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RESEARCH ARTICLE

The light side of darkness?

The dark triad of personality as positive and negative predictors of L2 language learning

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Abstract

The duality of human nature, consisting of positive and negative personality traits, has intrigued scholars in different fields. Despite an overwhelming dominance of research on positive characteristics, particularly in the field of education, negative traits, such as those constituting the Dark Triad (DT; i.e., Psychopathy, Narcissism, and Machiavellianism) have been confirmed to be associated with both positive and detrimental outcomes. This paper aims to investigate the potential influence of these aversive traits on second language (L2) learning outcomes—L2 learning motivation, engagement, achievement, and willingness to communicate. L2 learners from a single country ($n = 431$) participated in this study. Multiple structural equation models (SEMs) were run to analyze the links and the directionality of significant effects. Overall, among the undesirable DT traits, Psychopathy and Narcissism were both positive and negative predictors of the L2 outcomes, while Machiavellianism unexpectedly emerged solely as a positive predictor. The intricacy of the results underscores the vague nature of the effects, pinpointing the need for more caution while examining negative personality traits in education and the L2 contexts. Based on the results of this study, implications and directions for future research on DT and language learning are suggested.

Keywords: Dark Triad; L2 achievement; L2 engagement; L2 learning motivation; L2 willingness to communicate

Introduction

The duality of human beings as having both "good" and "bad" character traits within one person has been subject to many religious, philosophical, and psychological debates (Fumerton, 2013; Swinburne, 2014). "Bad" character traits may include the Dark Triad

(DT), a group of three aversive but nonpathological traits that share certain malicious features, namely Psychopathy, Narcissism, and Machiavellianism (Paulus & Williams, 2002). Besides the aversive, malevolent impact of DT traits and their association with negative psychosocial outcomes (see Muris et al., 2017), previous studies have shown that similar to positive traits such as grit (Duckworth et al, 2007), negative traits such as primary psychopathy (Akhtar et al., 2013) and subclinical narcissism (Soyer et al., 1999) can also positively affect individuals' achievement in different fields and situations.

The idea of a negative trait positively predicting a desired, positive outcome may seem convoluted, but educational and organizational psychology research is rife with such findings. For example, previous organizational psychology research has shown that psychopathy traits may be beneficial in finance careers (Howe et al., 2014). Narcissistic traits positively predicted workplace engagement (Furnham & Treglown, 2021), and Machiavellianism positively predicted organizational leadership success (Genau et al., 2021). In turn, in educational sciences research, Psychopathy has been found to positively predict university grades (Hassall et al., 2015), Machiavellianism has been linked to increased academic achievement in higher education (Eker, 2020) and goal orientations (Kareshki, 2011), and Narcissism was positively associated with mental toughness in school (Papageorgiou et al., 2018) and predicted grades positively among college students (McManus et al., 2022).

Thus, it is not only positive traits that may serve an individual in reaching certain goals or outcomes—negative traits may also be productive. However, the negative impact of traits such as the DT ought not to be overlooked, especially in education. Psychopathy has been associated with educational outcomes such as decreased reading comprehension in the L1 (DeLisi et al., 2011), school drop-out (Hempälä & Hodgins, 2014), and truancy and decreased school engagement (Ang et al., 2015). In turn, Machiavellianism has been linked to academic dishonesty (Barbaranelli et al., 2018), decreased prosocial classroom behavior (Berger & Palacios, 2014), and an increased likelihood of bullying peers (Sutton & Keogh, 2000). Lastly, Narcissism predicted disruptive school behavior, conduct problems (Hiemstra et al., 2020; Ha et al., 2008), and academic misconduct (Brunnell et al., 2011). As such, in previous educational research, a duality of negative traits is found—some studies found positive outcomes associated with the DT (see Papageorgiou et al., 2018) and some studies have found negative outcomes (DeLisi et al., 2011). Hence, the slopes of significant predictions involving the DT and educational outcomes in general are uncertain.

These observations raise questions regarding the duality of negative traits in predicting desirable or detrimental outcomes in educational contexts, particularly in the realm of second language (L2) acquisition and learning. In terms of the specific educational domain of L2 acquisition, personality traits as predictors of L2 learning research have predominantly been focused on positively framed personality models and traits, such as the Big Five[1] (Chen et al., 2021), creativity (Nosratinia & Zaker, 2015), and self-esteem (Takahashi & Takahashi, 2013). The sheer emphasis on traditional positive traits has resulted in the underrepresentation of the possible impact of other aspects of personality (e.g., aversive, undesirable traits). Considering that educational psychology research has demonstrated that negative traits may serve learners positively in terms of

[1]The Big Five is a personality model conceptualized by Costa and McCrae (1992). It is a nondark model of personality that has been validated and replicated in numerous languages and cultural and ethnic settings across the world (Schmitt et al., 2007) and can be considered the most popular and extensively used model of personality in modern psychological research. The model consists of five factors of personality, namely extraversion, openness to experience, neuroticism, agreeableness, and conscientiousness. For a review of the role of the Big Five in language learning literature, please see the meta-analysis of Chen et al. (2021).

success (Kareshki, 2011; Papageorgiou et al., 2018; McManus et al., 2022), this paper aims to extend this contradictive prediction of positive outcomes with negative traits to the field of L2 learning. Specifically, the socially maladaptive traits of the DT (Paulhus & Williams, 2002) will be examined as predictors of common outcome variables in L2 learning—L2 learning motivation, L2 engagement, L2 academic achievement, and L2 willingness to communicate (WTC).

The myth that negative personality traits, such as those included in the DT, are solely detrimental to outcomes needs to be dismantled. Unraveling this complexity is vital since it could challenge the binary view of personality traits being solely "good" or "bad" and that only positive traits are essential to be investigated to promote success, especially regarding subclinical, invisible negative traits such as DT. Thus, it is critical to examine if and how these traits might influence key outcome variables, such as L2 learning motivation, engagement, overall communication willingness, and overall achievement, as established indicators of students' success in the process of language learning. The specific interest of the study is therefore not only on the statistical significance of DT factors as predictors of L2 learning, but more specifically on the directionality of significant effects. We therefore extend the current debate regarding negative personality traits found in educational psychology to the field of L2 learning and examine if negative personality traits are positive predictors, negative predictors, or even both when it comes to predicting L2 outcomes.

Literature review

Overview of the Dark Triad

The DT of personality has garnered considerable research attention since its introduction by Paulhus and Williams (2002). Narcissism, Psychopathy, and Machiavellianism as three nonclinical, aversive personality traits that constitute the DT were included in this model as they share close conceptual features, such as callousness, social aversion, selfishness, deceitfulness, and antagonism (e.g., Jones & Figueredo, 2013). Moreover, their original measures demonstrated empirical overlap (Paulhus & Williams, 2002). Prior to the grouping of these variables, each had received extensive research attention, especially in the clinical domain. In short, Narcissism can be defined as an inflated egoistic self-importance and a quench for social admiration and dominance (Corry et al., 2008), while Psychopathy captures impetuous behavior, selfishness, and an absence of regret, empathy, and anxiety (Hare, 1985; Paulhus & Williams, 2002). Meanwhile, Machiavellianism reflects manipulative and deceptive tendencies toward reaching personal interests and goals (Jones & Paulhus, 2013). Paulhus and Williams (2002) examined the resemblance and variance among these traits and reported that although these constructs were intercorrelated (especially Psychopathy and Machiavellianism), they were, indeed, separate traits that should be studied in tandem. Muris et al.'s (2017) meta-analysis of studies on the DT, likewise, confirmed these associations.

