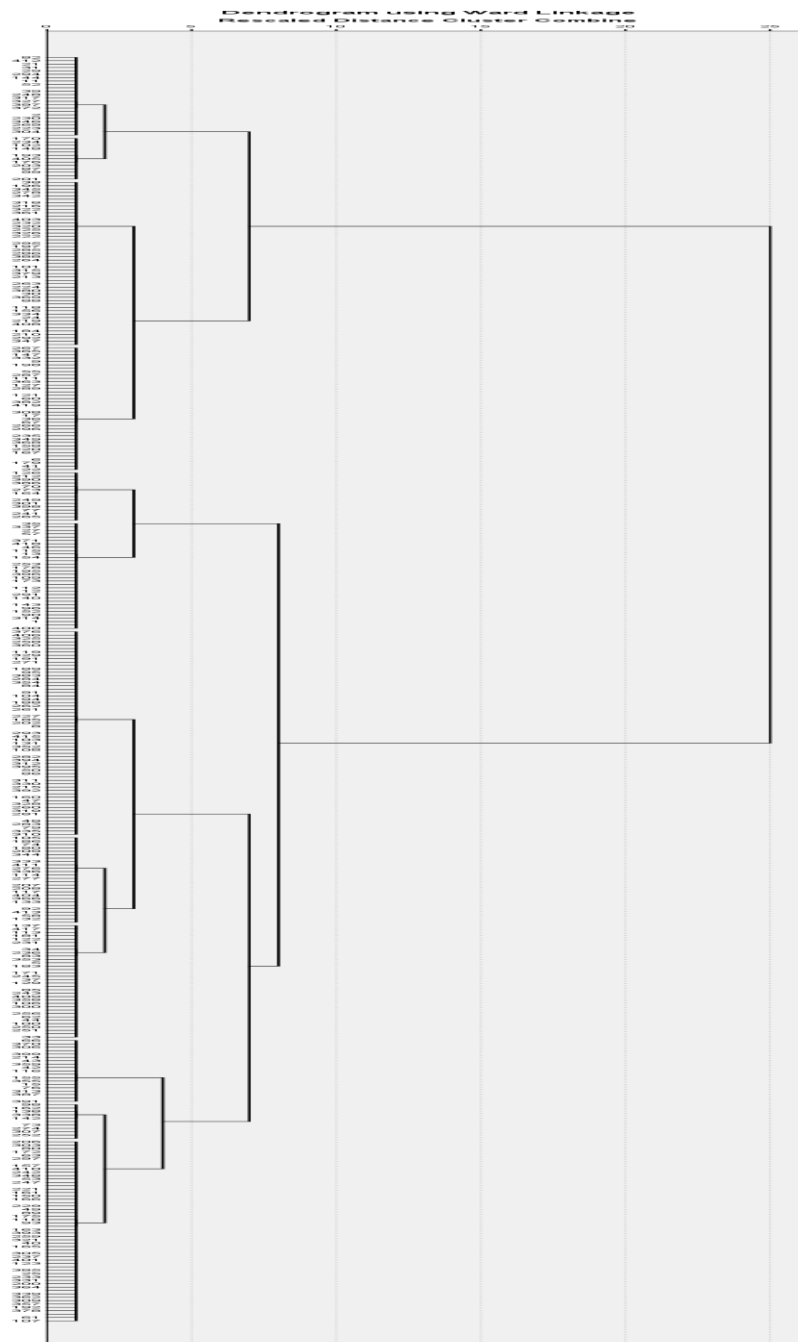*Note.* Figure based on Schwartz and colleagues (in press)

Figure 8

Dendogram of Hierarchical Cluster Solution (N=419)

