

The Relations Between Identity Developmental Processes, Study Habits, and Academic
Performance

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ABSTRACT

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Marisa Leuzzi

Adolescence is a time when young people focus their attention on setting and pursuing long-term goals. Contemporary approaches of identity development focus on three pivotal processes underlying the identity formation process and the maintenance of one's identity (e.g., core values, etc.). These processes are commitment (commitments to a goal), in-depth exploration (exploration of choices and options), and reconsideration of commitment (feelings of uncertainty about current commitments). The primary purpose of the current study was to examine the relations between identity processes, study habits, and academic performance in 45 female undergraduate students (M age = 21.00). Utilizing a self-report measure, findings suggested a significant positive relation between educational and relational commitment, as well as reconsideration of commitments in the educational domain and reconsideration of commitments in the relational domain. In terms of identity processes and grades, a regression analysis revealed that educational reconsideration of commitments predicted academic performance. Further, for those employing poor study habit skills, educational reconsideration of commitment predicted academic performance. The present study offers insight on the importance of assessing adolescent's uncertainty of educational and relational commitments, while also highlighting the protective factor of maintaining good study habit strategies.

Keywords: identity processes, educational, relational, commitments, study habits, adolescence, academic performance.

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The Relations Between Identity Developmental Processes, Study Habits, and Academic Performance

Overview

Identity development is considered a pivotal process that takes center stage throughout adolescence (Adams & Marshall, 1996; Erikson 1963; Marcia, 1980). Successful identity development is proposed to result in the formation of a stable sense of self through the process of exploring options, having self-awareness, and making commitments to core values and goals (Erikson 1963; Marcia, 1980). Research shows that adolescent psychological wellbeing and functioning is associated with a stable identity (e.g., active exploration of choices followed by commitment to choices; Karas & Ciecuch, 2018). According to Crocetti's process-oriented model (2008), the process of establishing and maintaining a stable identity encompasses cognitive, social, and biological changes that occur in part, as the result of three key processes: commitment (current commitments to a goal), in-depth exploration (exploration of choices and actively seeking out information), and reconsideration of commitment (feeling uncertain about current commitments and seeking new commitments). Two important aspects of adolescent identity are educational identity and relational identity (Albarello et al., 2017; Negru-Subtirica & Pop, 2017). Educational identity refers to the goals and values that young people explore and then follow in the educational domain (Negru-Subtirica & Pop, 2017), while relational identity refers to shared values among peers (Albarello et al., 2017). Educational identity has been uniquely linked to academic performance (Faramarzi et al., 2019); however, it is well known that good study habits increase the likelihood of better grades (Berzonsky & Kuk, 2005; Hejazi et al., 2009; Julius & Evans,

2015). Previous research suggests that both educational identity and study habit skills have a unique association with academic performance (Albarello et al., 2017; Berzonsky & Kuk, 2005; Hejazi et al., 2009) but few studies have simultaneously examined all three. In the present study, the relations between identity processes, study habits, and academic performance are explored, with study habits as a potential moderator.

Identity Development

According to Erikson (1963) identity refers to the conscious sense of self that is developed as the result of interacting social, biological, and psychological factors, and personal experiences. Erikson (1958, 1963) suggests that identity formation begins in early adolescence (12 years old). At this time many adolescents begin to question the values and roles adopted from parental and societal expectations (Erikson, 1958).

Adolescents may begin focusing on the formation of a unique self that is based on a synthesis of childhood beliefs and skills, but also new values as a result of increased autonomy and personal exploration (Sokol, 2009). Prior to identity formation, children primarily develop a sense of self through identification; the psychological process whereby an individual assimilates aspects of themselves based on those they identify with (e.g., a child's beliefs based on their family's beliefs; Erikson, 1958, 1963). As Erikson (1958, 1963) believed the primary task of early adolescence to be identity formation, his developmental stage model positions the identity versus role confusion stage as the main conflict experienced during early to late adolescence (aged 12 to 18 years old).

In the stage of identity versus role confusion, adolescents may engage in identity defining tasks (e.g., "What do I care about and value aside from what my family has taught me?"; Erikson, 1958, 1963). Although adolescents may begin taking on various

roles (e.g., exploring various jobs, joining communities and/or clubs in high school, etc.), the formation of a stable identity or individuation is worked towards throughout mid-adolescence (Erikson, 1958, 1963). With individuation, the adolescent strives to develop a unique identity, distinct from previous values/beliefs derived from important family members (Negru-Subtirica & Pop, 2017). Adolescent identity may be comprised of new goals and values that are no longer intertwined with influential family members (e.g., parents; Erikson, 1958, 1963). Resolving the psychosocial crisis at the identity versus role confusion stage involves revisiting prior commitments made in identification, and possibly making new commitments in domains such as education, vocation, or relational (Cherry, 2019).

Theoretically, successful completion of this stage may lead to a stable/secure sense of self (Cherry, 2019; Crocetti et al., 2015; McLeod, 2018; Negru-Subtirica & Pop, 2017), which has been linked to the development of healthy functioning and the acquisition of specific characteristics in adolescence, particularly faithfulness or loyalty in relationships (Cherry, 2019). For instance, a student entering university who decides on and follows a particular educational and vocational path may express feelings of being more certain of who they are and their role in society (Cherry, 2019). However, those who fail to successfully solve the crisis at this stage, known as role confusion, may remain insecure, confused, and unsure of their goals and beliefs (McLeod, 2018). Several authors suggest that the stage of identity versus role confusion may extend well beyond adolescence and into early adulthood, as entry into university is a time where vocational choices/decisions are most prominent and may initiate youth to revisit their commitments (Cherry, 2019; Crocetti et al., 2015; McLeod, 2018; Negru-Subtirica & Pop, 2017). As

Erikson's (1958, 1963) developmental model describes the confusion and crises that early-to-late adolescents may experience, contemporary approaches to identity development focus on key processes; commitment, in-exploration, and reconsideration of commitments, that may extend into early adulthood whereby identity decisions are either maintained and/or revisited.