In their seminal study on the DT, Paulhus and Williams (2002) adopted the standard measures—Narcissism (The NPI scale; Raskin & Hall, 1979), Machiavellianism (The Mach-IV inventory; Christie & Geis, 1970), and subclinical Psychopathy (The SRP III; Hare, 1985). Utilizing these original measures would require the respondents to answer approximately 124 items. Therefore, several composite scales for constituting concepts under the umbrella of the DT were developed. The Dirty Dozen (Jonason & Webster, 2010) and the Short DT (Jones & Paulhus, 2014) are among the most prevalent measures used. While the former includes 12 items (four for each trait), the latter has 27 questions

(nine for each trait). Both of these scales have shown acceptable reliability and validity (Maples et al., 2014). Although many criticized the validity of such scales, especially concerning the multidimensionality of psychopathy and narcissism traits (Lyons, 2019), the studies on the DT that employed these scales have increased in number, likely due to the benefits provided by short-scale use (Rolstad et al., 2011).

The DT has been studied in a variety of contexts and in relationship to various variables, with varying effect sizes and directionalities found. For instance, Narcissism has shown more positive influence and has been linked to higher emotional expressivity (Lyons & Brockman, 2017), self-esteem (Geukes et al., 2017), and extraversion (Aluja et al., 2022). Machiavellianism and Psychopathy, which are more similar (Lyons, 2019), have been reported to be related to decreased positive mood (Egan et al., 2014), decreased emotional expressivity and mental toughness (Lyons & Brockman, 2017), and competition-seeking at workplace (Jonason et al., 2015). Furthermore, regarding gender, it has been established that men show higher levels of DT compared to women (e.g. Aluja et al., 2022). Among the very few studies focusing on the role of the DT or its subcomponents in educational settings, Papageorgiou et al. (2018) examined school achievement, mental toughness, and Narcissism among a large sample of Italian students via a longitudinal design. They observed no direct correlation between Narcissism and achievement in school, while a significant, indirect, positive link was revealed between the two through mental toughness. Moreover, studying a British sample from private and state–funded schools, Cannon et al. (2020) found that students from the former educational setting showed higher DT levels, indicating the effect of school type on this trait. Moreover, they claimed that DT negatively affected intellectual humility which was correlated with academic performance. Although the majority of the samples for DT studies consisted of students from various majors, no study could be found that investigated the associations between DT and L2 or foreign language learning outcomes.

The lack of existing research may be due to the negative associations of the DT in terms of behavior and interpersonal relationships (Muris et al., 2017) and the complexity that arises in examining the contradictory findings that can occur when "undesirable" traits, such as the DT, predict positive outcomes. In addition, the exploration of personality traits as a whole has been neglected in L2 learning studies, most likely due to the smaller effect sizes associated with personality factors as a predictor in comparison to other L2 predictor variables (see Botes et al., 2024a). Indeed, Dörnyei (2005) remarked that "the role and impact of personality factors are of less importance than those of some other individual differences variables such as aptitude and motivation" (p. 10). However, given that the DT has been found to significantly predict (both positively and negatively) behavior in educational settings and educational outcomes in general in the few studies that investigated the DT or its traits in these contexts (e.g. Eker, 2020; Hassall et al., 2015; McManus et al., 2022; Papageorgiou et al., 2018), we argue that there is an urgent need to expand these findings to examine the DT as a predictor of L2 classroom behavior and outcomes.

The Dark Triad and L2 learning

Individual Differences (ID) are social, psychological, or biological learner characteristics, that are unique in terms of their combination in each individual and have been found to affect learning outcomes directly or indirectly (Li et al., 2022). Due to the predictive effect of ID variables on learning outcomes, the explicative role ID variables play in the process of language learning, and the subsequent implications for the practice of language teaching and learning (Li et al., 2022), ID variables have been a topic of interest among the researchers of this field.

One such variable is learners' WTC which is the intention to speak or remain silent, given free choice (MacIntyre, 2020). Since communication is a vital part of learning a language, whatever the purpose of language learning might be, the primary reason is to be able to use the target language (MacIntyre & Charos, 1996). According to the literature, WTC is predicted by variables such as anxiety, enjoyment, perceived competence, motivation (Dewaele, 2019; Elahi Shirvan et al., 2019), language mindset (Ebn-Abbasi et al., 2024), and language proficiency (Sato, 2023). In terms of personality, traits such as Extraversion, Agreeableness, and Openness to Experience have been linked to WTC (Oz, 2014). Although no previous research regarding WTC and the DT could be found, each of the components of the DT has previously been associated with communication behavior. Narcissism has been positively linked to interpersonal communication apprehension (Salazar, 2016), a variable that examines nervousness in communication. Given that WTC requires an individual to speak up in the L2 despite nervousness (MacIntyre, 2020) and that WTC is also predicted by communication apprehension (Donovan & MacIntyre, 2004), these variables are likely to coexist within the same nomological network. In turn, a review of the communication patterns associated with Psychopathy found that people with psychopathic tendencies tended to avoid communication when feeling anxious or uncertain (see Gullhaugen & Sakshaug, 2019 for an overview). The theoretical foundations of L2 WTC are based on the uncertainty that language learners feel, with MacIntyre (2020) commenting: "Learners often find themselves in a position that requires the use of uncertain L2 skills, be it inside or outside the classroom context" (p.111). In addition, qualitative studies examining WTC in the target language have found that uncertainty and a sense of security were drivers in an L2 learner's choice to communicate as well as previous traumatic or exhilarating incidents (Dewaele & Pavelescu, 2021; Kang, 2005). In terms of Machiavellianism, its link with WTC is somewhat less clear, with the former defined as a tendency to manipulate. and domain–general education research findings indicate that higher levels of Machiavellianism predicted certain communication patterns with teachers, notably greater sycophantic communication (Martin et al., 2006). Additional research on the communication patterns of Machiavellians also suggests that the WTC of higher–level Machiavellian learners would depend on whether the opportunity for manipulation is present in the communication (Tomkova et al., 2022) and if a tangible reward or outcome may be gained from such communication (Birkás et al., 2015). Overall, even though the DT has not been directly linked to WTC, an extrapolation of previous findings in other research domains does provide a basis for the exploration of a relationship between the DT and L2 WTC.