Note. Vertical lines represent cases grouped into clusters. Large horizontal lines represent grouping unlike cases.
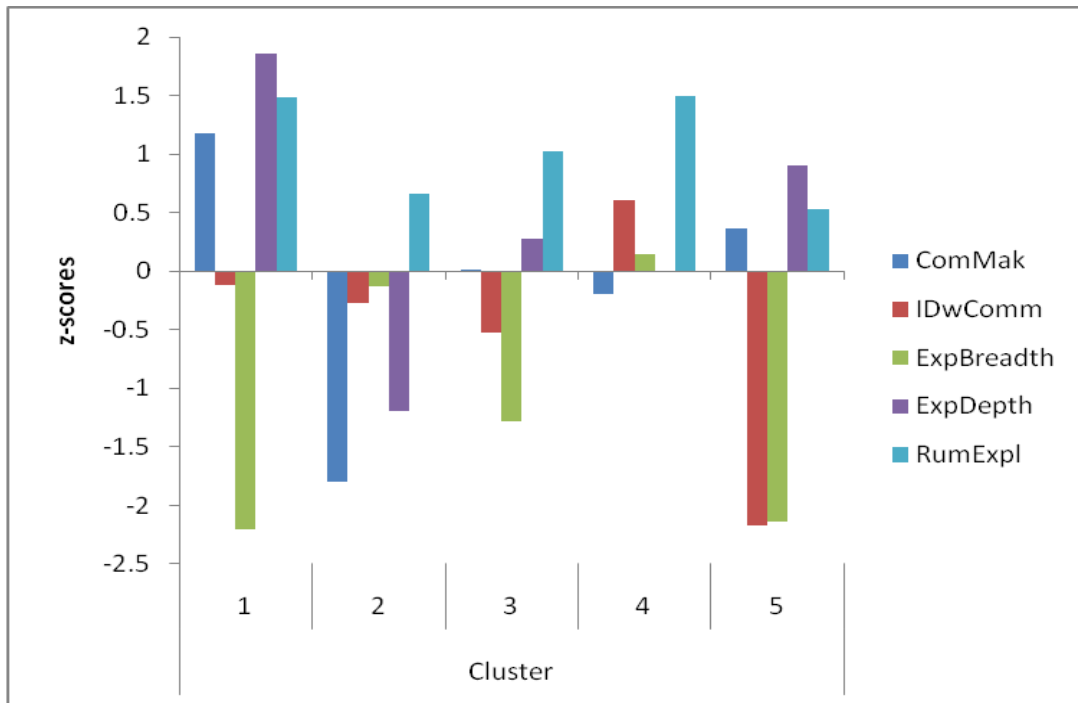
Figure 9
Five-Cluster Solution of the DIDS: Unable to Interpret.