A Contemporary Approach: The Process-Oriented Identity Model

Contemporary approaches to identity development focus more closely on the specific processes that come to play while adolescents work through identity-related decisions (Crocetti, 2017) and are often extensions of Marcia's (1966) identity status paradigm. Expanding on Erikson's theory of development (1963), Marcia focused on two dimensions central to Erikson's conception of identity development: exploration and commitment. According to Marcia, exploration refers to the process of exploring options or choices with respect to various key identity-related domains (e.g., ideological domains such as education; Marcia, 1980). When one is actively exploring choices in key identity related domains then one is experiencing an identity crisis. Commitment refers to the process of engaging in the relevant steps and/or actions/activities needed to ensure a selected option is implemented and with commitment the crisis resolves (Marcia, 1980).

Crocetti and colleagues (2008) propose that three processes underlie identity development: commitment (e.g., "I am happy with my choices"), in-depth exploration ("I would like to explore my choices"), and reconsideration of commitments ("I am unhappy with my choices and compare them to others"). Marcia's model assessed one form of exploration, whereas Crocetti et al., (2008) hypothesized two forms of exploration (in-depth exploration and reconsideration of commitments). According to Crocetti and

colleagues (2008) these processes are applied when different domains are explored that may pertain to the lifelong process of identity development (education, career, and relational choices). For instance, individuals may choose to commit to certain educational goals (e.g., deciding to study medicine) but later partake in reconsideration of said commitments/goals (e.g., I don't have the grades and medical school is expensive), influencing maintenance of commitments in other domains (Crocetti, 2017). The three processes are looked at in terms of those that may contribute to identity formation (commitment and in-depth exploration), and those that may contribute to identity maintenance (reconsideration of commitments).

Processes Involved in Identity Formation in Early Adolescence

Contemporary theorists suggest that the processes involved in identity formation are commitment (committing to choices and goals) and in-depth exploration (exploring choices and goals; Albarello et al., 2017; Crocetti et al., 2008; Meeus et al., 2010; Negru-Subtirica & Pop, 2017). The process of commitment is marked by a secure sense of self and continuity, making the adolescent dependable to others (Marcia, 1988). Growing evidence suggests that those who have low levels of in-depth exploration are weakly committed to goals/values, which is related to low psychological well-being and a weak sense of self (Luyckx et al., 2005, 2015; Meeus et al., 1999). For instance, a student who is not yet committed to their chosen educational path (e.g., Psychology program at a given university) is also less likely to engage in exploration of choices/options regarding their education (Albarello et al., 2017). On the other hand, a student who is highly committed to their chosen educational path is more likely to explore their choices in the educational domain (Albarello et al., 2017). Meeus et al. (2002) examined commitment

and in-depth exploration in 1,571 adolescents and found a relation between the two, whereby adolescents with strong commitments frequently explore possible choices, and adolescents with low exploration had weaker commitments. In-depth exploration of commitments has been identified as an adaptive identity process; for example, changes to levels of *commitment* to a goal may provide changes for *in-depth exploration* of choices (Albarello et al., 2017). The third pivotal identity process theorized to be involved in the maintenance of identity formation is *reconsideration of commitments* (Crocetti, 2017).

Processes Involved in Maintaining Identity in Late Adolescence

The process of reconsideration of commitments is thought to be more prevalent in late adolescence after initial commitments in early adolescence have been made (Crocetti, 2017). This process is an attempt to change/reconsider initial commitments and may have detrimental effects as one may experience feelings of dissatisfaction (Crocetti, 2017). Based on the process-oriented model, changes to identity processes are thought to be significantly related across key identity-defining domains. For instance, changes to commitments in the educational domain may impact commitments in the vocational domain as adolescents may not follow through on activities needed for a given vocation (Crocetti et al., 2008; Meeus et al., 2010). For early-late adolescence, the educational and relational domain are considered key identity-defining domains; with friendships and educational choices influencing identity maintenance (Albarello et al., 2017; Crocetti et al., 2008; Meeus et al., 2010; Negru-Subtirica & Pop, 2017). This may be due to the shift in educational context (e.g., high school to university), alongside the physical, psychosocial, and sexual growth that occurs in late adolescence and early adulthood (Crocetti et al., 2008; Jones et al., 2013).

Crocetti's model proposes that commitment is interchangeable between levels of exploration and may continue well into university and early adulthood (Karas et al., 2019). To assess the theoretical assumptions of the process-oriented model, Meeus and colleagues (2001) developed the Utrecht-Management of Identity Commitments Scale (U-MICS, Crocetti et al., 2008b). Previously, traditional developmental psychology theorists attempted to capture identity through semi-structured interviews (e.g., Marcia, 1996), life-story narratives (e.g., McAdams, 1995), and projective tests (e.g., Marcia, 2011). However, contemporary theorists attempt to capture identity through questionnaires.

Measurement and Empirical Evidence for the Process-Oriented Identity Model

The U-MICS is a self-report tool that includes 13 items (five items measuring commitment, five items measuring in-depth exploration, and three items measuring reconsideration of commitments), which assess the level of engagement (high/low) of identity processes (commitment, in-depth exploration, reconsideration of commitment) in three domains (relational, vocational, educational; Crocetti, 2012). The commitment items are intended to capture security and stability (e.g., "My education/best friend gives me security in life", "My education/best friend makes me feel sure of myself."). The in-depth exploration items are intended to capture exploration of choices, curiosity, and reflection (e.g., "I often reflect on my education/best friend", "I try to find out a lot about my education/best friend."). Last, the reconsideration of commitment items are intended to capture unsureness of current choices and dissatisfaction (e.g., "I often think that a different education/best friend would make my life more interesting."). The level of engagement with the three identity processes allow for a conceptual understanding of

how the processes are maintained and intertwined. For instance, the U-MICS may tell us that adolescents with high levels of commitment to educational and relational goals also has moderate level of in-depth exploration and low levels of reconsideration of commitments (Crocetti, 2012).