Another ID that captures the learners' direction, vigor, and determination of actions in the learning process is motivation (Papi & Hiver, 2022). The DT can be examined and explained in the context of motivation, such as intrinsic and extrinsic motivation. The former, exhibited as a genuine interest and enjoyment in the learning process contrasts the drive by external rewards or pressures. Learners demonstrating higher intrinsic motivation may also show higher narcissistic attitudes (Morf et al., 2000), whereas those influenced by extrinsic motivation are more likely to exhibit greater levels of Machiavellianism and Psychopathy (Glenn et al., 2017; McHoskey, 1999).

Among the various theories of motivation, Dörnyei's (2005, 2009) L2 motivational self system (L2MSS), comprised of three elements of the ideal L2 self, ought–to L2 self, and L2 learning experience is a prominent one. According to this theory, motivation is the desire to diminish the inconsistency between one's actual self and ideal or ought–to selves (Dörnyei, 2009). While the ideal L2 self refers to the ideal picture of the future L2 user one wishes to become, ought–to self captures the attributes one believes one ought

to possess to meet the expectations of others (Dörnyei, 2009). The available literature sheds light on the relationship between L2MSS components and other ID variables such as personality (Oz, 2015), language mindset (Ebn-Abbasi et al., 2024), and language proficiency (Wong, 2020). In terms of personality, general personality traits of Extraversion, Neuroticism, Conscientiousness, and Openness to Experience have been linked to the Ideal L2 Self, with Neuroticism and Conscientiousness associated with Ought–to Self (Ghapanchi et al., 2011). Although no study could be found that examined the DT and L2 learning motivation, support for the proposed relationship between the DT and motivation can be found in domain–general educational psychology studies. Previous research has linked the DT to the motivation of student volunteers (Veres et al., 2020), and the motivations of medical students (Bujok et al., 2024). Machiavellianism, in particular, may be linked to motivation, as the trait is associated with a high–power motivation (Paulhus, 2014). In turn, Psychopathy is associated with a motivation for power and development (Diller, Czibor, et al., 2020 as cited in Diller, Frey, et al., 2021), which may include a motivation for developing skills such as mastering an L2. This motivation to develop skills may also apply to Narcissism, as highly Narcissistic individuals have a high impression motivation and may want to develop skills to impress others (Wallace & Baumeister, 2002). Given the theoretical foundations of the DT traits and previous findings in domain–general education, there is a research basis from which to explore the relationship between L2 motivation and DT.

A closely related concept to motivation is learner engagement which is the next step taken by learners when they put their motivational sources into action to perform language learning tasks (Hiver, 2022). Engagement captures all learning (Hiver, 2022) and it has at least three core components, viz., behavioral, emotional (or affective), and cognitive (Fredricks et al., 2004). Recently, Teravainen-Goff (2023) has introduced a new domain–specific engagement scale that, unlike other available measures, captures the quality of learners' active participation. She views engagement as a behavioral concept with underlying cognitive and affective dimensions; and defines the quality of L2 engagement as "the perceived usefulness and satisfaction with the learning experience" (Teravainen-Goff, 2023, p. 3). The Intensity and Quality of L2 Engagement Questionnaire has five factors, namely intensity of effort in learning, intensity of social engagement, perceived quality of engagement with the teacher, perceived quality of engagement with peers, and perceived quality of engagement with learning activities. Researchers in L2 IDs have investigated the antecedents of L2 engagement such as personality (Angelovska et al, 2021), and language mindset and emotions (Ebn-Abbasi et al., 2024). The personality traits linked to engagement include Neuroticism (Angelovska et al., 2021) and Grit (Sadoughi & Hejazi, 2023). Although the DT has not been examined previously as a predictor of L2 learning engagement, studies in educational psychology have found links between the DT and domain–general learning engagement. Mooney (2023) and Hughes et al. (2023) found Narcissism to be positively correlated with students' engagement whilst Psychopathy was negatively correlated. Previous studies in domain–general education therefore demonstrated that not only is there an association between the DT and learner engagement, but that differing directionalities are found for DT traits.

Achievement and L2 learning

Gaining proficiency in the target language can be perceived to be the ultimate goal of L2 learning. However, objective measures of proficiency can the prohibitively expensive and difficult to administer (Edele et al., 2015). As such, academic achievement and self-

perceived proficiency have become common proxy variables of proficiency in the field of L2 learning, especially in meta-analytic studies (see Botes et al., 2020a; Botes et al., 2022). In addition to commonly being perceived as proxy variables of proficiency, academic achievement of L2 learning classes and the self-perception of proficiency can be seen as outcome variables in their own right. Academic achievement in the form of grades or test scores is a popular outcome variable in educational sciences studies as an indicator of learning success (Steinmayr et al., 2015). Furthermore, self-perceived proficiency as a variable capturing a learner's confidence in their ability is associated with L2 variables such as WTC (Donovan & MacIntyre, 2004), motivation (Wong, 2020), and emotions (Botes et al., 2020b), and as such can be considered a significant variable in the greater nomological network of L2 learning.

Within this nomological network of variables of L2 learning, the relationship between personality and L2 achievement has been extensively examined in the literature. A recent meta-analysis of over 40 years of research in L2 learning examined the relationship between personality as captured via the Big Five and L2 learning achievement found significant positive correlations between achievement and Openness to Experience ($r = .23$; $p < .001$), Conscientiousness ($r = .18$; $p = .002$), Extraversion ($r = .12$; $p = .017$), and Agreeableness ($r = .10$; $p = .025$; Chen et al., 2021). In addition, L2 perceived competence has also been positively associated with Openness to Experience, Conscientiousness, Extraversion, and Agreeableness (Rivers & Ross, 2020). To the best of our knowledge, a study of this nature that examined the DT and achievement or proficiency in L2 learning has not yet been carried out. In domain-general education literature, DT has been linked to academic achievement in higher education (Eker, 2020; Tahoon, 2020). Furthermore, the theoretical foundations of each DT trait may provide a basis from which to link the traits to L2 academic and self-perceived achievement. Narcissism is associated with a grandiose sense of self and a need to impress (Paulus & Williams, 2002), where both a sense of self and a need to impress may translate into a greater L2 perceived achievement, with a need to impress possibly leading to a drive to achieve (Wallace & Baumeister, 2002). In turn, Machiavellianism is associated with goal–striving behavior and pursuing rewards (Kareshki, 2011), as higher grades can be considered a goal or a "reward," it may be that Machiavellian language learners pursue academic achievements. In addition, previous research has shown that Psychopathy was positively associated with academic achievement in domain–general education research (Hassall et al., 2015), whereas Psychopathy had a negative association with L1 reading achievement (DeLisi et al., 2011).

In light of the reviewed literature and previous findings, we hypothesize that the DT traits can affect the L2 learning process by playing a role in learners' motivation, WTC, quality of engagement, academic achievement, and self-perceived achievement. As previous results regarding the relationship between the DT traits and learning outcomes have often been contradictory in terms of directionality, we do not hypothesize specific directions in the study. Rather, the study is a first exploratory foray into the possible relationships between DT and L2 learning variables. To this end, the following research questions are addressed:

1. Do the DT of personality (Machiavellianism, Psychopathy, and Narcissism) predict the L2 Motivational Selves of Ideal L2 Self and Ought–to L2 Self?
2. Do the DT of personality (Machiavellianism, Psychopathy, and Narcissism) predict L2 engagement as captured via intensity of effort in learning, intensity of social engagement, quality of engagement with the teacher, quality of engagement with peers, and quality of engagement with learning activities?