Note. ComMak = Commitment Making; IDwComm = Identification with Commitment; ExpBreadth = Exploration in Breadth; ExpDepth = Exploration in Depth; RumExpl = Ruminative Exploration.
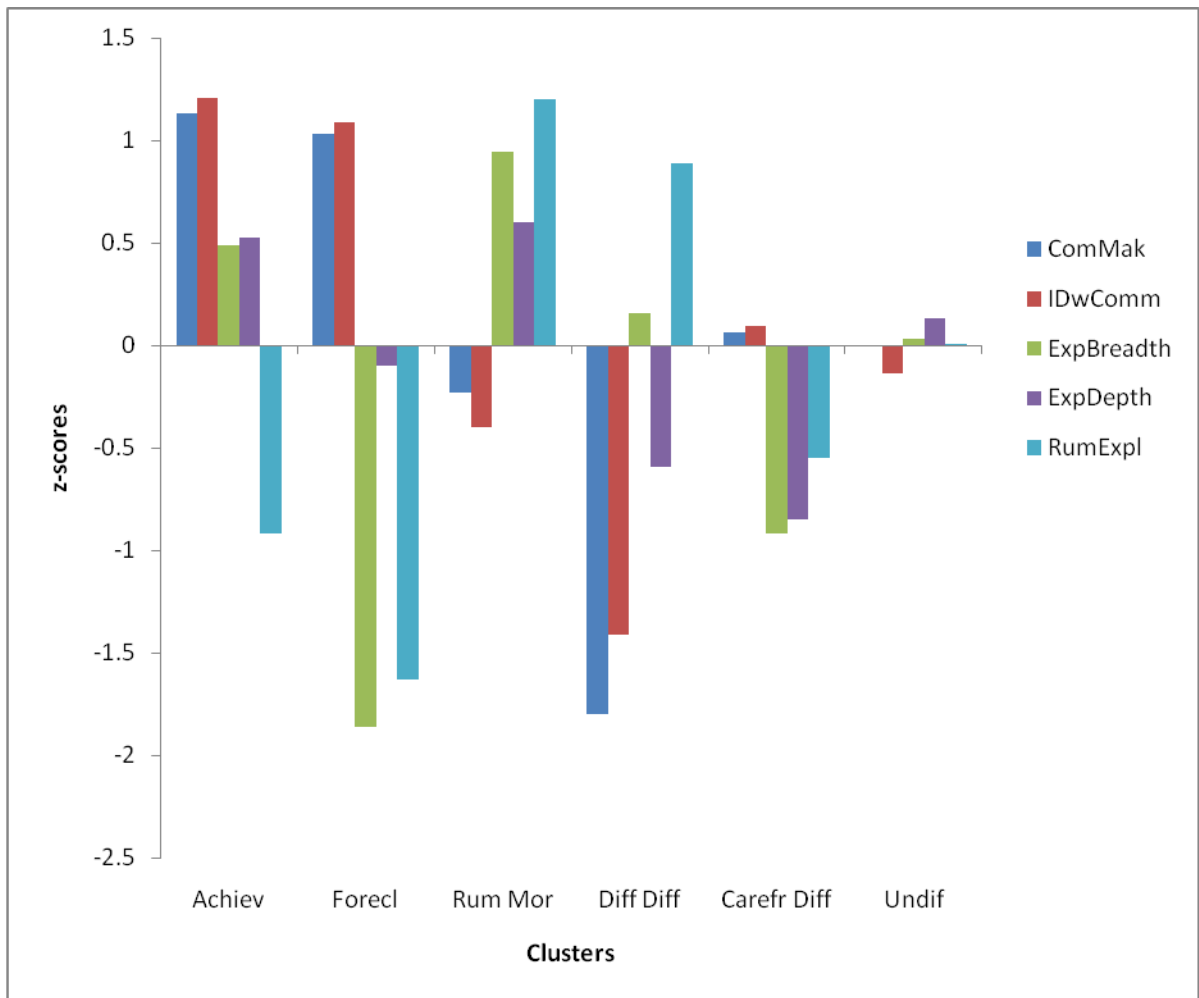
Figure 10

