University of Groningen

The Landscape of Identity Model

van der Gaag, Mandy A. E.; de Ruiter, Naomi M. P.; Kunnen, Saskia E.; Bosma, Harke

The Landscape of Identity Model: An Integration of Qualitative and Quantitative Aspects of Identity Development

Mandy A. E. Van der Gaag , Naomi M. P. De Ruiter , Saskia E. Kunnen & Harke Bosma

Routledge
Taylor & Francis Group

The Landscape of Identity Model: An Integration of Qualitative and Quantitative Aspects of Identity Development

Mandy A. E. Van der Gaag[a], Naomi M. P. De Ruiter[b], Saskia E. Kunnen[a], and Harke Bosma[a]

[a]Department of Developmental Psychology, University of Groningen, Groningen, Netherlands; [b]University College Groningen, University of Groningen, Groningen, Netherlands

ABSTRACT

The landscape of identity model views identity as a constellation of commitments with different levels of strength and integration, showing how this constellation emerges from everyday life experiences. Drawing on key principles from the complex dynamic systems approach, our model further describes this conceptualization, as well as the mechanisms underlying the development of an identity landscape. We show that the model solves current conceptual issues within identity theory, specifies how Marcia's four identity statuses can be viewed as particular types of identity landscapes, and helps to further develop the identity field by generating predictions regarding how individuals with different types of identity landscapes would respond to major life events.

Introduction

A well-developed identity is central to an individual's sense of well-being and functioning (e.g., Adler et al., 2016; Meeus, 2011). Yet, the concept of identity – what it really is – remains somewhat elusive, despite several decades of theoretical and empirical research. One contributing factor may be that different lines of identity research tend to operate separately from each other, making it difficult to gain an integrated and complete picture of identity. As a consequence, as Côté (2015) pointed out so appropriately, an "Identity Tower of Babel" has arisen where researchers sometimes use different terms when referring to similar identity concepts, or use the same term to refer to different concepts. This fragmentation and vagueness is problematic for the accumulation of knowledge, for progression of the field of identity research, and indeed for our understanding of what identity truly is.

The fact that identity is still a vague concept is certainly not due to a lack of research. In the last fifty years the strength of identity commitments and the amount of exploration (i.e., the quantity) has been studied extensively (for an overview see for example, Meeus, 2011). Qualitative aspects of identity commitments, such as the content of identity and its structure, have received notably less attention, with some exceptions (see for example, Bosma, 1985; Josselson, 1996; McAdams & West, 1997). In recent years the interest in qualitative identity research has been growing, as can be seen in the programs of the *International Society for Research on Identity* conferences in 2017 and 2019 (ISRI, 2020), and in the increasing number of qualitative studies on identity (among many others Carlsson et al., 2015; Kunnen & Bosma, 2003; Syed & McLean, 2016). Despite this growing interest, we still lack a theoretical understanding of how these qualitative aspects of identity commitments develop across the lifespan and how they relate to the quantitative aspects of identity. Without an understanding of how the content of commitments develops and is organized, our understanding of identity formation will remain incomplete (Galliher et al., 2017).

In this paper, we aim to remedy some of the vagueness surrounding the identity concept by combining quantitative and qualitative identity research traditions in our *landscape of identity model*. In short, this model conceptualizes identity as a constellation of commitments, with each commitment characterized by two pivotal aspects of identity: quantitative and qualitative identity aspects. With the quantitative aspect of identity we refer to the strength of the commitments (that is, one's dedication to facets of identity; e.g., Crocetti et al., 2008; Luyckx et al., 2006) and the amount of exploration that may have accompanied these commitments. With the qualitative aspect of identity, we refer to the content of commitments, the extent to which the content is integrated into a coherent whole (see also McLean et al., 2016), and the quality of one's experiences (Van der Gaag et al., 2017).

We embed the landscape of identity model firmly in existing identity theory and outline its utility by applying an identity landscape perspective to one of the most prominent lines of identity theory: Marcia's identity statuses. We disentangle structural aspects of the identity statuses from the process of their development. In this way, our model makes it possible to characterize an individual's identity status based on the current identity structure alone; therefore making it no longer necessary to have knowledge of past or present exploration behavior to characterize a status. We highlight the utility of the model by outlining a number of theoretical contributions and predictions that result from our model, such as how individuals with different identity landscapes will likely respond to life experiences.

Theory on Qualitative and quantitative aspects of identity

Commitment content and integration

Both Erikson (1956) and Marcia (1966), who are commonly seen as having laid the foundation of identity theory, proposed a fundamental qualitative aspect of identity commitments: the content of the domain of life in which the commitment can be found. They described two domains, ideology (politics and religion) and occupation, as being central for identity. Later, empirical research showed that more domains should be included as central domains of identity, including interpersonal domains such as friendship and parents (e.g., Bosma, 1985). In support of this, a recent and large narrative study by McLean, Syed, Yoder and Greenhoot (2016) showed that interpersonal, ideological, and occupational domains might be the most prominent content of identity narratives. In addition, McLean et al. also found evidence for a fourth domain: an existential domain that concerns topics such as mortality and mental health. Importantly, McLean et al. showed that, for some individuals, these domains co-occurred and had seemingly been integrated into an overarching commitment that was more than the sum of its domain-specific commitments.

This last point – that different content within and between domains can be integrated into a larger overarching commitment – is a key feature of the qualitative aspect of identity. Identity integration has been argued to be crucial for well-being, and a marker of successful identity development (Syed & McLean, 2016). Integration, including the integration of the content of various identity domains and the integration of past, present and future identities into one coherent whole, is vital because it ensures a sense of self-sameness and continuity, one of Erikson's descriptors for successful identity development (Erikson, 1956).

While there is both theoretical and empirical support for the notion that integration is a crucial part of a healthy identity, relatively little is known about the process of integration. The few studies that have examined identity integration suggest that integration is a dynamic process of change, and one that often involves the development of a higher level of abstraction. For example, Müllges and Bosma (in Bosma, 1992) explored whether individuals could formulate some sort of idea, overarching principle, or feeling related to all of their commitments from different domains. They found that their subjects were able to formulate a common denominator for their commitments. For example, a common denominator amongst a set of commitments might be self-determination (or a lack thereof). These common denominators were often a more abstract idea or principle transcending

the domain-specific commitments, and one that more-or-less steers the process of committing oneself in the different domains of life.

In addition, Schachter (2004) studied whether and how individuals tried to integrate conflicting content from different domains of identity. He found that individuals cope with such integration issues in various ways. Most attempted to solve a conflict between identity domains by suppressing one domain or by merging them together, while others dealt with this conflict by accepting – and sometimes even enjoying – the dissonance as part of their identity. For many individuals, integration can be characterized as an active exploration process, such that they are actively searching for a way to deal with conflicting domains. In contrast, McLean et al. (2016) found that integration can also occur in a more coincidental manner. Specifically, when the content of two domains of life come together in one event, this allows for an intersection of identity domains, which the individual can then make sense of by forming a new, overarching commitment. Thus, identity integration can occur as an active exploration process (Schachter, 2004), or as a consequence of a relatively unintentional coupling that emerges because events co-occur (McLean et al., 2016).

It should be stressed that integration of commitments need not be limited to the integration of the content of different *domains*. Integration can occur between any meaningful aspects of identity. Indeed, Syed and McLean (2016) describe how, alongside integration of different domains of life, individuals can also integrate past, present, and future, the ego, and society with one's identity. We suggest that individuals can also integrate components *within* a domain. For example, within the domain of career, one could try to integrate aspects that they like about their career (e.g., 'I love teaching") with aspects that they dislike (e.g., "I hate the work pressure"), and form a nuanced career commitment that integrates several (potentially conflicting) aspects into a coherent whole (e.g., "I like my career, in the past 20 years I have developed a lot as a teacher. I think educating a new generation is the most important task of a society, and I am proud to contribute to that. I want to pursue it, and guide new teachers, despite the disadvantages").