3. Do the DT of personality (Machiavellianism, Psychopathy, and Narcissism) predict L2 academic achievement and L2 self-perceived achievement?
4. Do the DT of personality (Machiavellianism, Psychopathy, and Narcissism) predict L2 willingness to communicate?

Methods

Participants

A total of n = 431 (n = 219 male and n = 199 female) L2 adult learners from [country redacted for peer review] learners participated in the study[2]. All participants were studying English courses in private English language schools using various course books such as *American English File*, *English File*, and *Top Notch* series. Participants varied across proficiency levels, with n = 11 A2 English learners, n = 201 B1 learners, n = 187 B2 learners, and n = 32 C1 learners as categorized by the Common European Framework of Reference for Languages (CEFR)[3]. The average age of participants was 21.35 years old (SD = 2.173) and ranged from 18 to 29. This research was approved by the University of [blinded] ethical committee and their guidelines were followed throughout the whole research process.

Instruments

***The Dark Triad* (α = .901):** The dark triad of personality was measured via the Dirty Dozen Scale (Jonason & Webster, 2010), a 12-item, multidimensional scale with three subfactors: Machiavellianism (e.g. "I tend to manipulate others to get my way"; α = .930), Psychopathy (e.g. "I tend to lack remorse"; α = .878), and Narcissism (e.g. "I tend to want others to admire me"; α = .945). The Dirty Dozen was selected as it is considered to be the most prevalent composite questionnaire to assess the DT (Lyons, 2019), in addition to being a valid and reliable measure of the DT (see Maples et al., 2014). Another reason to choose this scale was to avoid the high number of items in the questionnaire which can negatively affect participants' responses. Each subfactor was measured with four items each, with each item measured on a 5-point Likert scale from "strongly disagree" to "strongly agree."

***L2 Engagement* (α = .914):** Engagement in the L2 class was measured through the Intensity and Quality of L2 Engagement Questionnaire (Teravainen-Goff, 2023). The 18–item, multidimensional questionnaire captures L2 Engagement via five subfactors: Intensity of effort in learning (four items; e.g. "I usually concentrate on the activities we do"; α = .899), intensity of social engagement (three items; e.g. "I usually participate in class discussion; α = .901), quality of engagement with the teacher (four items; e.g. "I usually feel I learn a lot from my teacher"; α = .897), quality of engagement with peers (four items, e.g. "I usually think group work is a good way to learn"; α = .913), and quality of engagement with learning activities (three items; e.g. "I usually learn a lot from the activities we do"; α = .920). All items were measured on a 5-point Likert scale from "strongly disagree" to "strongly agree."

[2] n = 13 participants chose not to report gender.

[3] The CEFR is a commonly accepted language proficiency categorization system with six levels: A1 represents beginner proficiency, A2 is lower-intermediate proficiency, B1 is intermediate proficiency, B2 is upper-intermediate proficiency, C1 is advanced proficiency, and C2 is fully proficient in the target language (Council of Europe, 2001).

***L2 Motivational Self*:** The L2 Motivational Self was examined via the L2MSS Scale (Taguchi et al., 2009). Despite the existence of more recent models, such as Papi et al. (2019), the current scale has been used and proved a to be valid and reliable measure repeatedly in [blinded] context. Ideal L2 Self, measured through 10 items (α = .951), captured the idealized version of the L2 learner as a proficient user of the L2 and as such encapsulates the intrinsic motivation to learn the L2 (e.g. "I can imagine myself living abroad and having a discussion in English"). The Ought–to L2 Self, measured through 10 items (α = .950), captured the extrinsic motivation to learn the L2 (e.g. "Learning English is necessary because people surrounding me expect me to do so"). All items were measured on a 5–point Likert scale from "strongly disagree" to "strongly agree."

***Willingness to Communicate* (α = .952):** L2 WTC was measured through Peng and Woodrow's (2010) L2 WTC Scale. The 10–item, unidimensional scale captured the L2 learner's willingness to communicate in the English class (e.g. "I am willing to ask my classmates in English how to pronounce a word in English"). All items were measured on a 5–point Likert scale ranging from "strongly disagree" to "strongly agree."

***Academic Achievement and Self–Perceived Achievement*:** A single item was included in the survey to assess participants" English achievement. They reported their latest English course final grade, which ranged between 1 and 100, which includes the four main skills (speaking, reading, listening, and writing) assessed by the language schools. Participants were specifically asked to report their final scores rather than the midterms. Regarding self–perceived achievement, learners were asked to rate their perceived proficiency in English on a scale of 1 (beginner) to 6 (highly proficient).

Data analysis

All data were analyzed using JASP 0.18.3 (JASP Team, 2024). Descriptive statistics and Pearson's correlation coefficients were calculated for all variables. For each research question, a structural equation model (SEM) was analyzed to test the hypothesized relationships between the predictor variables of the dark triad and the outcome variables of L2 learning variables. As a precursor to the analysis of the SEMs, measurement models were analyzed to ensure the necessary validity of the questionnaires used to capture the constructs. The dark triad, as well as L2 engagement scales, were modeled as correlating, multidimensional measurement models to examine each of the subfactors as individual predictors and outcome variables, for instance, Narcissism as a predictor of social engagement. The measurement model results and a summary of the SEMs can be found in the Supplementary Materials. Measurement models and SEMs were estimated with diagonally weighted least squares with standard errors, as all observed variables in the models were ordinal variables (Li, 2016). Model fit was interpreted via the Comparative Fit Index (CFI; close fit ≥ .95; reasonable fit ≥ .90), Tucker-Lewis Index (TLI; close fit ≥ .95; reasonable fit ≥ .90), Root Mean Square Error of Approximation (RMSEA; close fit ≤ .05; reasonable fit ≤ .08), and Standard Root Mean Square Residual (SRMR; close fit ≤ .05; reasonable fit ≤ .08; Kenny, 2020). Effect sizes were interpreted using the guidelines of Botes et al. (2024b), which categorizes effect sizes as small (< .20), medium (.35), and large (> .50). It should be noted that the guidelines of Botes et al. (2024b) were developed based on correlation coefficients. However scholars have argued that standardized regression coefficients can be interpreted in a similar way (see Acock, 2014). Furthermore, the guidelines of Botes et al. (2024b) were specifically

developed for L2 IDs, whereas L2 specific regression coefficient effect size guidelines have yet to be developed.