Six Cluster Solution of the Five Dimensions of the DIDS for the Current Study

Note. N=419; Achiev = Achievement, n = 67; Forecl = Foreclosure, n = 27; Rum Mor = Ruminative Moratorium, n = 80; Diff Diff = Diffused Diffusion, n = 51; Carefr Diff = Carefree Diffusion, n = 77; Undiff = Undifferentiated, n = 117. ComMak = Commitment Making; IDwComm = Identification with Commitment; ExpBreadth = Exploration in Breadth; ExpDepth = Exploration in Depth; RumExpl = Ruminative Exploration.
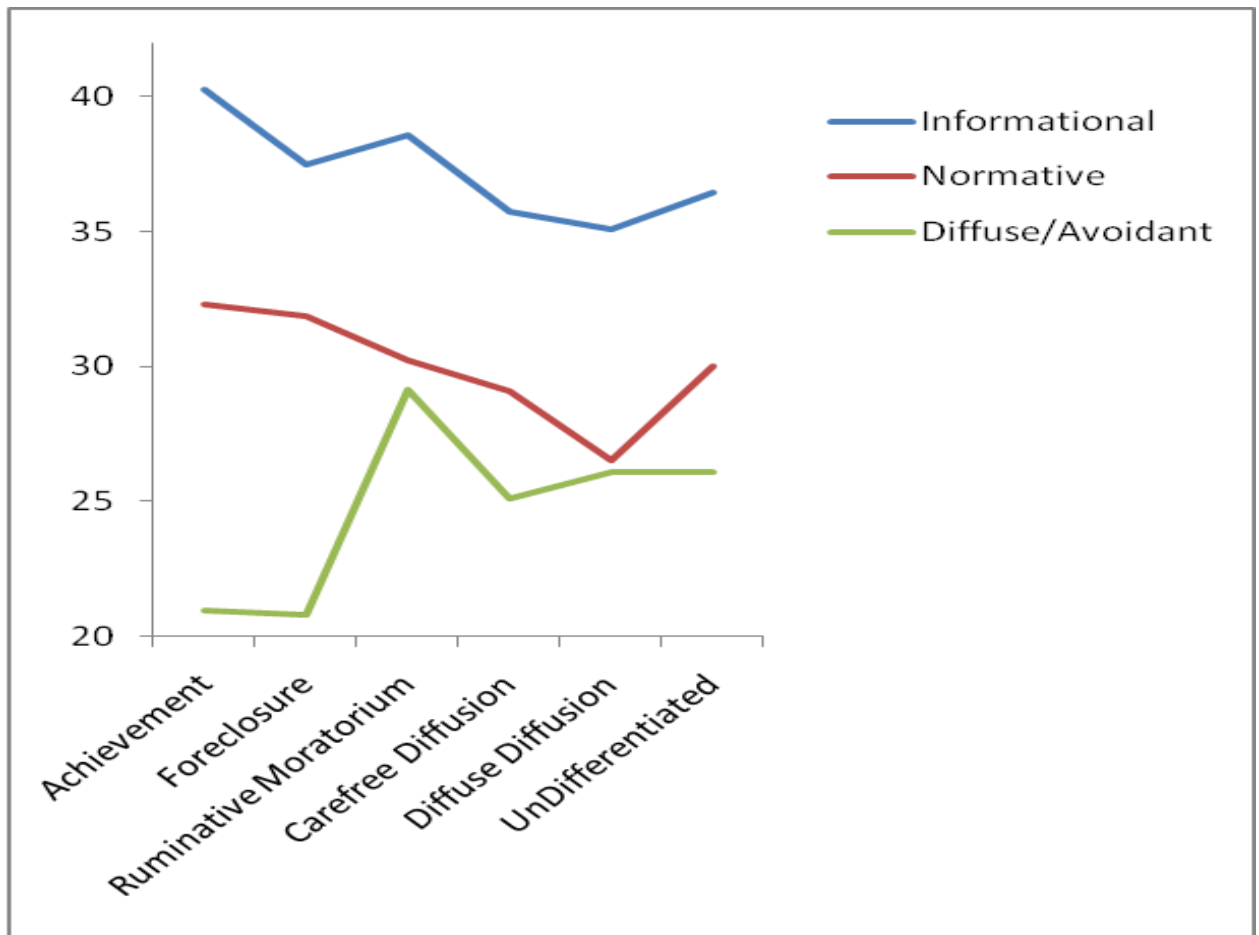
166