Building on this, one important proposal in this paper is that an individual's identity structure may contain commitments that have varying levels of integration. Therefore, alongside between-individual differences in the levels of integration, we suggest that within-individual differences can occur in the level of integration of one's commitments. Specifically, this means that the identity of one individual may include commitments that are highly integrated and abstract (such that they contain and integrate several commitments of different domains of life into a coherent whole; as found by Bosma, 1992; McLean et al., 2016; Schachter, 2004) as well as commitments that are less integrated (and thus more concrete).

For example, an abstract, overarching commitment may be "It is important to me to help people whenever I can". This abstract commitment may include various concrete commitments specific to various domains of life, which are composed of even more concrete commitments, such that they are nested. Within the above mentioned abstract commitment, the individual may have a more concrete commitment specific to their career, such as "I will study to become a doctor". This commitment may then include yet a more concrete commitment, such as "I will study hard for my admissions test". This concrete commitment thus guides their actions through nested here-and-now commitments, such as "I will study hard for a couple of hours". Thus as commitments become more concrete, they become more closely related to behavior in the here and now. Indeed, there is in principle no limit to how concrete or how abstract a commitment may be.

We think it may be useful to think about commitments as existing on an integration continuum, ranging from very abstract to very concrete, because this conceptualization allows us to bring together lines of research that have, thus far, defined identity in two different ways (Carlsson, 2015; Van der Gaag et al., 2017; Waterman, 2015). The first concerns an individual's commitment to, and exploration of, relatively *abstract* ideas that the individual has about themself in relation to specific domains of life (e.g., Bosma, 1985; Bosma et al., 2012; Marcia et al., 1993). These abstract ideas may be convictions, norms or values. For example, within an occupational domain, an individual's abstract commitment may be "I value a healthy work-life balance", and in an interpersonal domain an abstract commitment

may be "I believe it is important to put others first". The second line of research concerns the conceptualization of identity as the individual's commitments to *concrete* contexts in the individual's environment (e.g., Crocetti et al., 2008; Klimstra et al., 2010; Van der Gaag et al., 2016). For example, a concrete commitment within education may be "I hate going to school" or "I think my education choice suits me well', and a concrete interpersonal commitment may be "I really like Sam" or "Carol gives me confidence". This (implicit) divergence between commitments as being general and abstract versus specific and concrete has thus far been somewhat problematic, as it has led to confusion regarding how we should define identity (e.g., Waterman, 2015).

When we characterize commitments by their level of integration we can bring together these previously competitive operationalizations of commitments (as "concrete and specific" versus "abstract and general") into one model of identity. This allows us to view identity as consisting of both abstract ideas about who we are and concrete choices that we make to steer our behavior. Thus our model paves the way for us to better understand how identity and behavior are related.

Commitment strength, amount of exploration and the role of experiences

The quantitative approach to identity sketches a picture of identity as a set of commitments that differ predominantly in their strength. Strong commitments refer to aspects of identity that an individual is highly dedicated to. The strength of an individual's commitment is a pivotal part of their identity. Firstly, the strength of one's commitment can indicate (together with the amount of past exploration behavior; i.e., the active seeking of identity-relevant information) what identity status they are in (described in more detail below). Second, the identity commitments that are characterized as being strong are often related to beneficial outcomes, such as well-being and academic success (Meeus, 2011).

Marcia's identity status theory (1966) combines the strength of commitment with the amount of exploration, resulting in four possible identity statuses. These are *achieved*, where individuals currently have high levels of commitment based on extensive exploration in the past; *foreclosed* where individuals have have strong commitments that are based on little exploration; *moratorium*, where individuals have low levels of commitment and are in the process of exploring identity options; and finally *diffused*, where individuals have weak commitments and have not explored much, nor are they currently exploring (Marcia, 1966). Empirical research has supported the existence of subgroups of individuals that resemble Marcia's statuses (e.g., Luyckx et al., 2008; Zimmermann et al., 2015), while also finding evidence for additional subgroups (e.g., *diffused diffusion, carefree diffusion* and *undifferentiated*).

In Marcia's model, explorative behavior in the past determines one's current identity. However, Marcia does not specify *how* these past explorations form a lasting identity structure. Purely searching for something (i.e., exploring) does not necessarily mean that one will find anything meaningful that will be incorporated in one's identity. Thus, it can not only be the act of exploring that forms one's identity. This is supported by person-centered studies that find much variation in the within-individual correlation between the amount of exploration and the strength of commitment (Van der Gaag et al., 2016). The effect of exploration may depend on the experience that is encountered while exploring: does the experience confirm an existing commitment or does it conflict with it, does it bring a slight nuance to the commitment? Thus, in Marcia's status model, the process of identity development lacks a qualitative component, that is, identity-relevant *experiences*.

Indeed, we believe that identity development is characterized by the process of incorporating identity-relevant experiences into one's commitment structure. As such, exploration may influence the strength and content of commitments insofar as it can generate identity-relevant experiences. The importance of experiences in the formation of identity is supported by several theorists (e.g., Bosma & Kunnen, 2001; Grotevant, 1987; Kerpelman et al., 1997; De Ruiter et al., 2017), as well as by empirical studies that stress the importance of emotional experiences in identity development (Vleioras & Bosma, 2005). In fact, emotional experiences often impact changes in commitment more strongly

than acts of exploration do (Van der Gaag et al., 2017). This indicates that while exploration may be an important catalyst for identity development, experiences have a more direct influence on commitments. Indeed, it seems that experiences ultimately have the power to strengthen, weaken, change or integrate commitments.

Let us clarify that, while we stress the importance of experiences in shaping commitments, we are not suggesting that exploration is unimportant. Exploring means that the individual is actively *seeking* self-relevant information from the environment (Grotevant, 1987). As such, they are thus more likely to encounter identity-relevant experiences and to connect these to their sense of identity. Thus, experiences that result from exploratory behavior are likely to have a larger impact on a commitment than an experience that was not sought out. This highlights how exploratory behavior can be an important catalyst for identity development (in line with Marcia's (1966) classic ideas about identity development).

As such, identity development may best be seen as a continuous dynamic interplay between experiences, exploration, commitment content, and commitment strength. Moreover, this interplay can be reciprocal. While exploration can generate identity-relevant experiences, experiences may also trigger the individual to (further) explore. For example, an experience of dissatisfaction with one's current work situation may push them to explore ways of coping with their dissatisfaction or for more agreeable alternatives. Such a search generates new experiences which then reshape commitments; for example, weakening commitment to the current employer or forming a new commitment to a different career.

Thus we view experiences as the mechanism through which exploration affects the current identity structure. When exploration is successful, it generates identity-relevant experiences, which may leave traces on the current identity structure: a commitment that has changed in content, or in strength, or that has become integrated with another commitment. This also means that we can expect to see the effects of successful past exploration by only looking at the current structure of identity. Theoretically, therefore, it should be possible to distinguish between the four identity statuses based on differences in current identity structure, without having to rely on knowledge of past exploration behavior.

In the next two sections, we elaborate on this line of reasoning by first introducing our landscape of identity model, which explains our assumptions regarding the various types of identity structures and how they develop (building on the preliminary model by Van der Gaag et al., 2020). Second, we apply the identity landscape model to Marcia's identity statuses and sketch four different types of identity landscapes.[1] As we shall show, this leads to novel predictions on how individuals with different types of identity landscapes will respond to major life experiences.

The landscape of identity model

The landscape of identity model draws upon complex dynamic systems principles to conceptualize how qualitative and quantitative characteristics of identity come together in a dynamic structure. It explains how such a structure interacts with exploration and daily experiences, and how individuals develop unique identity structures over time. A key complex dynamic systems principle that we use in our model is the idea of an "attractor landscape" and the *basin of attraction dynamics* that characterize it (Van Geert, 1994). An attractor landscape has been used to describe the dynamics of change in human systems such as self-esteem (De Ruiter et al., 2017), motor movements (Haken, 1997), meaning making (Kunnen & Bosma, 2000), psychopathology (Lichtwarck-Aschoff & VanGeert, 2004), self-evaluation (Vallacher & Nowak, 2000), and human development in general (Van Geert, 1994). We explicitly incorporate identity characteristics (i.e., qualitative and quantitative) into the features of the attractor landscape, making it a unique *landscape of identity*. Below, we explain how qualitative and quantitative identity characteristics can be described and integrated using the basic mechanics of the general attractor landscape model.