It should be noted that each of the research questions were examined as a separate structural equation model, as the necessary statistical power was not present to test a complex overarching model with all outcome variables as well as possible interrelationships between outcome variables (e.g. WTC predicting academic achievement as previously supported in the literature, see Al-Murtadha, 2021). With a total of 62 observed variables, the study would require between 620 and 1240 participants to meet the SEM sample requirements as laid out by Kline (2015; e.g. 10-20 participants per observed variable). However, by examining each individual research question in its own model, the necessary sample size requirements are met with the current sample of $n = 431$. Nevertheless, by depicting the research questions as individual models, we do not disregard that all variables measured in this study likely are found within the same nomological network and complex interrelationships between the outcome variables are likely present. However, the modelling and analyzing of such interrelationships are not within the purview of the study as the focus was on examining the dark triad of personality as predictor variables. A summary of the findings of all latent regression paths can be found in the Supplementary Materials. The study was preregistered: [Blinded for peer review].

Results

Descriptive statistics

The descriptive statistics and correlation matrix of all variables can be found in Table 1 and Table 2. No normality of multicollinearity concerns were found in the data (Field, 2013).

Research question 1: Dark Triad predicting L2 motivational selves

The SEM of the Dark Triad of personality factors and the L2 Motivational Selves demonstrated close fit ($\chi^2(452) = 654.314$, $p < .001$), with the CFI (.995) and TLI (.994) both above the cut-off of > .95 and the RMSEA (.032) and SRMR (.049) both below the needed < .05 (Kenny, 2020; see Figure 1). Furthermore, the model found that Ideal L2 Self was positively predicted by Narcissism ($\beta = .380$; $p < .001$), negatively predicted by

Table 1. Descriptive statistics

Variable	Min	Max	Mean	SD	Skewness	Kurtosis
Machiavellianism	1	5	3.138	1.268	.238	–1.459
Psychopathy	1	5	2.422	.940	1.074	.519
Narcissism	1	5	3.158	1.342	.130	–1.588
Effort in learning	1	5	3.635	1.154	–.491	–1.194
Social engagement	1	5	3.352	1.223	–.270	–1.285
Teacher engagement	1	5	3.313	1.233	–.146	–1.416
Peer engagement	1	5	3.161	1.224	.103	–1.410
Learning engagement	1	5	3.196	1.267	.045	–1.355
Ideal L2 Self	1	5	3.547	1.067	–.502	–1.361
Ought-to L2 Self	1	5	3.196	1.135	–.053	–1.560
Academic achievement	59	100	80.258	8.960	.057	–.709
Self–perceived achievement	1	6	3.979	.931	–.081	–.307
WTC	1	5	3.591	1.121	–.563	–1.348

Table 2. Manifest Pearson correlation matrix

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Machiavellianism	–												
2. Psychopathy	.285***	–											
3. Narcissism	.660***	.129**	–										
4. Effort in learning	.095*	–.072	.172***	–									
5. Social engagement	.014	–.080*	–.071	.538***	–								
6. Teacher engagement	.113*	.033	.179***	.504***	.500***	–							
7. Peer engagement	.154**	.008	.018	.261***	.308***	.351***	–						
8. Learning engagement	.062	–.032	–.073	.223***	.326***	.234***	.583***	–					
9. Ideal L2 Self	.241***	–.025	.359***	.219***	.021	.157**	.179***	.098*	–				
10. Ought-to L2 Self	.009	–.047	–.101*	–.068	.090	–.019	.128**	.154**	–.341***	–			
11. Academic achievement	.124*	.091	.101*	.025	–.011	–.043	.016	–.027	.006	–.006	–		
12. Self-perceived achievement	.443***	.238***	.415***	.027	–.171***	.030	–.085	–.150**	.202***	–.108*	.264***	–	
13. WTC	.090	–.037	.180***	.321***	.104	.145**	.174***	.058	.509***	–.189***	.022	.198***	–

Note: ***$p < .001$; **$p < .01$; $p < .05$

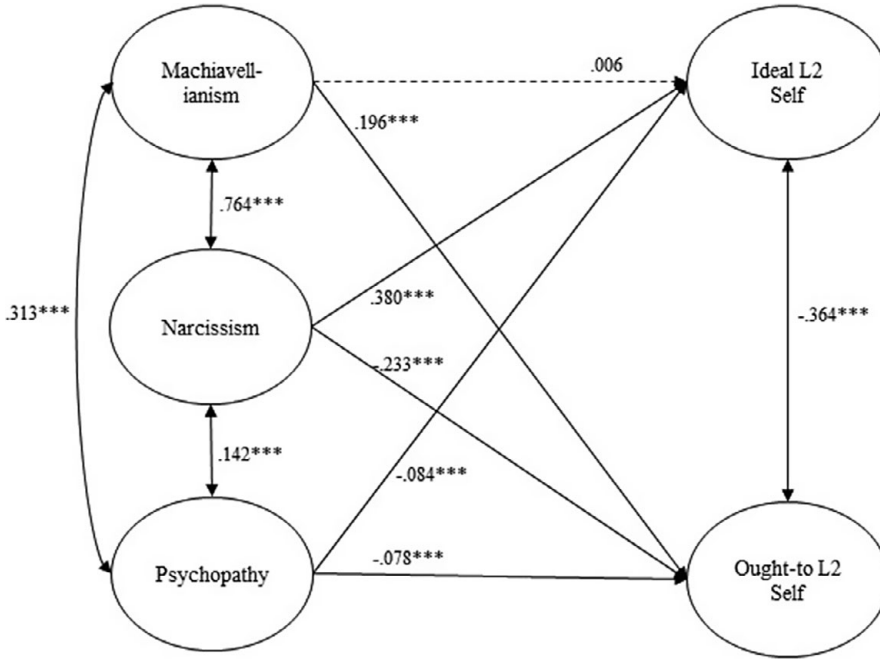

Figure 1. L2 Selves Structural Equation Model.
Note: ***p < .001; **p < .01; *p < .05.

Psychopathy (β = -.084; p < .001), and was not significantly predicted by Machiavellianism (p = .896). In turn, Ought–to L2 Self was positively predicted by Machiavellianism (β = .196; p < .001) and negatively predicted by Narcissism (β = -.233; p < .001) and Psychopathy (β = -.078; p < .001).