Figure 11

Test of Hypothesis Two: Identity Processing Style Score by Cluster

Note. N = 419. Hypothesis two predicted that each identity cluster would endorse the theoretically consistent identity processing style to a higher degree than the theoretically inconsistent styles. This hypothesis was not supported in full by the data.
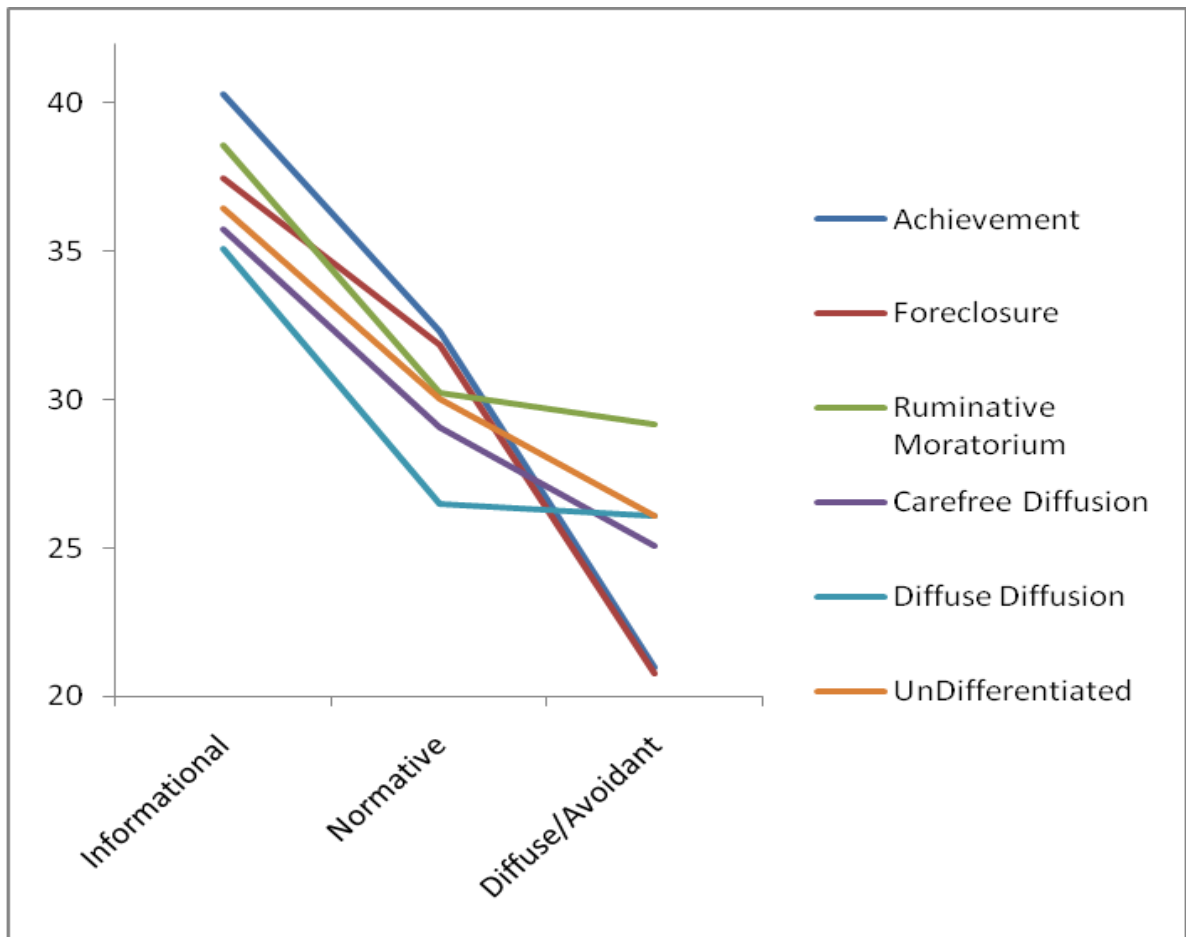
Figure 12

Test of Hypothesis Three: Pattern of Identity Style Endorsement for the Six Clusters

Note. N = 419. Hypothesis three consisted of four predictions related to the relative scores of the identity status clusters on the identity processing styles. Hypothesis three was supported by the data.

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APPENDICES

APPENDIX A – DIDS

Dimensions of Identity Development Scale (DIDS)

Please answer the following questions using the scale provided:

1: Strongly Disagree 2: Disagree 3: Neither disagree/agree 4: Agree 5: Strongly Agree

1. I have decided on the direction I am going to follow in my life.
2. I have plans for what I am going to do in the future.
3. I know which direction I am going to follow in my life.
4. I have an image of what I am going to do in the future.
5. I have made a choice on what I am going to do with my life.
6. I think actively about different directions I might take in my life.
7. I think about different things I might do in the future.
8. I am considering a number of different types of lifestyles that might suit me.
9. Lately, I have been thinking about different goals that I might pursue.
10. I am thinking about different lifestyles that might be good for me.
11. I am doubtful about what I really want to achieve in life.
12. I worry about what I want to do with my future.
13. I keep looking for the direction I want to take in my life.
14. I keep wondering which direction my life has to take.
15. It is hard for me to stop thinking about the direction I want to follow in my life.
16. My plans for the future match with my true interests and values.
17. My future plans give me self-confidence.
18. Because of the path of life I have mapped out for myself, I feel certain about myself.
19. I sense that the direction I want to take in my life will really suit me.
20. I am sure that my plans for the future are the right ones for me.
21. I think about the future plans I have already made.
22. I talk with other people about the plans for the future I have already made for myself.
23. I think about whether the aims I already have for life really suit me.
24. I try to find out what other people think about the specific direction I have already decided to take in my life.
25. I actively think about whether the future plans I am already striving for correspond to what I really want.