Klimstra et al. (2010) examined the mean change across the three identity processes in the educational and relational domain using the U-MICS self-report measure in a sample of 390 university students. Their findings revealed a significant connection between high levels of commitment and in-depth exploration, and low levels of reconsideration of commitments (Klimstra et al., 2010). This suggests that high commitment to specific goal(s) while exploring choices in the educational and relational domain supports identity formation. Klimstra et al. highlights that reconsideration may be sensitive to changes in identity formation as a result of normative transitions (e.g., transitioning from high school to university). Additionally, they found that current commitments in educational and relational domains were explored increasingly more towards mid-late adolescence. Researchers underscore the importance of considering context (e.g., university) when observing identity formation (Crocetti et al., 2015; Crocetti, 2017; Negru-Subtirica & Pop, 2017).

Similar to Klimstra et al. (2010), Dimitrova et al. (2014) assessed the interplay of identity processes in the educational and relational domain; using the U-MICS self-report measure in a sample of 1007 university students (middle to late adolescence). The findings suggest consistency between identity processes, with high levels of commitment predicting high levels of in-depth exploration across domains (Dimitrova et al., 2014). For instance, a first-year university student that is highly committed to Psychology

(educational identity) may also be highly committed to friends (relational identity), but actively exploring or thinking about their choices (Dimitrova et al., 2014). However, reconsideration of commitments and confusion regarding Psychology as a major (educational identity) and friends (relational identity) may remain relatively low (Dimitrova et al., 2014). This suggests internal consistency between the processes across the specific domains of educational and relational identity and is supported by various theorists (Crocetti et al., 2015; Crocetti, 2017; Negru-Subtirica & Pop, 2017).

Current studies utilizing the Utrecht-Management of Identity Commitments Scale (U-MICS; Crocetti et al., 2008) find that commitment and in-depth exploration processes are positively related, both in adolescence and in emerging adulthood (Crocetti et al., 2015; Llorentre & Alamo, 2018). The similar trend between identity processes suggests that highly committed adolescents may continue to explore choices, proving to maintain a sense of identity coherence (e.g., confidence in choices and higher life satisfaction; Crocetti et al., 2015). In the present study, the process-oriented model will be used to examine the identity processes of two domains: educational and relational identity.

Educational Identity in Late Adolescence

According to Crocetti et al. (2008) educational identity is prominent throughout adolescence and refers to the educational goals and values that young people explore and then follow in the educational domain (Negru-Subtirica & Pop, 2017). As adolescents continue their journey of identity development, their educational identity becomes increasingly important as educational settings are a context where they may individuate from influential family members and further construct their values, goals, and sense of self (Negru-Subtirica & Pop, 2017). Adolescents' educational identity is thought to be

triggered by context (e.g., transitioning from high school to university) and choices regarding education, such as consideration of secondary education tracks and the choice of a major (Meeus et al., 2016). Theoretically, adolescents that have high levels of educational commitments also have high levels of in-depth exploration (seeking out different educational choices) and low levels of reconsideration of commitments (Negru-Subtrica et al., 2017). Research by Flum & Kaplan (2012) utilizing the U-MICS suggests that high levels of educational commitments may promote healthy development of students' identities pertaining to self-knowledge, goals, and skills for social and relational transformation. Current research seldom takes into consideration varying levels of identity processes across educational and relational domains; however, theorists suggest that the development of adolescent identity in the educational and relational domains are closely intertwined over time (Crocetti et al., 2017). Specifically, contemporary theorists presume that identity crises and reconsideration of goals experienced by adolescence are positively related in the educational and relational domain (Crocetti et al., 2015; Crocetti et al., 2017). This relatively new finding signifies the importance of examining interpersonal relationships alongside educational identity (Crocetti et al., 2015; Crocetti, 2017; Negru-Subtirica & Pop, 2017), in hopes of understanding how these domain-specific processes are distinctly related to academic performance.

Educational and Relational Identity Processes

Prior research has suggested that during adolescence, identity formation may be similar across domains (e.g., approaching educational and relational identity in a similar way; Goossens, 2001). While young people begin to spend more time outside of family activities, interpersonal relationships become the basis for the expression of individuality,

as emerging adults become accepting of ideas and opinions of their peers, even when they differ from their own (Meeus et al., 2016). In the context of the process-oriented model, Crocetti and colleagues (2008) refer to the interpersonal domain as “relational identity,” a term defined by social identifications and shared values made with peer groups over time, which are crucial to development (Albarello et al., 2017). As identity development in university students will often take place in the context of school, formation of close interpersonal relationships such as friendships and intimate relationships have frequently been identified as contributing to identity formation and a stable sense of self (Crocetti, 2017; Jones et al., 2013). Current theorists relay that strong educational commitment increases identification with peers at school (Albarello et al., 2017; Crocetti, 2017). In previous literature, interpersonal relationships (e.g., friendships) are directly associated with education, with levels of commitment to educational and relational goals being related (Crocetti et al., 2015; Crocetti, 2017). Specifically, as meaningful interpersonal relationships are marked by commitment, individuality, and autonomy, it is proposed that educational oriented goals will follow similar patterns that will foster identity formation (stable sense of self; Meeus et al., 2016). Therefore, the way in which adolescents approach their commitments in one domain is increasingly related to how they approach commitments in another domain (Albarello et al., 2017).

Albarello et al. (2017) used cross-lagged effects to analyze the development of adolescent identity in the educational and relational domains and found a positive association between processes that was also consistent over time. Theoretically, peer interactions were found to have a positive impact on approaches to educational commitments, with supportive friendships acting as a protective factor against

educational dissatisfaction and distress (Crocetti, 2017). These identity processes, specifically commitment and reconsideration, have been linked to learning outcomes and academic performance of late adolescence (Berzonsky & Kuk, 2005; Hejazi et al., 2009; Faramarzi et al., 2019).