Research question 2: Dark Triad predicting L2 engagement

The SEM of the correlated L2 Engagement factors achieved close fit ($\chi^2(377) = 422.959$, p = .051), with the CFI (.998) and TLI (.998) comfortably meeting the cut-off of > .95 and the RMSEA (.017) and SRMR (.044) both below the desired < .05 (Kenny, 2020; see Figure 2). Machiavellianism positively predicted social engagement (β = .188; p < .001), peer engagement (β = .331; p < .001), and engagement with learning activities (β = .276; p < .001). Machiavellianism did not significantly predict learning effort (p = .936) or teacher engagement (p = .515). In turn, Psychopathy negatively predicted learning effort (β = -.108; p < .001), social engagement (β = -.123; p < .001), peer engagement (β = -.074; p = .001), and engagement with learning activities (β = -.084; p = .001), but did not significantly predict teacher engagement (p = .522). It should however be noted that although the regression coefficients with Psychopathy as a predictor were statistically significant, all regressions were rather small (-.123 < β < -.074; Botes et al., 2024b). Lastly, in contrast to Machiavellianism and Psychopathy, which both showed a uniform slope as predictors, Narcissism was found to be both a positive and negative predictor of L2 engagement. Narcissism positively predicted learning effort (β = .204; p < .001) and teacher engagement (β = .210; p < .001) and negatively predicted social engagement

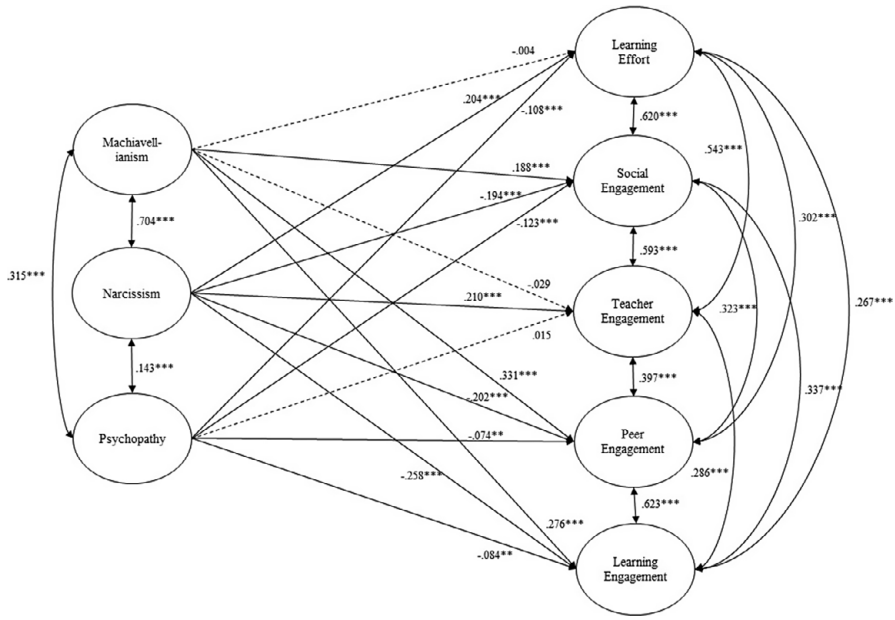

Figure 2. L2 Engagement Structural Equation Model.
Note: ***p < .001; **p < .01; *p < .05.

(β = -.194; p < .001), peer engagement (β = -.202; p < .001), and engagement with learning activities (β = -.258; p < .001).

Research question 3: Dark Triad predicting L2 achievement

The SEM of the dark triad predicting L2 achievement showed reasonable fit ($\chi^2(69)$ = 285.795, p < .001), with the CFI (.994) and TLI (.992) both above the cut-off of > .95 and the RMSEA (.086) and SRMR (.037) below the recommended < .05 (Kenny, 2020; see Figure 3). However, the RMSEA was somewhat higher than desired (.086 > .08; Kenny, 2020). All the proposed paths in the model were statistically significant. Academic achievement was positively predicted by Machiavellianism (β = .075; p < .001), Narcissism (β = .047; p < .001), and Psychopathy (β = .068; p < .001). It should be noted that all the effect sizes of the regression coefficients for academic achievement can be classified as small (Botes et al., 2024b). In turn, self-perceived achievement had much larger effect sizes and was also positively predicted by Machiavellianism (β = .268; p < .001), Narcissism (β = .232; p < .001), and Psychopathy (β = .153; p < .001).

Research question 4: Dark Triad predicting WTC

The last model tested, that of the dark triad of personality predicting WTC, also achieved close fit ($\chi^2(203)$ = 284.022, p < .001), with the CFI (.996) and TLI (.996) both above the cut-off of > .95 and the RMSEA (.030) and SRMR (.048) below the needed < .05 (Kenny, 2020; see Figure 4). Narcissism was found to be a positive predictor of WTC (β = .235; p < .001), with Psychopathy negatively predicting WTC (β = -.055; p < .001). Machiavellianism did not have a significant effect on WTC (p = .068).

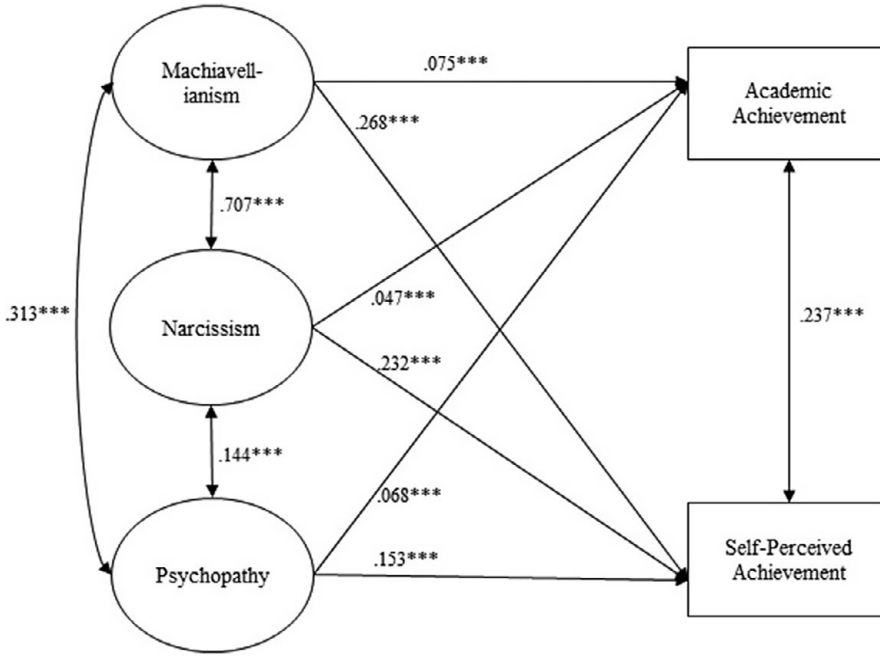

Figure 3. L2 Achievement Structural Equation Model.
Note: ***p < .001; **p < .01; *p < .05.