Items 1 – 5: Commitment Making

Items 6 – 10: Exploration in Breadth

Items 11 – 15: Ruminative Exploration

Items 16 - 20: Identification with Commitment

Items 21 – 25: Exploration in Depth

Identity Style Inventory – Revised Version (ISI-3)
<u>Personal Similarities</u>

<u>Instructions</u>

You will find a number of statements about beliefs, attitudes, and/or ways of dealing with issues. Read each carefully, then use it to describe yourself. Choose the number which indicates the extent to which you <u>think</u> the statement represents you. There are <u>no</u> right or wrong answers. For instance, if the statement is <u>very much like you</u>, choose a 5, if it is <u>not like you</u> at all, choose a 1. Use the 1 to 5 point scale to indicate the <u>degree</u> to which you think each statement is uncharacteristic (1) or characteristic (5) of yourself.

Each item is rated on the following scale:

(Not at all like me)   1   2   3   4   5   (Very much like me)

1. Regarding religious beliefs, I know basically what I believe and don't believe.
2. I've spent a great deal of time thinking seriously about what I should do with my life.
3. I'm not really sure what I'm doing in school; I guess things will work themselves out.
4. I've more-or-less always operated according to the values with which I was brought up.
5. I've spent a good deal of time reading and talking to others about religious ideas.
6. When I discuss an issue with someone, I try to assume their point of view and see the problem from their perspective.
7. I know what I want to do with my future.
8. It doesn't pay to worry about values in advance; I decide things as they happen.
9. I'm not really sure what I believe about religion.
10. I've always had purpose in my life; I was brought up to know what to strive for.
11. I'm not sure which values I really hold.
12. I have some consistent political views; I have a definite stand on where the government and country should be headed.
13. Many times by not concerning myself with personal problems, they work themselves out.
14. I'm not sure what I want to do in the future.
15. I'm really into my major; it's the academic area that is right for me.
16. I've spent a lot of time reading and trying to make some sense out of political issues.
17. I'm not really thinking about my future right now; it's still a long way off.

18. I've spent a lot of time and talk to a lot of people trying to develop a set of values that make sense to me.
19. Regarding religion, I've always known what to believe and don't believe. I never really had any serious doubts.
20. I'm not sure what I should major in (or change to).
21. I've known since high school that I was going to college and what I was going to major in.
22. I have a definite set of values that I use in order to make personal decisions.
23. I think it's better to have a firm set of beliefs than to be open-minded.
24. When I have to make a decision, I try to wait as long as possible in order to see what will happen.
25. When I have a personal problem, I try to analyze the situation in order to understand it.
26. I find it's best to seek out advice from professionals (e.g., clergy, doctors, lawyers) when I have problems.
27. It's best for me not to take life too seriously; I just try to enjoy it.
28. I think it's better to have fixed values than to consider alternative value systems.
29. I try not to think about or deal with problems as long as I can.
30. I find that personal problems often turn out to be interesting challenges.
31. I try to avoid personal situations that will require me to think a lot and deal with them on my own.
32. Once I know the correct way to handle a problem I prefer to stick with it.
33. When I have to make a decision, I like to spend a lot of time thinking about my options.
34. I prefer to deal with situations where I can rely on social norms and standards.
35. I like to have the responsibility for handling problems in my life that require me to think on my own.
36. Sometimes I refuse to believe a problem will happen, and things manage to work themselves out.
37. When making important decisions I like to have as much information as possible.
38. When I know a situation is going to cause me stress, I try to avoid it.
39. To live a complete life, I think people need to get emotionally involved and commit themselves to specific values and ideals.
40. I find it's best for me to rely on the advice of close friends or relatives when I have a problem.

Information-Orientation: (2+5+6+16+18+25+26+30+33+35+37)
Normative-Orientation: (4+10+19+21+23+28+32+34+40)
Diffuse-Orientation: (3+8+13+17+24+27+29+31+36+38)
Commitment: (1+7+9*+11*+12+14*+15+20*+22+39)
*For scoring purposes, these items are reversed (9,11,14 &20).

