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Conceptualizing and measuring social and emotional learning: A systematic review and meta-analysis of moral reasoning and academic ability, religiosity, political orientation, personality

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Abstract

Responsible decision-making is a sub-domain of social emotional competence and develops through the educational process of social and emotional learning (SEL). The current review examines the relationship between decision-making, specifically, moral reasoning (MR) and academic ability ($N = 6,992$, 18), MR and religiosity ($N = 3,441$, 15), MR and political orientation ($N = 12,814$, 14) and MR and personality ($N = 1,659$, 8). Forty-three studies qualified for inclusion and analysis. The results indicated a positive effect between MR and academic ability ($ES = + 0.24$). Interestingly, small negative effects were found between MR and political orientation ($ES = - 0.07$). Results also indicated small non-significant effects between MR and religiosity ($ES = +0.00$, $p = .94$), and MR and personality ($ES = + 0.01$, $p = .92$). Possible interpretations of these findings are discussed with reference to the literature.

Keywords: Defining Issues Test; Meta-analysis; Moral Reasoning; Social Emotional Competence

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Conceptualizing and measuring social and emotional learning: A systematic review and meta-analysis of moral reasoning and academic ability, religiosity, political orientation, personality

Set against a context of negative publicity and scandals that have marred the private and public sectors, and the backlash against globalization (Milanovic, 2016), there has perhaps never been a more important time to renew our focus on social and emotional learning (SEL). Newspaper columns are bursting with demonstrations of ethical misconduct by those in the highest echelons of society including: top executives being prosecuted for displaying discriminatory attitudes towards minorities or the opposite sex, banking bailouts, abuse of power, tax evasion, fraud, environmental degradation, waste disposal, physical abuse, government officials accepting gifts/donations and oppression in academia (Putnan, 2000; Taleb, 2007). Professionals across public and private industry are increasingly subjected to higher levels of scrutiny and accountability by media and interest groups. The penalties for unethical decision-making can include a reduction in employees' morale and public trust, damage to one's reputation, humiliation, interruption to daily business routines, considerable fines and diminished interest from potential employees (Nash, 1993). In higher education the role of the academy is to encourage scholarly debate and challenge ideas in pursuit of truth. However, faculty and students are calling for protection from ideas and words they dislike propagating a fragility of the university psyche that can untimely prove dangerous to the scholarship and quality of the academy (Lukianoff & Haidt, 2015; 2018). At the same time, academic freedom carries

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responsibilities. It is critical to address the disregard for responsible decision-making in a society which has been evidenced by the global economic crisis (van Hoorn, 2015).

SEL is important not only for individual behavior, but also in terms of shaping society as defined by its institutions, rules, and laws that facilitate societal level cooperation. However, little consensus has emerged on conceptualizing and measuring SEL. Furthermore, high quality research is needed to better understand SEL and its sub-domains (Domitrovich, Durlak, Staley, & Weissberg, 2017). Therefore, this study aims to examine responsible decision-making, one of the social emotional competence sub-domains, and explore the magnitude of the relationship between decision-making and a number of personal and psychological characteristics. Responsible decision-making is measured using the Defining Issues Test (DIT, Rest 1979a, Rest, Narvaez, Thoma, & Bebeau, 1999). In the next section the conceptual frameworks of social and emotional learning are examined, namely the association between moral reasoning (MR) and each of the following: academic achievement, religiosity, political orientation, and personality. A systematic review of the literature and meta-analysis was completed which helps to problematize these relationships. The methodology is described and findings are presented. Finally, possible ways of interpreting the findings are examined.