Identity Processes and Academic Performance

Numerous links have been made between first-year university students' academic performance and educational identity processes. Informational educational identity styles (active exploration/seeking out information) have been found to be related to academic performance. Students possessing higher levels of academic autonomy, educational purpose, and social skills show higher levels of academic achievement compared to students with avoidance/diffuse styles (lack of exploration/seeking out information; Berzonsky & Kuk, 2005; Hejazi et al., 2009). This suggests the importance of exploration of educational choices and actively seeking out the means to complete goals for academic achievement. More recent research has demonstrated that educational identity processes (commitment, in-depth exploration, and reconsideration of commitment) predicted academic performance across the school year (Faramarzi et al., 2019). Faramarzi et al. (2019) found that first-year university students who had an unstable educational identity (e.g., low commitment to educational goals) had low academic performance in the social sciences whereas students who had established a stable educational identity (e.g., high commitment to educational goals) had high academic performance in the social sciences and other subjects (e.g., English and literature). It was also found that those with low reconsideration of commitments (e.g., "I am not dissatisfied with my educational goals") had higher academic performance (Pop et

al., 2016; Faramarzi et al., 2019). Despite the fact that reconsideration may serve long-term benefits, it was found to function as an antecedent along with symptoms of anxiety, for poor academic performance (Verboom et al., 2014).

As there is a perceived relation between identity processes and grades, many theorists suggest that the link between relational identity processes and academic performance is less likely, due to the focus on social identification with classmates and complex values among peers (Pop et al., 2016). Specifically, educational identity is regarded as the important choices made in life specific to academics (e.g., as a student), while relational identity is regarded as the choices and goals specific to social membership (e.g., shared values of Europeans; Albarello et al., 2017). With this theoretical assumption, many theorists only attune to the distinct role of educational identity in relation to academics (Negru-Subtirica & Pop, 2017; Pop et al., 2016). However, consistent evidence highlights that identification with peers may promote psychosocial adjustment, learning outcomes, and the ability to cope with identity-related problems (Albarello et al., 2017; Palmonari et al. 1990). Many studies do not consider educational and relational identity simultaneously as a prediction of academic performance (e.g., Negru-Subtirica & Pop, 2017). Being that both domains are an important aspect of identity development (Crocetti et al., 2015; Crocetti, 2017), the current study looks to explore the gap in the literature.

Understanding how adolescents' approach identity issues in different domains is crucial in understanding outcomes in an academic context; that is, the association between identity processes (commitment and reconsideration of commitments) and academic performance (Lange et al., 2002). As the literature shows a distinct link

between educational identity and academic performance (Faramarzi et al., 2019; Ghazvini, 2011; Voyer, 2014), study habits employed by first-year university students are also known to be associated with academic performance (Julius & Evans, 2015).

Identity Processes, Study Habit Skills, and Academic Performance

Study habits pertain to the strategies employed in learning to achieve an academic outcome. Effective/good study habits may include, time management, concentration, note taking, reading comprehension, test preparation, reading speed, writing skills, and text anxiety management (Wrenn, 2005). Good study habit strategies in first-year university students are positively associated with academic performance/outcomes (Julius & Evans, 2015; Maiyo & Siahi, 2015). For instance, as study habit techniques were refined and improved, academic performance was enhanced over time (Alva, 2017; Randa et al., 2018). Of the different types of study habit skills that have been examined (test anxiety management, test preparation, ability to focus/concentrate, reading speed and comprehension, and writing skills), test preparation and the ability to focus/concentrate exhibited the strongest relation with grades and grade point average, while academic anxiety was an important negative predictor of performance (Credé & Kuncel, 2008; Looyeh et al., 2017; Wrenn, 2005;). In addition, Zargar and Ganai (2014) found that adolescents with identity confusion (e.g., “What are my goals and values?”) tend to have poor study habits and low levels of academic success compared to adolescents with identity formation (e.g., “I am sure of my goals and values) who tend to have good study habits and academic success.

The above review shows a clear association between study habit skills and academic performance, but educational identity processes also appear to play a role in

academic performance (Alva, 2017; Randa et al., 2018). Literature (Alva, 2017; Cepeda, 2013) positions study habit skills as exerting a significant influence on the academic performance of late adolescence. Specifically, in a multiple regression design, study habits appear to predict academic performance among other variables (e.g., self-esteem and psychosocial development; Alva, 2017; Cepeda, 2013). In order to understand the factors associated with academic performance while adolescent development takes places, study habit skills will be explored as a possible moderator.

The Current Study

The overall objective of the current study is to examine identity processes in the educational and relational domains, study habit skills, and academic performance in first-year university students. The first aim is to examine the relation between identity processes in the educational and relational domain, as they both appear to play a role in successful adolescent development and adjustment (Crocetti et al., 2015; Crocetti, 2017).

Positive relations are expected between:

- 1) Educational identity commitment and relational identity commitment, previously found by Meeus et al. (2016),
- 2) Educational identity in-depth exploration and relational identity in-depth exploration as previous research suggests that high commitment results in high in-depth exploration (Crocetti et al., 2015; Llorentre & Alamo, 2018) and,
- 3) Educational identity reconsideration of commitments and relational identity reconsideration of commitments (Crocetti et al., 2015; Llorentre & Alamo, 2018).

Since previous research examining identity maintenance demonstrates a negative relation between in-depth exploration and reconsideration of commitments (Crocetti et

al., 2015; Llorentre & Alamo, 2018), this was anticipated for the educational and relational identity-related domains.

The second aim of the study is to examine educational and relational identity processes as predictors of grades. Previous research has demonstrated that educational commitment and in-depth exploration are related to academic performance (Negru-Subtirica, Pop, & Crocetti, 2017). However, relational identity was not examined as a predictor of grades but has been positioned as an important part of adolescent identity development that may serve long-term benefits (Albarello et al., 2017; Palmonari et al. 1990). It was, therefore, expected that high levels of exploration and commitment would predict high levels of academic performance, while low levels of reconsideration of commitments would predict high levels of academic performance. Based on the gap in the literature and the important role that both educational and relational identity processes play in identity development, it was explored whether a composite score; with educational and relational reconsideration of processes combined (Crocetti et al., 2015; Crocetti, 2017), would predict grades more effectively compared to processes solely within one domain.