Identity structure as a constellation of commitments

In our landscape model, the constellation of an individual's commitments is depicted as a landscape composed of valleys, see also Figures 1. Each valley represents a separate commitment with different content, a "commitment valley", if we may. The conceptualization of various valleys forming one landscape corresponds with how identity researchers commonly view various commitments from multiple domains as forming one identity (e.g., Bosma, 1985; Goossens, 2001), or how the Dialogical Self Theory views the self as a " . . . multiplicity of I-positions in the landscape of the mind" (Hermans, 2002, p. 147). Our model adds the *dimensions* of the valleys that make up the landscape, and how these dimensions relate to specific dynamics.

Specifically, each valley has a depth, which represents the strength of the commitment, and a width, which represents the level of integration of the content of the commitment. For technical reasons we depict the landscape as a static drawing, but we explicitly conceptualize this landscape to be dynamic, thus the landscape would ideally be shown as a film, in which – over time – valleys emerge, broaden, and disappear again.

The landscape's surface can be seen as the surface of one's potential life experiences. It consists of all potential experiences in all domains of a given individual's life. Areas on the surface that are close together in proximity, are more similar in content. The size of the total surface is person specific, and depends in part on their circumstances. For example, an individual in an environment that facilitates diverse and rich experiences will have a larger surface of potential experiences than an individual in an environment that is restricted and allows for only a limited range of experiences. As will be elaborated later, experiences that have relevance to one's identity – and thus trigger emotions – have the potential to develop into commitment valleys, thus shaping identity commitments and the overall structure of the identity landscape.

Strong commitments as deep valleys in the landscape of identity

The strength of commitments is represented by the depth of the valleys within the identity landscape: the deeper the valley, the stronger the commitment (see for example, Figure 1, valley B and D). This conceptualization is useful because it allows us to think about how behavior and experiences are influenced by (and influence) commitments in a very concrete way. The mechanism of each
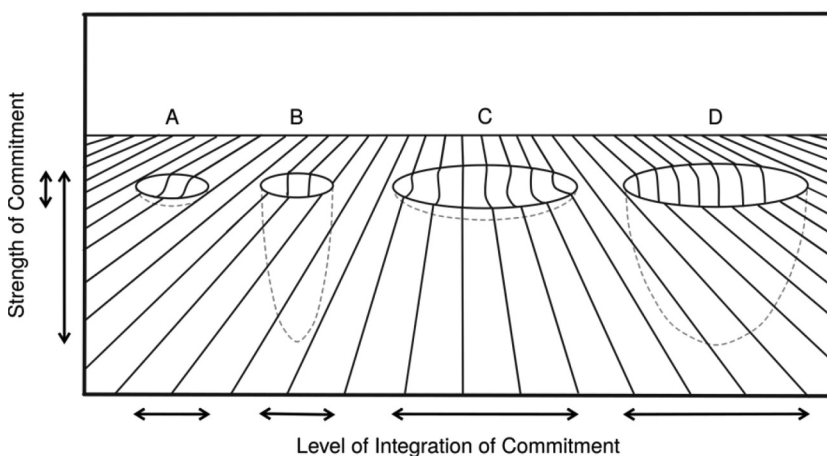
Figure 1. Schematic representation of different types of commitment valleys in the Landscape of Identity. The depth of a valley (y-axis of a valley) represents the commitment's strength (i.e., deep valleys such as B and D are strong commitments), the width of a valley (x and z-axis of a valley) represents its level of integration (i.e., broad valleys such as C and D are highly integrated commitments that encompass rich, yet coherent, content). Figure adapted from *Attractor basins* by M.A.E. van der Gaag, 2018, https://commons.wikimedia.org/wiki/File:Attractor_basins.png Copyright 2018 by CC BY 4.0.

commitment follows the rules of "attractor dynamics" (Van Geert, 1994). This can be compared to the physical properties of a ball rolling in a valley: it is harder for a ball to roll out of a deep valley than a shallow valley. In this metaphor, real-time physical movements of a ball in a physical valley translate to real-time psychological experiences relevant to a commitment, e.g., one's current behavior and thoughts. An individual behaviorally and cognitively "experiences" the respective commitment that they are in, such that thoughts and actions are loosely constrained, and thus coherent with the respective commitment. For example, an individual is "in" a tennis commitment when they are practicing tennis, planning their tennis program, talking to their tennis coach, etc. From this perspective, a deep identity valley – representing a commitment to which an individual is highly dedicated – signifies the strong pull the individual feels to remain behaviorally or cognitively engaged with the respective commitment.

The conceptualization of strong commitments as pulling on an individual's real-time experiences toward the content of that commitment thus directly incorporates the basic idea that individuals are more inclined to engage with aspects of their identity that they are strongly committed to. It further stresses what Waterman (2015) has argued, namely that strong commitments are characterized by the unwillingness of the individual to change them. In our model, such unwillingness may arise from self-reinforcing mechanisms of strong commitments: strong commitments enhance the probability of a real-life experience being in line with the commitment, and these commitment-coherent experiences then further strengthen the commitment (we expand upon the formative role of experiences more in the section *Development of the Identity Landscape as a Process of Explorations and Experiences*).

Highly integrated commitments as broad valleys in the landscape of identity

While the depth of the valleys indicates how *strongly* an individual is pulled to remain engaged with a particular commitment, the width indicates how *pervasive* the commitment is in one's life (see for example, Figure 1, valley C and D). Here too, the physical properties of a valley and a rolling ball help to clarify this mechanism of the commitment valley. A wide valley covers more surface area of a landscape than a narrow one, making it more likely that a ball will roll into that valley. From a process perspective, a wider commitment valley therefore indicates that an individual will have coherent identity-relevant experiences throughout their day-to-day life despite moving between different contexts. A wide commitment valley is thus inherently more complex, in that it integrates more experiences (i.e., physical, relational, or emotional) within an individual's life into a coherent whole.

An example of a wide valley may be the commitment "I want to help people have happy lives". This valley corresponds with a large variety of actions and experiences, and can be fulfilled in qualitatively different ways. As such, the valley is triggered in many contexts: when individuals are at their work as a doctor, or at home when they are talking with their friend or romantic partner. Each context may afford a different interpretation of what it means to "make someone happy", and as a result, many different kinds of experiences all relate to the same abstract commitment. Such a commitment is wider, thus more abstract, than for example, only the commitment to be a doctor because it can be triggered by a relatively larger range of experiences than the relatively narrow subset of "doctor's tasks".

The conceptualization of highly integrated and abstract commitments as wide commitment valleys in the identity landscape has an important implication for the relationship between real-time experiences and the quality of an individual's commitment. As described above, wide commitment valleys integrate many aspects of an individual's life and are thus more likely to be activated in one's daily life than commitments that are represented by narrow valleys. Because of this, our model predicts that an individual will experience more coherence and stability of identity commitments in their day-to-day lives if they have a more integrated commitment, i.e., wider valleys in the identity landscape. In this way, life will often "make sense" to the individual. A large variety of daily experiences will not be experienced as perturbing to the individual, as many of them can be absorbed by the wide, and

abstract, commitment. With "absorbed", we mean that experiences will be interpreted through the lens of that given commitment and thus experienced as coherent.

Furthermore, our model predicts that individuals will experience a narrow commitment valley as a lack of stability and coherence when faced with highly variable daily experiences. This is because the valley only encompasses a small range of life experiences, and anything that falls outside of that narrow commitment valley cannot be absorbed by it. In order to cope, individuals may ignore much conflicting information or limit their exposure to their variable environment in order to avoid commitment-incongruent experiences. Alternatively, these individuals may also acknowledge contradictory information and form new commitment valleys, or broaden existing ones, to accommodate the new experiences.