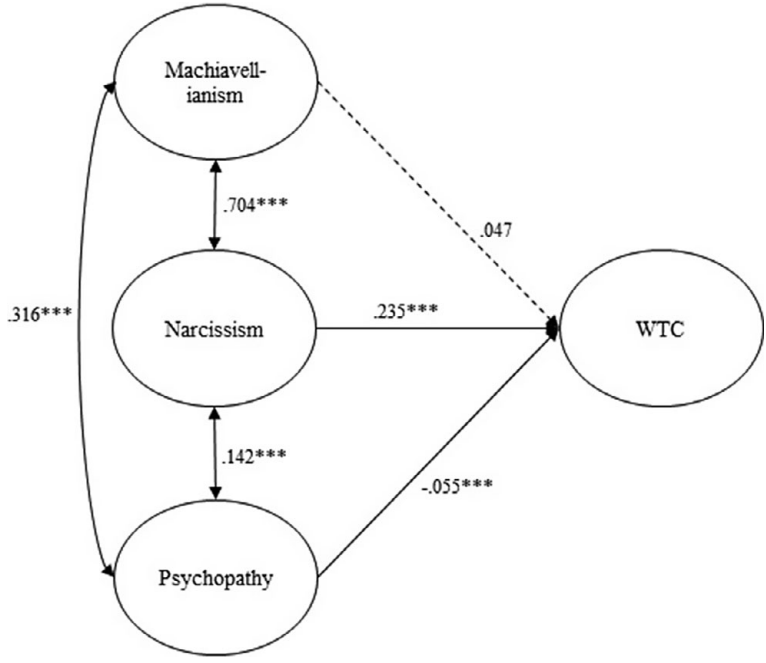

Figure 4. L2 WTC Structural Equation Model.
Note: ***p < .001; **p < .01; *p < .05.

Table 3. Summary of results

	Machiavellianism	Narcissism	Psychopathy
Positively predicted	Ought–to L2 Self Social Engagement Peer Engagement Learning Engagement Academic Achievement Self–Perceived Achievement	Ideal L2 Self Learning Effort Teacher Engagement Academic Achievement Self–Perceived Achievement WTC	Academic Achievement Self–Perceived Achievement
Negatively predicted		Ought–to L2 Self Social Engagement Peer Engagement Learning Engagement	Ideal L2 Self Ought–to L2 Self Learning Effort Social Engagement Peer Engagement Learning Engagement WTC

Discussion

The study examined the DT traits of Machiavellianism, Narcissism, and Psychopathy as predictors of L2 learning outcomes. By and large, the results demonstrated that the DT traits were significant predictors, although the directionality of significant results paints a muddy picture. DT traits were found to be both positive and negative predictors of L2 learning outcomes (see Table 3) and thus the presence of these "malicious" traits in an L2 learner may be both a help and a hindrance in their pursuit of language learning.

The first research question examined the DT traits as predictors of Ideal L2 Self and Ought–to L2 Self. Ideal L2 Self, which represents an idealized future version of the language learner and the person that meets social expectations, was significantly positively predicted by Narcissism and negatively predicted by Psychopathy. The relationship between Narcissism and the Ideal L2 Self can be explained by the grandiose sense of self that is central to the trait of Narcissism (Paulhus & Williams, 2002), thus a more grandiose sense of self as an L2 learner. In turn, the significantly negative result found in Psychopathy predicting Ideal L2 Self is in contrast to previous research theorizing Psychopathy as a possible motivating drive to master skills (Diller, Czibor et al., 2020). Although previous research has found that Psychopathy is linked to lower levels of self-esteem and negative self-evaluations (Morrison & Gilbert, 2001; Shagufta & Nazir, 2021) and given that Ideal L2 Self represents the self-belief of a language learner (Al-Hoorie & Hiver, 2024), it may be that higher levels of Psychopathy results in lower beliefs about the idealized future self. However, it should be noted that the effect size of the relationship between Psychopathy and Idealized L2 Self can be considered rather small (β = -.084; $p < .001$).

As the Ideal L2 Self represents an internal drive to master the target language, so does Ought–to L2 Self represent an external motivation driven by the expectations and duty towards others to learn the skill. Machiavellianism significantly positively predicted Ought–to L2 Self, whereas Narcissism and Psychopathy were both significant negative predictors. Both Narcissism and Psychopathy are linked to a lower sense of duty and sense of obligation towards others (Lachowicz-Tabaczek et al., 2021), which may explain the negative association with Ought–to L2 Self. In turn, the positive relationship between Machiavellianism and Ought–to L2 Self supports previous research findings regarding Machiavellianism as a predictor of motivation, including extrinsic motivation, and mastery goals (Kareshki, 2011).

The second research question examined the relationship between DT traits and L2 engagement. Machiavellianism has been theorized to involve "high cognitive and neural skills in social activities" that can lead individuals with high trait levels to be task-oriented and socially engaged (Bereczkei, 2018, p. 32). This theory regarding Machiavellianism supports our finding of the trait as a significant predictor of social engagement and peer engagement—demonstrating that the Machiavellian skill in social activities in the classroom can be a boon to L2 learning. In turn, Psychopathy was negatively associated with learning effort, social engagement, peer engagement, and learning engagement, which confirmed previous findings in nondomain–specific education studies regarding the detrimental relationship between Psychopathy and classroom engagement (Mooney, 2023; Hughes et al., 2023). In contrast to the uniform directionalities found for Machiavellianism and Psychopathy, Narcissism showed mixed effects. Social, peer, and learning engagement were negatively predicted by Narcissism, in contrast to previous nondomain–specific educational research (Mooney, 2023). Although the findings regarding Narcissism as a negative predictor of especially social and peer engagement may be explained by the differentiation made in the literature between self-esteem and Narcissism, where high self-esteem individuals are concerned with "getting along," Narcissists are concerned with "getting ahead" (Roberts et al., 2018). However, Narcissism was a positive predictor of teacher engagement, supporting previous research regarding the tendency of Narcissists to ingratiate themselves with authority figures (Ahmad et al., 2024).

In terms of the third research question, all three DT traits were significant positive predictors of academic achievement and self–perceived achievement. This finding is in line with previous research linking success to DT traits, where the DT has predicted effective leadership (Diller et al., 2021), success in sports (Vaughan & Madigan, 2021), and successful learning (McManus et al., 2022). However, it should be noted that underlying this drive for success is the assumption that there is a reward component linked to DT success, as explained by Lyons (2019, p. 2): "The DT traits do have positive sides too, especially in circumstances where there is a possibility to gain something for oneself." Therefore, in the L2 classroom, the assumption would be that higher grades and a sense of achievement are "something to gain," where DT traits can be beneficial and a drive towards success. However, this reward mechanism may be limited to L2 learning in a classroom setting, where grades and perception of one's own achievement are intrinsically tied. Future research examining the DT traits in other L2 settings such as self–driven learning should be investigated, as well as studies examining proficiency as opposed to academic achievement as an outcome. The discrepancy in effect sizes between DT traits as predictors of academic achievement ($.047 \leq \beta \leq .075$) and self–perceived achievement ($.153 \leq \beta \leq .268$) should also be noted, as the DT had a considerably stronger effect on the perception of achievement as opposed to actual achievement.