Since previous research has established that study habit skills are related to academic performance independent from identity processes (Julius & Evans, 2015; Maiyo & Siahi, 2015) and may act as a moderator (Alva, 2017), the last aim explores how study habit skills might be involved as a moderator in the relation between educational identity processes and academic performance.

Methods

Participants

A convenience sample approach was used to recruit a sample of first-year Trent Durham University students enrolled in a first-year Child and Youth Studies course. A total of 50 undergraduate students agreed to participate in the study. Of the 50 students, only a few participants identified as male ($n = 4$). Due to their small number, male participants were excluded in order to focus on a female sample ($n = 46$). Since the age of 18 to 24 years is considered late adolescence (Teipel, 2013), one female participant who was over the age of 24 was excluded. The final sample consisted of 45 female participants who were between 18 to 24 years old ($M = 18.82$, $SD = 1.35$). The majority, 62.50% ($n = 30$), were majoring in Child and Youth Study, and 10.4% ($n = 5$) were majoring in Social Work and Psychology. The rest of the participants ($n = 1$) were majors in the Arts, Engineering, Policing, Sociology, and Teaching programs. Most of the participants (66.7%, $n = 32$) were in their first year of study, followed by second year students (20.8%, $n = 10$), and the minority were in their third year (6.3%, $n = 3$).

Measures

Background Information and Socioeconomic Status

A demographic questionnaire was used to gather personal and educational data. This questionnaire comprised eight items and requested information on sex, date of birth, current major, year of study, parental education levels (1 = no schooling to 10 = doctoral degree), completed courses, enrolled courses of the current term, and self-reported cumulative average. Previous research has reported parental education to be an index of socioeconomic status (SES; Aarø et al., 2009). Mother's and father's educational status consisted of 10 categories to capture their educational background; 1 = no schooling completed, 2 = elementary school completed, 3 = some high school, no diploma, 4 = high

school graduate, 5 = some college credit, no diploma, 6 = trade/technical/vocational training, 7 = bachelor's degree, 8 = master's degree, 9 = professional degree, 10 = doctoral degree. Categorical data was converted to a continuous variable to assess the highest degree of education, as done in previous research (Aarø et al., 2009; Magnuson, 2007).

Educational and Relational Identity Processes

The Utrecht-Management of Identity Commitments Scale (U-MICS; Meeus, 1996) a self-report measure, was used to assess three identity processes in the educational and relational domains: 1) *Commitment* (firm choices made by adolescents derived from self-confidence); 2) *In-depth Exploration* (extent of reflection by adolescents on their current commitments, and choices); and 3) *Reconsideration of Commitment* (comparing current commitments to alternative commitments due to adolescents no longer being satisfied with existing goals and values; Crocetti et al., 2010). The U-MICS is comprised of 13 items in each domain: five items measuring commitment, five items measuring in-depth exploration, and three items assessing reconsideration of commitment for a total of 26 items. Each item was rated using a Likert scale ranging from 1 (completely untrue) to 5 (completely true), whereby participants identified how fitting each statement was to their personal experiences. Items were worded similarly across the educational and relational domains (e.g., “My education/best friend gives me certainty in life” [commitment]; “I think a lot about my education/best friend” [in-depth exploration]; and “I often think it would be better to try to find a different education/best friend” [reconsideration of commitment] Crocetti et al., 2010).

A mean item score was calculated for each identity process (commitment, in-depth exploration, and reconsideration of commitment) in the educational and relational

domain. An average score between 1-2 indicates low levels, between 2-3 indicates moderate levels, and between 4-5 indicates high levels of the observed identity process (Crocetti et al., 2010). A composite global identity score was created by combining one ideological domain (educational identity - reconsideration of commitments) and one interpersonal domain (relational identity - reconsideration of commitments; Crocetti et al., 2010). Previous research has found the UMIC to be reliable for commitment (Cronbach's alpha = .81), in-depth exploration (Cronbach's alpha = .77), and reconsideration of commitment (Cronbach's alpha = .81; Orozco et al., 2002).

Study Habit Skills

The Study Habits Inventory (SHI), a self-reported measure adapted from Wrenn (2005) was used to assess habits and attitudes that might affect study time and skills, and perceived success in schoolwork. The Inventory is comprised 32 items, with four items measuring eight study skills: time management, concentration, note taking, reading comprehension, test preparation and test-taking, reading speed, writing skills, and test anxiety management (Wrenn, 2005). Each item was rated using a Likert scale ranging from 1 (rarely or never true) to 3 (often or always true), whereby participants identified how fitting each statement was to their study habits, attitudes, and skills (e.g., "I usually spend hours cramming the night before an exam" [time management]; "I go to class, but I usually doodle, daydream, or fall asleep" [concentration]; "I need to improve my note taking" [note taking]; "I don't know how to pick out what is important in the text" [reading comprehension]; "I need to improve how I am preparing for and taking tests" [test preparation and test-taking]; "I often wish I could read faster" [reading speed]; "I usually write my papers the night before they are due" [writing skills]; and "I worry so

much about doing well in tests that it interferes with my studying.” The reliability coefficient by the test-retest method technique is .88 (Ayenigbara et al., 2012).

A mean score for overall study habits was calculated based on all 32 items. A lower score indicated better study habits. Participants were also placed into two groups based on their average mean score: a good study habits group where participants had a mean score below 2.0, and a poor study habits groups where participants had a mean score above 2.0. Analyses of identity processes, study habit skills, and academic performance were based on these groups.

Academic Performance

Academic performance was based on grades attained by the participant in their first-year Child and Youth Studies introductory course (Playful Pedagogy). This course was chosen based on convenience sampling. Participants provided written consent to have their grades released at the end of the term. Numeric grades (percentage earned) were used for analyses.

Procedure

The data collection took place between December 2019 and March 2020. Participants completed the questionnaires in an individualized, in-person session that took approximately 45 minutes, with questionnaires presented in a randomized order. At the end of the session, the participants received a \$10.00 cash token of appreciation.