In summation, the landscape model can help explain how commitments can offer direction to the way individuals experience their lives (Waterman, 2015). As we described above, *deep* commitment valleys offer direction to the daily experiences encountered by an individual by maintaining a pull on those experiences in the direction of that commitment when the commitment is activated (i.e., a ball cannot easily escape a deep valley once it falls into it). In combination with this, *wide* valleys offer direction to future daily experiences by increasing the probability that commitment valleys will be activated in the future (i.e., a ball is more likely to fall into a wide valley than a narrow valley). As such, our model helps to build a bridge between the structure of identity and the process of identity development: how commitments constrain and are formed by daily experiences, thus providing a more in-depth understanding of the role of commitments in our everyday lives. We will elaborate more on this process perspective in the following section.

Development of the identity landscape as a process of explorations and experiences

While the structure of the landscape of identity constrains daily experiences (as described above), the landscape model can also help formulate a developmental perspective on the way that identity structures emerge. To understand this, it is useful to imagine that features of a landscape are not static, but flexible, changing dynamically over time. Much like a geographical landscape, features may stay nearly the same if you were to look at them for one day, but over the course of centuries they would change due to forces such as water, wind or traffic. These forces may entrench existing valleys and or create new valleys. The same principle applies to our identity landscape: stemming from a complex dynamic systems approach, the landscape is an "epigenetic" landscape, meaning that it is malleable and can change in line with experiences (Van Geert, 1994). Thus, while an individual's landscape of identity may seem to stay the same on a timescale of minutes and days, over the course of months and years it can change due to experiences that occur. Such changes are likely to be accelerated by exploration: a period of much exploration is likely to generate many new experiences relevant to the individual's identity, and as a consequence, theindividual's landscape may change rapidly. This makes exploration an important catalyst for identity development, while experiences are the crucial force that shapes the identity landscape.

To understand how experiences may affect the landscape of identity it is necessary to distinguish between experiences that are congruent with existing identity commitments, and those that deviate. Congruent experiences are experiences that are in line with an existing commitment. These are likely to maintain or strengthen the respective commitment further by entrenching the commitment valley, making it deeper (much like walking around in a physical valley further entrenches it).

If an experience deviates from the existing commitments, for example, because it is novel or at odds with an existing commitment, a conflict may be experienced. Individuals can deal with such conflict through *accommodation* and *assimilation* (Bosma & Kunnen, 2001). Bosma and Kunnen described how experiences only feed into commitments if those experiences are accommodated (i.e., the individual allows the experience to change their commitment). They suggested that, when individuals have an experience that does not fit with their identity commitments, they are likely to either ignore or assimilate the experience (assimilation meaning that they change their perception of the event rather

than change their own commitment). If experiences are ignored or assimilated, their landscape of identity will remain unchanged. Therefore, a willingness to accommodate is necessary for experiences to influence an identity. If individuals accommodate experiences, the identity landscape may change in at least four ways.

First, if the individual experiences many different novel things, for example because they are exploring broadly, this may result in the emergence of many new, shallow, commitment valleys that are separate from each other. This may resemble a tapas of commitments that share little inherent or thematic similarities. In this scenario, each commitment valley thus forms a separate spot on the identity landscape, and all of these valleys provide equal potential for the future development of deep commitments.

Second, new experiences can contribute to the widening of existing valleys if the novel experiences are interpreted as being relevant to existing commitment valleys. This stretching of existing commitments to accommodate new experiences is illustrated by the sides of the valley in the landscape being further carved out. This is a more gradual form of identity development, where the individual slowly expands the identity structure without much conflict or crises. This is comparable to what Flum (1994) called "an evolutive style" of identity formation.

Third, new experiences can result in the integration of formerly separate commitment valleys. This may happen when a novel experience involves more than one domain, such that the domains co-occur and become coupled. Broad exploration may be a catalyst for integration if the individual recognizes a common pattern in the various experiences and comes to an integrative conclusion. Take, for example, individuals who explore career options in their transition to higher education. As these individuals explore many different options, their preferences for the different options (e.g., medicine and psychology) may lead them to recognize a pattern and come to an integrative conclusion such as "I think I like social studies". Aside from broad exploration (accompanied by integrative conclusions), another specific form of explorative behavior may be useful for integrative commitment development, namely, exploration of integration. Individuals may experience a conflict between domains, such as being a good parent while also striving to achieve an ambitious career. According to Schachter (2004) individuals may actively engage in seeking a way to deal with such conflicting identity domains, which may lead to the creation of coherence in otherwise incompatible identity domains, for example, "I want to have a good balance between my work and private life so that I can be happy".

And fourth, if a new experience or series of experiences is accompanied by a substantial emotional impact, and if these experiences are too incongruent with the existing identity structure for the experiences to be absorbed or integrated, it may result in a complete upheaval of the identity landscape. Think, for example, of a wealthy individual who loses a partner, job and housing, and finds themself sleeping alone under a bridge, wondering what life may still have to offer. The preexisting valleys in the landscape may disappear completely if they can not be used or adapted to make sense of their new life. Over time, new valleys are likely to emerge, which may either resemble old ones or may be completely different. For example, the person may join the Salvation Army, which may result in the formation of a new "life purpose" defined by helping people who suffered from a comparable crisis.

The above scenarios highlight that experiences can impact identity development in various ways, and in fact, they may not impact identity development at all (e.g., in the case of assimilation). This relates back to the importance of exploration behavior (as opposed to experiences that were not sought out). An individual is probably more likely to accommodate new experiences if the experiences are the result of active exploration, as exploration suggests a preliminary willingness to change. In addition to whether the experience is the result of exploration, we suggest that the *weight* of the experience may also matter: much like how trampling heavily in a valley can be expected to have more of an impact on the valley than walking carefully, our model suggests that experiences that have more weight will have a larger impact on someone's identity development than an experience will little weight. This is supported by findings showing that the more emotionally intense an experience is, the more likely it is to affect the strength of an individual's commitment (Van der Gaag et al., 2017).

In summation, in shedding light on how the process of exploration and experiences is related to characteristics of identity commitments (both qualitative and quantitative), our model clarifies a number

of key points regarding identity development. First, it points to identity-related experiences as the mechanism that underlies how exploration shapes commitments suggesting that exploration is indeed helpful to shape commitments, but not a nessecity. Second, it shows how the nature of our experiences (e. g., emotionality) and the way we deal with these experiences (assimilation, accommodation) shapes of identity structures. And third, it explains how different types of identity structures (through the width and depth of commitment valleys) constrain day-to-day experiences in different ways.

Hypothesized landscapes of the identity statuses

We have used the landscape of identity model to bring a fresh perspective to Marcia's status model of identity and to elaborate on it. Our landscape model makes a clear distinction between the structure and process of identity and expands both with qualitative elements. In our model, the *structure* of an identity commitment is characterized by its strength (i.e., depth) as well as the integration of its content (i.e., width). The *process* of identity development consists of identity-relevant experiences, which may be elicited by the act of exploring. Furthermore, our model explains how this structure and process shape each other. This distinction between structure and process invites us to think about Marcia's identity statuses in a new way: can we conceptualize the statuses as structurally different identity landscapes, using the current identity structure alone?

Traditionally, we would have to know of past exploration behavior in order to recognize an identity status. Here, we have proposed that if the exploration led to accommodation of experiences (i.e., "successful" exploration), then the past exploration behavior should have left traces in the current identity structure. Our model suggests that these traces are typically broader commitment valleys (i.e., varied content has been integrated into one coherent whole, making it rich and abstract). This means that we can characterize an identity status by the commitment strength as the first dimension, like Marcia did. With regards to the second dimension, we can use the level of integration of commitments rather than a description of a process (i.e., exploration). As such, qualitative properties of identity structures can be placed in the foreground, and less emphasis is put on past exploration as an inherent property of identity. Instead, we include exploration as an important catalyst of the process of identity development and we add experiences as the main drive behind this process.

Note that having a high "level of integration" of commitments is not necessarily the same thing as having explored a lot in the past. Our model assumes that highly integrated, rich identity commitments emerge because an individual has had many meaningful and varied experiences in the past. Exploration is likely to facilitate such experiences, but it is important to note that these experiences can also occur without exploration. Therefore, our model suggests that rich, highly integrated identity commitments can also emerge without any past exploration.