APPENDIX C – Demographics

Demographic Questionnaire

Please answer the following questions as accurately as you can:

1. What is your gender? (please circle one)

   Male   Female   Transgender   Other

2. What is your age?   ____

3. What year are you in college?   (please circle one)

   1ˢᵗ   2ⁿᵈ   3ʳᵈ   4ᵗʰ   5ᵗʰ or beyond   graduate student

4. Have you declared a major?   Yes / No

   What is your major?   _____

5. What is your race? (circle all that apply)

   Latino American   Biracial/Multiracial   Native American

   White/European American   Black/African American   Asian American

   International Student   Other (please specify): _____

6. What is your sexual orientation?

   Exclusively Homosexual   Mostly Homosexual   Bisexual

   Exclusively Heterosexual   Mostly Heterosexual   Other (please specify):

   _____

7. In thinking about your past and present experiences, which label best describes
   your perceived social class? (please circle one)

   Lower Class   Lower Middle Class   Middle Class

   Upper Middle Class   Upper class

8. Are you a first generation college student?   Answer yes if none of your parents
   attended college. Answer no if any of your parents or grandparents did attend
   college. Yes / No

APPENDIX D – Informed Consent

Dear Invited Participant:

You are invited to participate in a research study focusing on factors related to identity development. The primary investigator on this study is Jennifer L. Wilson, M.A., a graduate student in the Psychology Department at The University of Akron.

The purpose of this study is to gain a greater understanding of the identity development process in college students. We hope to include responses from 400 undergraduate students.

Please allow yourself 20-30 minutes to complete this online survey. Your participation is completely voluntary and your responses will remain anonymous and confidential to the degree permitted by the technology used. If you agree to participate, you may skip any questions and may withdraw from the study at any time without penalty.

There are no foreseeable risks involved with this study. However, should you experience stress as a result of your participation in this study, you are encouraged to consult your university counseling center or seek services from a licensed practitioner.

You will receive no direct benefit from your participation in this study, but your participation may help us better understand the process of identity development.

Course credit is offered to compensate for participation: one credit will be allocated to your account on the human participation in research website for use in psychology classes. Your name and hpr id number will be collected in order to assign

credit for participation; this information is not connected with your responses in any way. Additionally, if you do not want to answer a question or after starting the survey you do not wish to continue, you will still receive course credit for participating.

If you have any questions about the research project, you can e-mail me at jlw76@zips.uakron.edu or call my advisor Dr. Charles A. Waehler at (330) 972-6701 (or e-mail him at cwaehler@uakron.edu).

This project has been reviewed and approved by The University of Akron Institutional Review Board. If you have any questions about your rights as a research participant, you may call the IRB at (330) 972-7666. Any other questions should be directed to me or my advisor.

Thank you very much for your consideration and time.

Sincerely,

Jennifer L. Wilson, M.A.

I have read the information provided and all of my questions have been answered. I voluntarily agree to participate in this study. Clicking the "continue" button will serve as my consent. I may print a copy of this consent statement for future reference.

APPENDIX E – Educational Component for HPR and Debriefing Form

Identity development research can trace its modern origins to Erik Erikson who talked about lifespan development. He suggested that before we reach adulthood, a primary task is to develop a sense of self, or an identity (Erikson, 1963). Identity development might involve choosing a major, forming religious or political views, establishing close relationships, or becoming satisfied with your chosen career. Erikson was interested in the process of forming an identity that allowed an individual to fit into his or her world.

The surveys that you completed today will help us to better understand the process of identity development including: the cognitive processing style used (Berzonsky, 1990), and the amount and type of exploration of and commitment to identity options at different stages of the process (Luyckx, Schwartz, Berzonsky, Soenens, Vansteenkiste, Smits, & Goossens, 2008).

APPENDIX F – IRB Approval

Ms. Wilson:

Your IRB protocol entitled "*Using Identity Processing Styles to Better Understand a Comprehensive status Model of Identity Development*"(#20100314) was determined to be exempt from IRB review. A letter confirming the exemption status is in the mail to you.

Exempt protocols do not require annual review. However, if any change is made to the protocol, please contact the IRB (x7666) to discuss the change prior to implementation. Changes that increase the risk to participants and/or include activities that do not qualify for exemption will require the submission of a new application for IRB review.

If the change is minor and does not increase the risk to participants, then a new application will not be required.

Upon completion of your research, please submit the Final Report form (attached).

Please call if you have any questions. (330-972-7666).

Thank you.

Mary Samartgedes, IRB Secretary
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Akron, Ohio 44325-2102
v: 330.972.7666
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