Results

Data Screening

As a preliminary step, all variables were examined to detect any outliers. An analysis of standard residuals indicated that the data contained no outliers (*Std. Residual*

$Min = -1.91$, $Std. Residual Max = 1.96$). A Mahalanobis distance variable was created to determine whether any multivariate outliers were present. Probability variables showed that no outliers were present, therefore no cases were removed ($p < .001$).

A histogram of standardized residuals indicated that the data contained normally distributed errors, as did the P-P plots of standardized residuals, where points followed the normal distribution line closely. Similarly, the scatterplot of standardized residuals met the assumptions for homogeneity of variance and linearity.

Sample Characteristics

Socioeconomic Status

With respect to mother's educational status, the largest group was reported for high school graduate (26.70%, $n = 12$), some college credit (no degree; 26.70%, $n = 12$), and bachelor's degree (26.70%, $n = 12$). With respect to father's educational status, the largest group was reported for trade/technical/vocational training (22.20%, $n = 10$), bachelor's degree (22.20%, $n = 10$), and master's degree (17.80%, $n = 8$). There was a higher percentage of fathers than mothers who had a bachelor's degree (26.70%) and master's degree (17.80%). As previous research suggests an association between SES and grades (Poon, 2021), the relations between grades and parent's education was examined. Using a Pearson correlation analysis there was no association found between mother's education and participants' academic performance ($r = -.13$, $p = .08$) in the current study and no significant association found between father's education and participants' academic performance ($r = -.11$, $p = .10$).

Identity Processes: Educational and Relational Domains

Table 1 provides descriptive information (mean, standard deviation, and range) for identity processes (commitment, in-depth exploration, and reconsideration of commitment) in the educational and relational domain. Mean scores were high for commitment in both the relational and educational domains. On average, many participants reported feeling satisfied and committed in terms of their relational and educational goals. Similarly, on average participants reported moderate to high for in-depth exploration for both relational and educational domains, suggesting that participants were actively exploring options. In contrast, participants reported lower levels of reconsideration of commitments for both relational and educational domains.

A Pearson correlation analysis was conducted to examine the relations between identity processes (commitment, exploration, and reconsideration of commitment) in the educational and relational domains. In line with the first hypothesis, educational commitment and relational commitment were positively correlated, $r(45) = .36, p = .02$; however, there was no significant relation found between educational in-depth exploration and relational in-depth exploration, $r(45) = .21, p = .15$. Further analyses revealed a non-significant relation for reconsideration of commitments and in-depth exploration in the educational and relational identity-related domains, $r(45) = -.21, p = .33$). Last, as anticipated, a significant positive correlation was found for educational reconsideration of commitments and relational reconsideration of commitments, $r(45) = .61, p = <.001$. As reconsideration of commitments in both domains are highly correlated, a composite score was computed to explore the relation of this process to academic performance.

Table 1*Mean Scores for Identity processes (n = 45)*

| | <i>M</i> | <i>SD</i> | <i>range</i> |
|-------------------------------|----------|-----------|--------------|
| Educational Identity | | | |
| Commitment | 3.97 | .68 | 2.20 – 5.00 |
| In-depth Exploration | 3.69 | .65 | 2.40 – 4.80 |
| Reconsideration of Commitment | 2.07 | .87 | 1.00 – 4.67 |
| Relational Identity | | | |
| Commitment | 3.95 | .75 | 2.20 – 5.00 |
| In-depth Exploration | 3.80 | .66 | 2.00 – 4.80 |
| Reconsideration of Commitment | 1.56 | .63 | 1.00 – 3.67 |

Identity Processes and Academic Performance

Of the 45 participants included in the study, 42 participants consented to release their final grade for the Playful Pedagogy course. The mean average grade was 76.57 ($SD = 6.88$, range = 62.00 – 91.00). Relational identity processes were not correlated with grades (relational commitment: $r(45) = .23$, $p = .13$; relational in-depth exploration: $r(45) = -.06$, $p = .76$; relational reconsideration of commitments: $r(45) = -.31$, $p = .08$). In addition, the composite score of reconsideration of commitments was not found to be a significant predictor of grades $r(45) = .17$, $p = .28$. For educational identity processes, the multiple regression indicated that reconsideration of commitments was the only significant predictor of academic performance in Playful Pedagogy (see Table 2).

Table 2

Regression Analysis for Identity Processes (U-MICS) as Predictors of Academic Performance

| | <i>B</i> | <i>CE Error</i> | <i>CE Beta</i> | <i>t</i> | <i>p</i> | <i>Confidence Interval</i> |
|---|----------|-----------------|----------------|----------|----------|----------------------------|
| Predictors | | | | | | |
| Educational Commitment | -2.64 | 1.62 | -.26 | -1.63 | .11 | -5.92 - .65 |
| Educational In-depth Exploration | 2.28 | 1.82 | -.21 | 1.25 | .22 | -1.40 - 5.95 |
| Educational Reconsideration of Commitment | -3.07 | 1.31 | -.39 | -2.43 | .02 | -5.74 - -.41 |
| Educational and Relational Reconsideration of Commitments | -2.681 | 1.82 | -.24 | -1.47 | .57 | -5.99 - .88 |

Good versus Poor Study Habit Groups: Educational Identity Processes and Academic Performance

A Pearson correlation was conducted to examine the inter-correlations of the educational identity processes. There were no significant relations found between educational commitment and in-depth exploration, $r(45) = .25, p = .09$, educational commitment and reconsideration of commitments, $r(45) = -.11, p = .47$, and educational in-depth exploration and reconsideration of commitments, $r(45) = .39, p = .08$. As relational identity did not predict grades, a linear regression analysis was conducted to examine the moderating role of good ($M = 1.71, SD = .14$) versus poor ($M = 2.14, SD = .16$) study habit skills for educational identity processes as a predictor of grades. The regression revealed that for the good study habits group, educational reconsideration of

commitments did not significantly predict grades in Playful Pedagogy, $F(1, 23) = -1.54$, $p = .41$. Similarly, educational in-depth exploration did not predict grades, $F(1, 23) = 4.03$, $p = .29$, and educational commitment did not predict grades in Playful Pedagogy, $F(1, 23) = -1.31$, $p = .60$. Additionally, in the poor study habits group, results indicated that educational in-depth exploration [$F(1, 17) = .40$, $p = .87$] and educational commitment [$F(1, 17) = -3.50$, $p = .10$] did not significantly predict grades. However, educational reconsideration of commitments significantly predicted grades in Playful Pedagogy, $F(1, 17) = -3.06$, $p = .04$. The effect size for the analysis ($r^2 = .51$) is considered medium (McFadden, 1974).