There are both methodological and theoretical advantages of being able to rely on someone's current identity structure in order to assess their identity status (rather than looking retrospectively into past exploration behavior). Methodologically, measuring a current state may be more reliable than retrospective information about one's past behavior. Theoretically, relying on the current structure of identity avoids some important problems that emerge when relying on exploration to characterize an identity status. One important problem is that it may not be the act of exploration itself that results in commitment being broad and rich, qualities that Marcia described as characteristic for "achieved" individuals (Marcia, 1993). As we have argued, only exploration behaviors that result in identity-relevant experiences have an impact on identity development, and these experiences may also occur without exploration preceding it. Furthermore, not all types of exploration will lead to identity development. Indeed, Meeus et al. describe identity trajectories that run from an exploration phase to a closure phase, such that no further richness or maturity of commitments is developed. Moreover, studies have found that some forms of intense exploration are "unsuccessful". In particular, ruminative exploration (i.e., where the individual gets stuck in the act of exploration without coming to any meaningful new conclusions) is not likely to result in identity development (that is, not likely to form self-determined commitments; Luyckx et al., 2014).

Thus it may be fruitful to try to characterize identity statuses in a different way, without relying on knowledge of past exploration, but rather relying on the properties of an individual's current identity landscape. Below we develop this line of reasoning further and describe what Marcia's identity statuses would look like if we consider them to be identity landscapes, characterized by the strength and level of integration of commitments.

Foreclosed identity landscape

The foreclosed identity landscape consists of narrow but deep commitment valleys (Figure 2, box A). This corresponds with the classic description of an individual in a foreclosed status who has considered few identity options in the past, perhaps has adopted the identity commitments from a relative, and will not easily consider other options (Marcia, 1993). From our landscape model, this means that there has been a lack of novel identity-related experiences in the past, perhaps because of little exploration or because the environment does not afford novel identity-relevant experiences. As a consequence the commitments have a low level of integration and are narrowly defined.

The depth of the valleys represents the difficulty to engage with information or act in ways that are incoherent with the identity commitment (i.e., to move "out" of the commitment, just as it is difficult to remove a ball from a deep physical valley). Deep valleys may also make it unlikely for the foreclosed
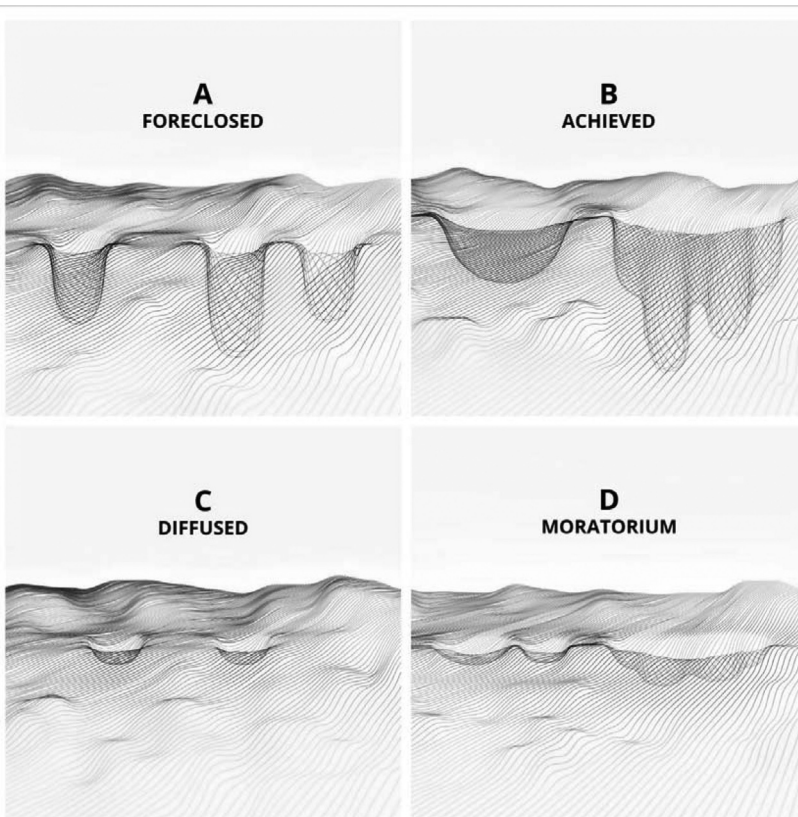
Figure 2. Marcia's four identity statuses as hypothetical identity landscapes. There is one prototypical example for each of the landscape types: the foreclosed landscape in box A, the achieved landscape in box B, the diffused landscape in box C and the moratorium landscape in box D. On the X-axis is the level of integration of commitment: the broader the valley(s), the more integrated the commitment(s). On the y-axis is the strength of the commitment: the deeper the valley(s), the stronger the commitment(s). Note that each of these representations is a "snapshot" of one individual's dynamic landscape. The features may demonstrate continuous change.

individual to explore broadly, that is, to actively search for novel experiences, as the pull of the existing commitments is too strong. The characteristic "deep valleys" of an individual with a foreclosed status have resulted from primarily confirming existing information rather than exploring new information. As such, the existing commitment valley is repeatedly entrenched. This is in line with the finding that individuals with a foreclosed status tend to value relatively stable contextual factors such as convention, tradition and the opinion of valued others such as parents and that they are more likely to maintain their identities in spite of changing life conditions (Carlsson et al., 2015; McLean & Pratt, 2006).

Together, the deep and narrow features of the foreclosed individual's commitment valleys result in the experience of being strongly constrained to a narrow set of interpretations. This may lead the individual to have a narrow self- and worldview, which works well as long as they remain in contexts where these views are supported. However, if the individual were to experience a sudden and dramatic shift in their life that forces them into new territory (i.e. a perturbation from the "comfortable" position of the deep commitment valley), they would subsequently be left with a lack of clarity and coherence of experiences (similar to an individual with the diffused identity status, described later). Referring back to the landscape, this lack of clarity or coherence is illustrated by the ball moving around on the vast amount of previously untouched surface in the identity landscape. Because there are few valleys there is a relatively low probability that the ball will fall into a valley, thus allowing the ball to roll in many directions. Thus, the foreclosed status offers stability as long as the environment remains inline with the individual's current identity, or can be adjusted as such. In general, therefore, these individuals will be less capable of incorporating large life changes into their narrowly defined identity, and thus more likely to experience a large crisis if they are sufficiently perturbed.

Achieved identity landscape

An individual with an achieved identity landscape has wide and deep commitment valleys (Figure 2, box B). This corresponds with the description of individuals in an achieved status as having mature commitments that are synthesized (Marcia, 1993). Regarding the width of the valleys, many past identity-relevant experiences, which may have been facilitated by exploration, have allowed the individual to integrate information into coherent, broad commitments. Regarding the depth of the valleys, the individual has had many experiences that are in line with these broad commitments, such that they became reinforced and strong over time. As such, this kind of identity landscape offers a high degree of stability in the face of daily experiences. Because of this, it is relatively difficult for life events to perturb an achieved-status individual from current commitments. The individual can interpret a high variety of events or information as consistent with their identity, due to the width of commitment valleys. If, for example, a change occurs in the life of an achieved-landscape individual, they are more capable of making sense of the event (i.e., absorbing it into the wide commitment valley) without having to change much about their identity. This means that the subjective experience of daily events, and thus also the landscape, of the achieved individual are relatively stable.

When compared to an individual with a foreclosed landscape, the individual with an achieved landscape would be less likely to experience a crisis after intense life experiences. Whereas the foreclosed landscape provides few opportunities for constraint after being perturbed out of a deep valley (i.e., the foreclosed individual moves in many directions around the vast untouched surface area), the achieved landscape provides more opportunities for constraint after being perturbed (i.e., more of the surface area is part of a commitment valley). Moreover, an individual with an achieved landscape is more able to accommodate new information or experiences into an existing commitment than a foreclosed-landscape individual can. This is because it is easier to fit information into an already broadly defined and abstract commitment than a narrowly defined and concrete commitment. This is in line with research showing that evaluative integration of the self (where distinct self-beliefs are joined and brought into the same "self" aspect – similar to the more abstract and integrated commitments of achieved individuals) is associated with more stable self-esteem (Zeigler-Hill & Showers,

2007). Thus, while an achieved-landscape individual and foreclosed-landscape individual may experience the same sense of stability in the absence of perturbations (i.e. no aversive life events occur, for example), their experiences and likelihood of crisis become distinct when an intense life event does occur: an achieved individual can more easily handle the experience of being perturbed than a foreclosed individual.