The fourth and last research question examined the relationship between the DT traits and WTC, with Narcissism positively predicting WTC and Psychopathy as a negative predictor. Narcissism is linked to a need to impress and higher levels of sociability when the Narcissist perceives that something can be gained from the social interaction (Maass et al., 2018). As such, Narcissists in the L2 classroom may be more eager to communicate in the target language and demonstrate their skills. In turn, Psychopathy is associated with lower sociability in uncertain situations (Gullhaugen & Sakshaug, 2019), which may lead to lower levels of communication in the L2 classroom. However, again it should be noted that the effect size of Psychopathy as a predictor is rather small (β = -.055; $p < .001$). In addition, Machiavellianism was not a significant predictor of WTC, thus language learners more prone to manipulation were not more or

less likely to communicate in the target language. As communication patterns in Machiavellians have been found to depend on whether or not the opportunity to manipulate is present (Tomkova et al., 2022) or if a tangible reward is associated with the communication (Birkás et al., 2015), it may be that the relationship between Machiavellianism and WTC is more complex than can be modeled in linear regression. Future research examining Machiavellianism on a finer grade level may be needed to further explore whether the communication patterns of Machiavellians result in a tendency to communicate more or less in the L2.

Overall, Narcissism and Psychopathy had mixed results with positive and negative slopes, whereas Machiavellianism was a wholly positive predictor of L2 learning outcomes (see Table 3). Previous research has linked Machiavellian traits to positive variables, such as goal–setting behavior (Kareshki, 2011). Given that L2 learning is a long–term academic pursuit that requires goal–setting behavior (Han & Lu, 2018), it may be that Machiavellian traits are beneficial in L2 learning. However, conversely, previous research has also found Machiavellianism to be negatively linked to Emotional Intelligence (Michels & Schulze, 2021), academic self-efficacy (Saadat et al., 2017), and classroom prosocial behaviors (Berger & Palacios, 2014), with each of these variables positively associated with L2 learning (Taheri et al., 2019; Young Kyo, 2022; Olivero, 2021). Whereas in our findings, Machiavellianism was positively linked to peer engagement, social engagement, and self-perceptions. Considerable future research is needed to understand the mechanisms at play with Machiavellian traits in the L2 classroom, as it is likely context-dependent with moderating and mediating variables at play. Indeed, previous research has found that the perception of reward impacts the behavior of Machiavellians (Birkás et al., 2015) and as such it may be that the relationship of Machiavellianism on L2 learning outcomes may differ in highly competitive learning environments with greater rewards at stake in comparison to self–driven learning or less competitive environments.

In light of the mixed results found in terms of slopes of the DT traits as predictors, future research should take heed when analyzing personality traits in the L2 context. The fine–grained modeling of relationships between subfactors as predictors and outcomes may lead to radically different conclusions in comparison to simple correlations or regressions made with overarching factors (see Botes et al., 2024). In addition, the differing results in terms of directionality found across the DT traits for L2 engagement and L2 motivation variables raise further questions regarding the construction of the DT. Some studies have argued for a higher–order Dark Core model (see Bertl et al., 2017), where Machiavellianism, Narcissism, and Psychopathy are considered subfactors of a higher–order factor. Other studies have argued for a Dark Dyad, with Machiavellianism and Psychopathy as a single variable, due to the propensity of these factors to overlap (see Rogoza & Cieciuch, 2020). However, should this approach of aggregating the DT traits have been followed, considerably less nuance would have emerged in our results. Future research should therefore consider whether the DT traits truly do function in unison when modelling these traits as predictors.

Limitations and research implications

As with all studies, several limitations ought to be taken into account. Firstly, the data were self-reported, including the academic achievement. Self–report data in questionnaires are subject to self–reporting biases and may be skewed in terms of the response style of participants. Secondly, the study is highly exploratory, as no previous research could be found examining the DT in the L2 context. It should also be noted that the

effect sizes found in this study can be considered small to moderate (Botes et al., 2024b). As such, future research is needed to further explore and replicate the findings of this study. In addition, the data were collected in a single country, and the DT has been found to vary across cultures (Jonason et al., 2020), with Narcissism being found to be especially sensitive to cultural variations. Countries with more hierarchical systems were found to have higher levels of Narcissism and sex differences are more pronounced in developed countries (Jonason et al., 2020). As such, future research is needed to examine whether the results found in this study can be replicated in different cultural settings. The measure used to examine the DT, the Dirty Dozen (Jonason & Webster, 2010), also does not differentiate between subfactors of DT traits. For example, the Machiavellian Personality Scale includes four subfactors, namely: Distrust of others, desire for status, desire for control, and amoral manipulation (Dahling et al., 2009). Future research may want to examine the DT traits in the L2 context via a qualitative approach and more fine–grained domain–specific DT measures to pinpoint the exact mechanisms of these personality traits that may benefit or hinder L2 learning, especially in the case of Machiavellianism where the subfactors may have mixed results in terms of predicting L2 learning outcomes. Lastly, due to statistical power constraints, no single large model of all L2 outcomes could be analyzed, instead, individual models were used. As such, the variables modeled in this study were ring-fenced and the greater nomological network of interacting L2 variables, including possible mediating and moderating effects, could not be taken into account.

Although the drawing of pedagogical implications is standard practice in IDs in L2 learning research, we do want to caution against drawing overt implications for either L2 teachers or learners based on the results of this study. For example, all three DT traits were positively associated with L2 academic achievement; however, the encouragement of DT behaviors in L2 learners or the fostering of these behaviors in the L2 classrooms by L2 teachers should not be the conclusion drawn from this study. The study is exploratory, with the theoretical premises linking the DT with L2 learning outcomes being based on existing findings in personality psychology, educational sciences, and behavioral sciences. As such, the findings of our study ought to be a first step in investigating "dark" or "undesirable" traits in L2 research, but the extent to which findings can be generalized is limited. Future research examining how DT behaviors manifest in the L2 classroom, the possible mechanisms between DT traits and L2 learning, and the classroom management techniques for teachers having to manage DT behaviors in the L2 class is needed before pedagogical implications can be made. This is especially a concern in terms of the sensitive nature of DT traits, the possible ethical concerns that may arise by labeling L2 learners as having DT traits, and the destructive behaviors often associated with the DT (Muris et al., 2017).

Lastly, future research ought also not be constrained to only examining the DT, as other "undesirable" traits may play a role in L2 learning. Other research domains have examined the effect of aggressiveness in learning (Lin et al., 2017), pessimism toward learning and achievement (Brown & Marshall, 2001), procrastination regarding school work (Kim & Seo, 2015), and impulsivity (Lozano et al., 2014). Future research examining the complex interplay between positive and negative traits in the FL classroom is encouraged.

Conclusion

Although the DT traits of Machiavellianism, Psychopathy, and Narcissism are considered malicious and undesirable (Paulhus & Williams, 2002), this study demonstrated

that at times such undesirable traits may have desirable outcomes. Psychopathy and Narcissism were found to be both positive and negative predictors of L2 learning variables, whereas Machiavellianism was a wholly positive predictor. This finding is in line with previous research on success and the DT (Lyons, 2019), as the DT traits can be a driver to achieve, including in the L2 classroom. The findings also shed new and positive light on the dark side of personality. Further research and intervention studies involving DT traits may lead to the development of teaching strategies where these undesirable traits could be turned into assets and the encouragement of teachers to employ these negative traits constructively in reaching language acquisition goals rather than suppressing them.

Supplementary material. The supplementary material for this article can be found at http://doi.org/10.1017/S027226312500004X.

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