Discussion

The overall objective of the current study is to examine identity processes in the educational and relational domains, study habit skills, and academic performance, while also examining the moderator role of study habit skills. Positive relations are confirmed for the following:

- 1) First, our findings confirm a significant relation between educational commitment and relational commitment and
- 2) Next, our findings confirm that educational reconsideration of commitments and relational reconsideration of commitments are significantly related.

However, no significant relation is found between in-depth exploration for the educational and relational identify-defining domains. Similarly, the relation between reconsideration of commitments and in-depth exploration in the identity domains is found to be inconclusive.

The second aim of the current study examined educational and relational identity processes as a predictor of grades, whereby high levels of educational reconsideration of commitments was the only identified predictor of low grades. However, the composite global identity score of educational and relational reconsideration of commitments is not a predictor of grades. Based on this finding, only educational identity processes were studied further. Good and poor study habit groups were created, and a linear regression determined that for those employing poor study habits, high educational reconsideration of commitment is the only significant predictor of low grades. However, for those employing good study habit skills, findings were non-significant for all processes.

Educational Identity and Relational Identity

Findings of the present study confirm a significant positive relation between educational commitment and relational commitment. This suggests that the formation of strong educational commitments and goals is related to stable and strong goals/commitments in relationships. It is suggested that the formation of commitments to specific social groups in late adolescence that are supportive and satisfying, may be related to satisfaction with educational commitments (Crocetti, 2017; Negru-Subtirica & Pop, 2017). As educational goals are worked through increasingly in first-year university students, friendships are thought to remain stable as well, acting as a potential source of support (Crocetti et al., 2015; Negru-Subtirica & Pop, 2017).

Furthermore, findings revealed a significant positive relation between educational reconsideration of commitments and relational reconsideration of commitments. This suggests that dissatisfaction experienced with educational commitments is related to unstable and dissatisfied relationships with peers. As first-year students adjust to

university, instability regarding current choices and commitments are discovered to be experienced for both identity-defining domains. Previous research has suggested that for emerging adults, reconsideration and dissatisfaction in friendships may offer a similar feeling of dissatisfaction for educational commitments (e.g., comparison to other choices and uncertainty about commitments), providing consequences for identity formation at this critical time (Jones et al., 2013). Based on the findings of the present study, it is suggested that supporting both educational and relational domains through possible interventions (e.g., peer support groups, career workshops and interventions) may foster benefits for relational and educational goals, while limiting the psychological impacts of role confusion. Albarello et al. (2017) have suggested that interpersonal and relational processes are likely an important factor of young adults' identities, whereby maintaining satisfaction with relevant social groups in an educational context is crucial to healthy functioning while they approach various identity-related choices.

However, in the current study, no link was found between in-depth exploration in educational and relational identify-defining domains. These results may be apparent as exploration of choices and commitments are likely taking place early on (e.g., early to mid-adolescence), and information-seeking may slow down as emerging adults enters university (Albarello et al., 2017). Late adolescents in university are just beginning to interact with varying social groups, as they depart from a familiar context (e.g., high school) and enter an unfamiliar context (e.g., university; Dietrich & Kracke, 2009). Based on exposure to new experiences and people, parental attachments may still act as a source of limited support and motivation through educational, relational, and career development (Downing & Nauta, 2009; Dietrich & Kracke, 2009). Similarly, a non-significant relation

was found between reconsideration of commitments and in-depth exploration in educational and relational domains. As adolescents are just beginning to maintain identity formation through reconsideration of commitments, these results may be apparent as exploration of choices and commitments are not as prominent at this transitional age (e.g., late adolescence). Similarly, new social groups may not have a known association to strong commitments previously established (Downing & Nauta, 2009; Dietrich & Kracke, 2009). It has also been noted in recent research that commitments to educational goals and aspirations transmit through generations of family members (e.g., children committing to the same educational goals as their parents) and are less likely to be reassessed when entering early adulthood (Heyse, 2011).

Identity Processes and Academic Performance

Based on the important role that relational and educational reconsideration of commitments have during adolescence, and the highly significant relation found in the current study, the composite global identity score was studied further. However, results indicate that relational and educational reconsideration of commitments does not predict grades. This suggests that although educational and relational reconsideration processes are related throughout adolescence (e.g., committing or reconsidering), their relation's' to grades is uniquely distinct. This may be due to differences in how adolescence approach commitments in each domain; with educational commitments approached through an emphasis on academic goals, and relational commitments approached through an emphasis on social membership (e.g., shared values of Europeans; Albarello et al., 2017).

When examining educational identity processes, the current study suggests that high levels of reconsideration of commitments are associated with low academic

performance/grades in first-year courses (Faramarzi et al., 2019). The finding between educational identity and academic performance relays that highly reconsidering ones' initial commitments may attribute to low grades earned in a university setting. As high levels of educational reconsideration of commitments are often marked by feelings of distress and internalizing symptoms, this can cause consequences for academic and educational efforts, and future learning outcomes (Abubakar et al., 2013). These findings suggest that, in adolescence, being aware of high levels of reconsideration and its' association with poor grades may provide short-term benefits for the academic performance of university students, as indicated in previous research (Klimstra et al., 2012; Lounsbury et al., 2005). This finding provides important implications for maintaining good study habits, and the availability of extended support for conflicting educational goals and educational distress (e.g., guidance counsellors, therapists, and goal-setting workshops). However, differing from the findings of other research, it was found that the educational identity processes of commitment and in-depth exploration did not predict academic performance (Klimstra et al., 2012). This may be due to researchers studying a female adolescent population, whereby academic scores tend to be higher than in a male population (Hejazi et al., 2012). This finding is novel in nature and should be researched further in a university context for a complete understanding.