Diffused identity landscape

An individual with a diffused identity landscape has few commitment valleys, which are both narrow and shallow (Figure 2, box C). This corresponds to the classic description of individuals in a diffused status as being unengaged with the process of exploration or self-reflection, and for whom behavior is not directed by clear principles and motives, but rather by immediate environmental cues (Marcia, 1993). The lack of exploration (Marcia, 1966) and meaning making (McLean & Pratt, 2006) is likely to result in few experiences that can be related to a sense of identity, which in turn results in an undefined identity landscape, with little coherent content. Much like a ball rolling over a landscape with only a few shallow valleys would be characterized by a lot of undirected movement around the landscape, an individual's experiences would be very weakly constrained by the landscape, offering little stability.

Our prediction that diffused individuals will likely experience a lack of stability is supported by the finding that lower *self-concept clarity* (i.e., lack of a clear – integrated, consistent, or certain – sense of self; similar to a diffused landscape) is associated with higher levels of temporal variability of self-esteem (Nezlek & Plesko, 2001; Wong et al., 2014) and abrupt shifts in self-esteem (Wong et al., 2016). This experience is similar to the easily perturbed experience of a diffused individual. Furthermore, this lack of stability has indeed been understood as an indication of shallow valleys in an attractor landscape, as they provide less stability to an individual's thoughts, feelings, and actions (Wong et al., 2016).

For individuals with a diffused identity landscape, this lack of stability means that even a small perturbation can be expected to remove the individual from their shallow commitment valleys. As such, we can expect these individuals to frequently experience a low sense of coherence, and instead, have highly variable experiences. This also means that a very intense life event can produce, in principle, similar effects on the individual as a relatively mild life event – the individual will be perturbed, rolling around an undefined landscape. Note, however, that high variability of experiences and a lack of coherence need not necessarily be experienced as negative. Or informally stated, they can easily switch from being one person to being another. This is because the perturbations that occur will be experienced as relatively small, given the shallow commitment valleys. Moreover, if an individual is used to the high variability of identity-relevant experiences, it may not be felt as turbulent. This may be the case for carefree diffused individuals (Luyckx et al., 2011).

Moratorium identity landscape

An individual with a moratorium identity landscape has many identity-relevant experiences that lead to a frequently changing landscape with many shallow commitment valleys, that may be broad or narrow (Figure 2, box D). This corresponds with the classic description of individuals in a moratorium status as experiencing a turbulent time in their search for new commitments, but are as yet unable to settle on any specific commitments. As a result, they juggle many potential commitments and display many interests (Marcia, 1993). Because of this juggling of many new experiences, the landscape is highly dynamic, as shallow valleys are continuously emerging and disappearing. Broad valleys are likely to emerge, because novel experiences may push existing commitments to become richer in integrated content, and may increase the chance that two commitments become integrated because they co-occur in one experience. Notably, because the landscape of identity model stresses the importance of *experiences*, we suggest that a moratorium identity landscape may be present even in

the absence of explicit exploration. This may be the case if, for example, the individual's environment offers rich and varied identity-relevant experiences.

It is easy for life events to perturb a moratorium-landscape individual from current commitments (given that the commitment valleys are shallow). After being perturbed out of a commitment valley, such an individual easily rolls into a new valley and this makes the experience of one's own identity highly variable. Indeed, this continuous switching between different identity commitments may be a confusing and uncomfortable experience, which is in line with findings that show that a moratorium state is related to different types of ill-being (Meeus, 2011) and with findings in self-esteem literature, where individuals who have lower self-concept clarity also tend to show higher levels of temporal variability of self-esteem (Nezlek & Plesko, 2001 ; Wong et al., 2014) and more abrupt shifts in self-esteem (Wong et al., 2016). Here, low self-concept clarity is similar to having many different identity commitments, and temporal variability and abrupt shifts is similar to the experience of moving from one commitment to the other. A moratorium landscape is thus similar to a diffused landscape in the sense that it offers little stability, but it is different in the sense that it contains more commitment valleys, and broader valleys, thus laying the groundwork for future development into an achieved identity landscape.

Discussion

In this article we propose a landscape of identity model, which characterizes an individual's identity commitments as a dynamic landscape consisting of valleys: "commitment valleys". Each commitment valley is characterized by the content to which the individual is committed and by two dimensions: the width and depth of the valley. The width represents the level of integration of the commitment content (i.e., how abstract and rich the content is), and the depth represents the strength of the commitment to that content. Each commitment valley thus combines qualitative aspects of identity (i.e., content and integration of identity commitments) and quantitative aspects of identity (i.e., strength of identity commitments).

Our model draws upon complex dynamic systems principles (and specifically, basin of attractor dynamics) to describe the reciprocal relationship between identity and everyday life-experiences and behavior. In the landscape of identity, wide commitment valleys (i.e., highly integrated commitments that are rich in content) are in line with a large variety of experiences and a wide range of behavior. Deep commitment valleys strongly constrain experiences and behavior, making future experiences and behavior more likely to be in line with the commitment. The landscape not only shapes, but is also shaped by, experiences and behavior. Experiences may widen and deepen commitment valleys, depending on their nature and how they are processed, while exploratory behavior may be an important catalyst that elicits identity-relevant experiences. As such, our model bridges the concept of commitments with daily experiences and behavior and thus contributes to the clarification of what identity truly is.

How the landscape model of identity contributes to identity theory

Our integrative model makes several key contributions to the conceptualization of identity and its development. First, our account of identity as being characterized by commitment valleys, each with its unique width (i.e., level of integration) and depth (i.e., strength of commitment), provides a way for researchers to conceptualize characteristics of identity from a holistic perspective that integrates important qualitative and quantitative dimensions of identity.

Second, our model helps to develop an understanding of the processes underlying identity development. In short, our model describes how identity-relevant experiences that are in line with existing commitments can deepen commitment valleys, and how novel identity-relevant experiences can stretch existing identity commitments gradually (i.e., broadening the commitment valley), integrate different identity commitments together (i.e., thus also resulting in a broader commitment valley), or

form new commitments (i.e., digging a new valley). We describe how daily experiences, therefore, are the key to identity development. With experiences being so pivotal in our model, we suggest that exploration itself may not necessarily underlie identity development, but instead, that it is a powerful catalyst for eliciting meaningful identity-related experiences.

Third, with the above processes and holistic perspective highlighted, our model helps clarify and expand Marcia's identity status theory, providing insight in how Marcia's identity statuses develop and how they relate to day-to-day experiences and perturbations. Our landscape model predicts that successful past exploration (that is, exploration that has led to accommodation of novel experiences) can be seen in an individual's current identity structure, by producing wider commitments. This has allowed us to explore what Marcia's statuses would look like if we conceptualize them as different types of identity landscapes, and formulate predictions on how individuals with these different types of landscapes would respond differently to intense life experiences.

Limitations and future directions

The notion of identity integration is a crucial aspect of our model. While we introduce this aspect of commitments as being "qualitative", we often refer to this qualitative characteristic as being quantifiable (i.e., the *level* of integration). While this might seem like a contradiction, we want to stress that the *content* of an identity commitment is the foundation of integration. As such, "integration" ultimately refers to the relationship between content elements – and is, in our view, therefore a *quality* of identity: higher levels of integration are coherent structures of simpler elements. Moreover, by considering the level of integration of a commitment to be a range (rather than a qualitative distinction between "integrated" and "not integrated"), it becomes possible to communicate more concretely about where someone falls on the range. This is important because we believe that an important direction for future research is to operationalize the dimensions in our model (i.e., width and depth) of identity commitments in a measurement instrument so that we can test key hypotheses generated by our model.