Conceptual Frameworks

The Collaborative for Social and Emotional Learning (CASEL) defined social and emotional learning (SEL) as “the process through which children and adults acquire and effectively apply the knowledge, attitudes, and skills necessary to understand and manage emotions, set and achieve positive goals, feel and show empathy for others, establish and

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maintain positive relationships, and make responsible decisions” (CASEL, 2018). CASEL developed an integrated *Framework for Systemic Social and Emotional Learning* comprising five competencies: “self-awareness, self-management, social awareness, relationship skills and responsible decision-making” (CASEL, 2015). Responsible decision-making was defined as one’s “ability to make constructive choices about personal behavior and social interactions based on ethical standards, safety concerns, and social norms” (CASEL, 2018). SEL interventions aim to promote the development of these interrelated competence areas (Authors, 2018; Domitrovich et al., 2017; Epstein, Griffin, & Botvin, 2000; Taylor, Oberle, Durlack & Weissberg, 2017; Weissberg, Durlack, Domitrovich & Gullotta, 2015).

Another way of conceptualizing SEL can be derived from the ‘Big Five’ model of personality (Costa & McCrae, 1985). The Organisation for Economic Co-operation and Development launched a study on social and emotional skills (SSES) of school children (OECD, 2018) underpinned by this model. The study aims to capture a snapshot of two student groups aged 10 and 15 years, selected using a stratified random sampling technique across multiple countries. Direct assessments are used to measure students’ social emotional competence in addition to reports from parents and teachers. Anticipated study outcomes include a cross-sectional dataset and instruments to measure students’ skills (OECD, 2015, 2017, 2018). Conceptualizing SEL using the ‘Five-Factor Model (FFM) of personality’ as a unifying framework could perhaps be seen as useful as the Big Five provides a well-established framework, supported by decades of empirical research, where essentially all social and emotional skills can be reflected. Furthermore, research suggests these traits can change during the lifespan or through the use of deliberate intervention (Authors, 2017; Roberts et al., 2017;

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Roberts, Walton & Viechtbauer, 2006). Personality is often assessed using self-report based measures (Authors, 2017). Similarly, SEL has traditionally been assessed using self-report measures (Taylor et al., 2017). While the 'Big Five' provides a framework to categorize personality, social emotional competence can be conceptualized differently as context-dependent, inclusive of both knowledge and dispositions, and behaviorally based (Author, 2012a; 2012b; Spengler, Damian & Roberts, 2018). Authors (2012b; 2013) suggest that social emotional competence should be conceptualized in two domains, ability/capacity and performance/achievement. Situational judgment tests (SJTs), arguably represent a promising measurement paradigm for social emotional competence (MacCann & Roberts, 2008) as they measure a respondent's judgment with reference to particular situations by having them identify an appropriate response to scenarios (McDaniel, et al., 2007; Weekley, Ployhart, & Holtz, 2006; Wilhelm, 2005).

Reconceptualizing and measuring social and emotional learning

Given the many SEL frameworks and definitions it is important to discuss responsible decision-making from a historical perspective. Piaget (1932/1968) explored cognitive development from the position of psychological rationalism, and argued that children's understanding of responsible decision-making was self-constructed and age-dependent. Kohlberg (1958) suggested a six-stage progression in an individual's decision-making about the social world which aligned with Piaget's theory of children's reasoning of the physical world. Kohlberg (1958) outlined three sequential levels of decision-making or moral reasoning (MR): pre-conventional, conventional, and post-conventional. Levels advance progressively representing an

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individual's decision regarding the most appropriate action in response to a particular situation. Kohlberg postulated that at the higher stages of his theory postconventional thinking, individuals may justify breaking the law while pursuing the greater good (Kohlberg, 1984). Kohlberg's work and his measure, the Moral Judgment Interview (MJI), which defined "morality as justice while denigrating authority, hierarchy, and tradition" gave rise to over two decades (1970s-1990s) of research evidence supporting "worldviews that were secular, questioning, and egalitarian" (Haidt, 2012, p. 10).