Good and Poor Study Habit Groups: Educational Identity and Academic

Performance

For poor study habit groups, our current findings suggest that first-year students' who have high levels of educational reconsideration of commitments also have low academic scores in the first-year course. The findings of the current study suggest that

increased dissatisfaction in educational commitments predicts poor academic outcomes, especially when study habit attitudes and strategies are also considered poor. This provides important implications for becoming aware of increased dissatisfaction with commitments in an educational context, while also trying to maintain at least moderate study habit skills/strategies. Through openness and awareness of goals, adolescents may choose to make appropriate changes in their educational life and seek extended academic support. In addition to this, previous studies suggest that reconsideration of commitments should be tackled through strengthening educational commitments that are most satisfying for the individual (Pop et al., 2016). It was further found that when study habit skills were considered poor, low levels of educational in-depth exploration and commitment did not influence poor academic performance. This might be due to the fact that high levels of reconsidering commitments more readily suggests that an individual is going through an identity crisis, rather than when low commitment to goals is experienced (Crocetti, 2017; Pop et al., 2016). Therefore, low commitment (marked by less enthusiasm and confidence in current goals and differing from reconsideration), may not necessarily be an indicator of grades, even when study habits are poor. It is concluded that maintaining moderate-good study habits may buffer the short-term impacts that identity confusion (experienced during reconsideration) might have on adolescence academic outcomes.

Our current findings, however, revealed that low levels of educational reconsideration of commitments did not predict high levels of academic performance for those who employed good study habit skills/strategies. Although, maintaining good study habit skills and having academic support available to aid university students may still

provide benefits for the student population, as observed in previous research (Alva, 2017; Julius & Evans, 2015). It was further found that when study habit skills were considered good, high levels of educational in-depth exploration and commitment also did not influence academic performance.

Conclusion

The results of the present study extend on the findings of previous literature that has examined the association between identity developmental processes on academic performance. The findings of this study stress the importance of the maintenance of good study skills and becoming aware of increased dissatisfaction with goals and commitments that are made in the educational and relational domains. Through strengthening more satisfying commitments in the educational and relational domain, this may provide benefits for adolescence while they are engaging in academic efforts (e.g., tests, assignments, projects). However, maintaining good study habits while experiencing an identity crisis in the educational domains may provide important implications for academic performance, as also suggested in previous research (Alva, 2017; Julius & Evans, 2015).

Limitations and Future Directions

A few limitations in the present study should be discussed. First, it should be noted that self-reported measures, which are often regarded as a limitation, were used to examine educational and relational identity and study habits. However, contemporary neo-Erikson approaches to identity development rely heavily on self-reported questionnaires (U-MICS), as students are often unaware of these processes as they are taking place, allowing them to approach questionnaire items objectively (Crocetti et al.,

2015; Crocetti, 2017; Negru-Subtirica & Pop, 2017). Next, solely a female demographic was used in the present study, due to the higher female population at Durham Trent University and in the Child and Youth Studies course. Replication of the current study would enhance generalizability of these findings to males and other. Similarly, a smaller sample size was used and only accounted for academic performance in one course (Playful Pedagogy).

It is recommended that future researchers include performance scores across a broad range of courses to enhance construct validity of academic performance. It is also recommended that researchers employ a longitudinal model to examine shifts in study habit skills, attitudes, and educational identity, over the duration of students' undergraduate degree, and how it might impact their academic performance and overall GPA. It is recommended that future research aims to further explore the moderation relation between; study habit skills, identity processes, and academic performance; while possibly examining other related variables (e.g., self-esteem, adolescent-parent relationships).

Although there are limitations reported, the present exploratory study provides a contemporary process-oriented approach to identity developmental processes in the context of Crocetti and colleagues (2008) process-oriented model. This approach allowed for a unique examination of three variables: identity processes, study habit skills, and academic performance, while also emphasizing the moderator variable of study skills. The present study highlights the importance of the educational and relational domains when examining identity challenges for late-adolescent females in university. Specifically, the current study captures how educational and relational identity processes

intertwine, specific to levels of commitment and reconsideration of commitments. This may prompt future researchers to include other domains (relational, vocational, etc.) alongside the educational domain when examining identity development for this age group. Further, the study provides important information on how solely educational identity processes may predict academic performance (Abubakar et al., 2013). This provides important implications for understanding impacts on psychological and emotional well-being, as identity difficulties (and an inability to commit to goals and values) in the educational domain may add to the distress that late adolescence are already experiencing as they adjust and transition from high school to university (Lange, Clare, & Byrd, 2002). Last, this research provides important insights on becoming aware of increased dissatisfaction of educational commitments and poor study habits, which is determined to predict lower grades. This highlights the protective role of inhibiting good study habit skills and attitudes, which may aid in maintaining academic performance/grades as students work through identity challenges that they may not necessarily be aware of.

With the knowledge obtained from the present study, public policy makers and educational leaders should emphasize interventions within the school community to aid in study habits and attitudes, especially for those who are experiencing educational reconsideration and identity crisis. These skills should be targeted to ensure they are maintained through the transition from high school to university. This maintenance can be achieved through interventions such as peer tutoring, academic advising, and career counselling, which are readily available to the student body and advertised across campuses in Ontario, Canada. This may provide opportunities for late adolescence to

enhance their academic performance, while finding out who they are and potential long-term goals. As commitment is related across education and relationships, researchers should target several domains of identity (specifically, relational identity), which may help foster identity achievement, a stable sense of self, and equip adolescents with the proper coping tools to work through identity crises.

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