Future research can test the model by examining the predictions that we outline. For example, one could study whether it is true that a high level of identity integration is indeed related to a high amount of meaningful past identity experiences, and whether it can indeed predict a lower level of anxiety and uncertainty in the face of perturbing life events. The latter is especially useful for understanding why identity development is a smooth and rewarding process for some individuals, while others experience severe anxiety and identity distress (Berman & Montgomery, 2014), which will ultimately allow us to better intervene in problematic trajectories of identity development.

Regarding the development of measurement instruments for the concept of "commitment integration", some potentially useful qualitative methods may provide a promising start. Firstly, the Groningen Identity Development Scale (GIDS-r; Bosma et al., 2012) includes a section in which interviewees are asked about the integration of their commitments in different domains, which can be expanded to include measures of the level of integration. Secondly, Kunnen (2009) described a coding system that includes the complexity in commitments, which closely resembles our concept of the level of integration of commitments. In addition, theories and research into cognitive complexity or complexity in self-esteem (Harter, 1986), may offer techniques that can be used to assess commitment integration. Such approaches would measure integration as a structural aspect of identity. We suggest that such an approach should involve the investigation of how everyday life experiences, behaviors or decisions relate to an individual's identity commitments. This information can shed lights on how pervasive the commitment is in everyday life (i.e., an important aspect of "wide" commitment valleys). This can be assessed using diary studies, interviews, or a combination of both.

Aside from the abovementioned suggestions for future empirical research, our model also calls for more fundamental theoretical research on identity. One important question that should be investigated is whether the level of integration of commitments is an objective characteristic of identity or a subjective one. It seems likely that the same integration of elements may be experienced by one person as extremely "abstract" and by another as "concrete", depending on the person's developmental

history. If integration is indeed subjective, the difference between wide (highly integrated) and narrow (less integrated) commitments may be one that can only be captured at a within-individual level.

Another interesting avenue for future theoretical research is to outline the role of different types of exploration in shaping the landscape of identity. In this paper we refer to the concept of exploration as a unitary concept, for the sake of simplicity. Yet, multiple types of exploration have been identified (Crocetti et al., 2008; Luyckx et al., 2006). In this paper we mostly describe the effects of broad exploration (particularly in the section of hypothesized landscapes of the identity statuses): broad exploration is likely to generate novel identity-relevant experiences and consequently affects the width of commitment valleys, that is, it affects the richness and level of integration of commitment content. However, other forms of exploration may also affect the landscape of identity in important ways. For example, in-depth exploration may mainly affect the depth of commitment valleys, thus the commitment strength. This is because it pertains to the active investigation of *existing* commitments, and affirming or contradicting them depending on the experience that follows, which alters the depth of a commitment valley. It would be interesting if future research would further investigate the role of different types of exploration in shaping the landscape of identity.

Conclusion

In conclusion, this article presents a landscape model of identity that integrates many different key concepts of identity literature. As such, the model provides a holistic and integrative framework for generating hypotheses and measurement instruments. Moreover, it deepens our understanding of crucial theoretical concepts of identity by describing how they intersect and develop. We hope that, in combining different lines of research on identity into one model, we have clarified some of the vagueness and fragmentation surrounding the concept of identity and that this clarification may help to move the field forward.

Note

1. For an application of the landscape model to a life-span development perspective we refer to Van der Gaag et al. (2020) where a preliminary version of the landscape model was introduced.

Disclosure statement

No potential conflict of interest was reported by the authors.

References

Adler, J. M., Lodi-Smith, J., Philippe, F. L., & Houle, I. (2016). The incremental validity of narrative identity in predicting well-being: A review of the field and recommendations for the future. *Personality and Social Psychology Review*, *20*(2), 142–175. https://doi.org/10.1177/1088868315585068

Berman, S. L., & Montgomery, M. J. (2014). Problematic Identity Processes: The Role of Identity Distress. Identity. *An International Journal of Theory and Research*,*14*(4), 241–245. https://doi-org.proxy-ub.rug.nl/10.1080/15283488.2014.944700

Bosma, H. A. (1985). *Identity development in adolescence. Coping with commitments*. University of Groningen.

Bosma, H. A. (1992). Identity in adolescence: Managing commitments. In G. R. Adams, T. P. Gullotta, & R. Montemayor (Eds.), *Adolescent identity formation* (pp. 91–121). Sage Publications.

Bosma, H. A., & Kunnen, E. S. (2001). Determinants and mechanisms in ego identity development: A review and synthesis. *Developmental Review*, *21*(1), 39–66. https://doi.org/10.1006/drev.2000.0514

Bosma, H. A., Kunnen, E. S., & Van der Gaag, M. A. E. (2012). *Groningen Identity Development Scale revised (GIDS-r)*. University of Groningen.

Carlsson, J. (2015). *Evolving identities: Contents and processes of identity development among people in their late twenties* [Doctoral dissertation at The University of Gothenburg].

Carlsson, J., Wängqvist, M., & Frisén, A. (2015). Identity development in the late twenties: A never ending story. *Developmental Psychology*, *51*(3), 334–345. https://doi.org/10.1037/a0038745.supp

Côté, J. E. (2015). Identity formation research from a critical perspective: Is a social science developing? In K. C. McLean & M. Syed (Eds.), *The Oxford handbook of identity development* (pp. 562–573). Oxford University Press.

Crocetti, E., Rubini, M., & Meeus, W. (2008). Capturing the dynamics of identity formation in various ethnic groups: Development and validation of a three-dimensional model. *Journal of Adolescence*, *31*(2), 207–222. https://doi.org/10.1016/j.adolescence.2007.09.002

De Ruiter, N. M. P., Van Geert, P. L. C., & Kunnen, E. S. (2017). Explaining the "how" of self-esteem development: The self-organizing self-esteem model. *Review of General Psychology*, *21*(1), 49–68. https://doi.org/10.1037/gpr0000099

Erikson, E. H. (1956). The problem of ego identity. *Journal of the American Psychoanalytic Association*, *4*(1), 56–121. https://doi.org/10.1177/000306515600400104

Flum, H. (1994). The evolutive style of identity formation. *Journal of Youth and Adolescence*, *23*(4), 489–498. https://doi.org/10.1007/BF01538041

Galliher, R. V., McLean, K. C., & Syed, M. (2017). An integrated developmental model for studying identity content in context. *Developmental Psychology*, *53*(11), 2011–2022. https://doi.org/10.1037/dev0000299

Goossens, L. (2001). Global versus domain-specific statuses in identity research: A comparison of two self-report measures. *Journal of Adolescence*, *24*(6), 681–699. https://doi.org/10.1006/jado.2001.0438

Grotevant, H. D. (1987). Toward a process model of identity formation. *Journal of Adolescent Research*, *2*(3), 203–222. https://doi.org/10.1177/074355488723003

Haken, H. (1997). Visions of synergetics. *Journal of the Franklin Institute*, *334*(5–6), 759–792. https://doi.org/10.1016/S0016-0032(97)00032-X

Harter, S. (1986). Cognitive-developmental processes in the integration of concepts about emotions and the self. *Social Cognition*, *4*(2), 119–151. https://doi.org/10.1521/soco.1986.4.2.119

Hermans, H. J. M. (2002). The dialogical self: One person, different stories. In Y. Kashima, M. Foddy, & M. J. Platow (Eds.), *Self and identity: Personal, social, and symbolic* (pp. 71–99). Lawrence Erlbaum Associates.

ISRI. (2020). *Conference archive.* http://identityisri.org/conference-archive/

Josselson, R. (1996). *Revising Herself: The Story of Women's Identity from College to Midlife.* New York: Oxford University Press

Kerpelman, J. L., Pittman, J. F., & Lamke, L. K. (1997). Toward a microprocess perspective on adolescent identity development: An identity control theory approach. *Journal of Adolescent Research*, *12*(3), 325–346. https://doi.org/10.1177/0743554897123002

Klimstra, T. A., Luyckx, K., Hale, W. A., Frijns, T., VanLier, P. A. C., & Meeus, W. H. J. (2010). Short-term fluctuations in identity: Introducing a micro-level approach to identity formation. *Journal of Personality and Social Psychology*, *99*(1), 191–202. https://doi.org/10.1037/a0019584

Kunnen, E. S. (2009). Qualitative and quantitative aspects of commitment development in psychology students. *Journal of Adolescence*, *32*(3), 567–584. https://doi.org/10.1016/j.adolescence.2008.06.002

Kunnen, E. S., & Bosma, H. A. (2000). Development of meaning making: A dynamic systems approach. *New Ideas in Psychology*, *18*(1), 57–82. https://doi.org/10.1016/S0732-118X(99)00037-9

Kunnen, E. S., & Bosma, H. A. (2003). Fischer's Skill Theory Applied to Identity Development: A Response to Kroger. *Identity*,*3*(3), 247–270. https://doi.org/10.1207/S1532706XID0303_05 3 doi:10.1207/S1532706XID0303_05

Lichtwarck-Aschoff, A., & VanGeert, P. L. C. (2004). A dynamic systems perspective on social cognition, problematic behaviour, and intervention in adolescence. *European Journal of Developmental Psychology*, *1*(4), 399–411. https://doi.org/10.1080/17405620444000157

Luyckx, K., Schwartz, S. J., Goossens, L., Beyers, W., & Missotten, L. (2011). Processes of personal identity formation and evaluation. In S. J. Schwartz, K. Luyckx, & V. L. Vignoles (Eds.), *Handbook of identity theory and research* (pp. 76–98). Springer.

Luyckx, K., Goossens, L., Soenens, B., & Beyers, W. (2006). Unpacking commitment and exploration: Preliminary validation of an integrative model of late adolescent identity formation. *Journal of Adolescence*, *29*(3), 361–378. https://doi.org/10.1016/j.adolescence.2005.03.008

Luyckx, K., Schwartz, S. J., Berzonsky, M. D., Soenens, B., Vansteenkiste, M., Smits, I., & Goossens, L. (2008). Capturing ruminative exploration: Extending the four-dimensional model of identity formation in late adolescence. *Journal of Research in Personality*, *42*(1), 58–82. https://doi.org/10.1016/j.jrp.2007.04.004

Luyckx, K., Teppers, E., Klimstra, T. A., & Rassart, J. (2014). Identity processes and personality traits and types in adolescence: Directionality of effects and developmental trajectories. *Developmental Psychology*, *50*(8), 2144–2153. https://doi.org/10.1037/a0037256

Marcia, J. E. (1966). Development and validation of ego-identity status. *Journal of Personality and Social Psychology*, *3*(5), 551. https://doi.org/10.1037/h0023281

Marcia, J. E. (1993). The status of the statuses: Research review. In J. E. Marcia, A. S. Waterman, D. R. Matteson, S. L. Archer, & J. L. Orlofsky (Eds.), *Ego identity: A handbook for psychosocial research* (pp. 22–41). Springer Verlag.

Marcia, J. E., Waterman, A. S., Matteson, D. R., Archer, S. L., & Orlofsky, J. L. (1993). *Ego Identity: A handbook for psychosocial research.* Springer Verlag.

McAdams, D. P., & West, S. G. (1997). Introduction: Personality Psychology and the Case Study. *Journal of Personality*,*65*(4). https://doi.org/10.1111/j.1467-6494.1997.tb00533.x

McLean, K. C., & Pratt, M. W. (2006). Life's little (and big) lessons: Identity statuses and meaning-making in the turning point narratives of emerging adults. *Developmental Psychology*, *42*(4), 714–722. https://doi.org/10.1037/0012-1649.42.4.714

McLean, K. C., Syed, M., Yoder, A., & Greenhoot, A. F. (2016). The role of domain content in understanding identity development processes. *Journal of Research on Adolescence*, *26*(1), 60–75. https://doi.org/10.1111/jora.12169

McLean, K. C., Syed, M., Yoder, A., & Greenhoot, A. F. (2016). The Role of Domain Content in Understanding Identity Development Processes. *Journal of Research on Adolescence*,*26*(1), 60–75. https://doi.org/10.1111/jora.12169 1 doi:10.1111/jora.2016.26.issue-1

Meeus, W. (2011). The study of adolescent identity formation 2000–2010: A review of longitudinal research: ADOLESCENT IDENTITY 2000–2010. *Journal of Research on Adolescence*, *21*(1), 75–94. https://doi.org/10.1111/j.1532-7795.2010.00716.x

Nezlek, J. B., & Plesko, R. M. (2001). Day-to-day relationships among self-concept clarity, self-esteem, daily events, and mood. *Personality and Social Psychology Bulletin*, 27(2), 201–211. https://doi.org/10.1177/0146167201272006

Schachter, E. P. (2004). Identity configurations: A new perspective on identity formation in contemporary society. *Journal of Personality*, *72*(1), 167–200. https://doi.org/10.1111/j.0022-3506.2004.00260.x

Syed, M., & McLean, K. C. (2016). Understanding identity integration: Theoretical, methodological, and applied issues. *Journal of Adolescence*, *47*, 109–118. https://doi.org/10.1016/j.adolescence.2015.09.005

Vallacher, R. R., & Nowak, A. (2000). Landscapes of self-reflection: Mapping the peaks and valleys of personal assessment. In A. Tesser, B. R. Felson, & J. M. Suls (Eds.), *Psychological Perspectives on Self and Identity* (pp. 35–65). American Psychological Association.

Van der Gaag, M. A. E., De Ruiter, N. M. P., Kunnen, E. S., & Bosma, H. A. (2020). The landscape of identity: Integrating commitment strength and quality within a developmental framework. In M. F. Mascolo & T. R. Bidell (Eds.), *Handbook of Integrative Psychological Development* (pp. 357–372). Taylor & Francis.

Van der Gaag, M. A. E., Albers, C. J., & Kunnen, E. S. (2017). Micro-level mechanisms of identity development: The role of emotional experiences in commitment development.. *Developmental Psychology*, *53*(11), 2205–2217. https://doi.org/10.1037/dev0000336

Van der Gaag, M. A. E., de Ruiter, N. M. P., & Kunnen, E. S. (2016). Micro-level processes of identity development: Intra-individual relations between commitment and exploration. *Journal of Adolescence*, *47*, 38–47. https://doi.org/10.1016/j.adolescence.2015.11.007

Van der Gaag, M.A.E. (2018). Attractor basins [Figure]. Retrieved from https://commons.wikimedia.org/wiki/File:Attractor_basins.png

Van Geert, P. (1994). *Dynamic systems of development: Change between complexity and chaos*. Harvester Wheatsheaf.

Vleioras, G., & Bosma, H. A. (2005). Predicting change in relational identity commitments: Exploration and emotions. *Identity*, *5*(1), 35–56. https://doi.org/10.1207/s1532706xid0501_3

Waterman, A. S. (2015). What does it mean to engage in identity exploration and to hold identity commitments? A methodological critique of multidimensional measures for the study of identity processes. *Identity*, *15*(4), 309–349. https://doi.org/10.1080/15283488.2015.1089403

Wong, A. E., Vallacher, R. R., & Nowak, A. (2014). Fractal dynamics in self-evaluation reveal self-concept clarity. *Nonlinear Dynamics, Psychology, and Life Sciences*, *18*(4), 349–369. https://doi.org/10.1016/S0163-6383(02)00140-6

Wong, A. E., Vallacher, R. R., & Nowak, A. (2016). Intrinsic dynamics of state self-esteem: The role of self-concept clarity. *Personality and Individual Differences*, *100*, 167–172. https://doi.org/10.1016/j.paid.2016.05.024

Zeigler-Hill, V., & Showers, C. (2007). Self-structure and self-esteem stability: The hidden vulnerability of compartmentalization. *Personality & Social Psychology Bulletin*, *33*(2), 143–159. https://doi.org/10.1177/0146167206294872

Zimmermann, G., Lannegrand-Willems, L., Safont-Mottay, C., & Cannard, C. (2015). Testing new identity models and processes in French-speaking adolescents and emerging adults students. *Journal of Youth and Adolescence*, *44*(1), 127–141. https://doi.org/10.1007/s10964-013-0005-7