Rest et al. (1999a, 1999b) refined Kohlberg's theory drawing upon various theoretical approaches including; cognitive developmental approaches, social learning, behavioristic, social psychological and psychoanalytic theory (Jagger, 2011; Rest et al., 1999a). Rest et al. (1999) differentiated between micro- and macro-morality. Micro-morality involved relationships with specific others (that is family, kin and friends) and examined the development of virtues within the individual. Micro-morality comprised rules of conduct that direct us in our individual moral decisions at the "micro-ethical" level that is, the level of individual behavior (Moor, 1999). Conversely macro-morality referred to the formal structures as defined by institutions, rules, laws and roles that facilitate societal level cooperation (Rest et al., 1999, 1999a, 1999b). Rest et al. (1999a, 1999b) suggested that responses to moral dilemmas activate schemata and use of these schemata can vary between individuals (Mayhew, Seifert & Pascarella, 2012; Thoma, 2002). Three moral schemata were defined as "personal interest, maintaining norms and postconventional" schemata (Rest et al., 1997, p. 7). The maintaining norms and postconventional schemata were more progressive in achieving socio-centric perspectives rather than egocentric perspectives associated with the personal interest schema (Rest et al., 1999a).

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Postconventional thinking was facilitated by moral decisions that emanate from a shared ideology, which is open to scrutiny (Rest et al., 1999b). See complete description of MR outlined in Authors (2016).

Given the myriad of SEL frameworks and definitions (Berg et al., 2017; Pellegrino & Hilton, 2012), it is perhaps not surprising that little consensus has emerged in the field regarding measurement. Similarly, many different measures of moral decision-making exist including: the Sociomoral Reflection Measure (Gibbs, Basinger & Fuller, 1992); the Hahm-Beller Values Choice Inventory (Hahm, Beller & Stoll, 1989); the Managerial Moral Judgment Test (Loviscky et al., 2007); and the Moral Foundations Questionnaire (Graham, Haidt & Nosek, 2008). Some of these measures are self-report (e.g., the Measure of Prosocial Moral Reasoning, PROM, Carlo, Eisenberg & Knight, 1992), while others employ interview techniques to measure MR (Moral Judgement Interview, Kohlberg, 1984). Some purport to measure the alignment of belief and action (e.g., Moral Competency Inventory, Martin & Austin, 2010), while others distinguish between affective or cognitive aspects of MR (Moral Competence Test, Lind, 2016). Some authors have adapted existing measures or combinations of measures to capture context specific MR (e.g. Loviscky et al., 2007; Rudd et al., 2010; Söderhamn et al., 2011) or facets of moral action (Tirri, 2011; Tirri & Nokelainen, 2011).

In this study responsible decision-making was measured using the Defining Issues Test (DIT1, Rest, 1979a; DIT2, Rest, Narvaez, Thoma & Bebeau, 1999). Similar to a situational judgement test, the DIT1 presents the respondent with six hypothetical dilemmas; participants rank and rate each of the 12 Likert-item issue statements in terms of its importance in deciding

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what course of action to take (Rest, 1979a). The revised DIT2 is shorter, including five contemporary dilemmas and associated items (Rest, Narvaez, Thoma & Bebeau, 1999). The DIT1 is highly correlated (.95 to .99) with the DIT2 (Rest et al., 1999, p. 651). In comparison to alternative measures of MR and decision-making, the DIT has various strengths making it appropriate for use in this area. First, the specific focus on cognitive skills of processing moral schemata means that the DIT measures something discrete as compared with constructs using broad personality-type variables (Thoma, Derryberry & Narvaez, 2009; Thoma, Narvaez, Rest & Derryberry 1999). Second, framed by a focus on macro-moral issues, schemata scores provide insights into an individual's ability to conceptualise societal cooperation. Finally, the DIT measures reasoning directly, and does not rely on self-report or 360-evaluation mechanisms. The combination of these factors strengthens the validity of the DIT as a measure of decision-making as compared with other self-report measures. The DIT has been highlighted as a robust measure of MR and maintains adequate reliability and validity (Author, 2016; Bailey, 2011; Thoma, 2006).

Using a sequence of ratings, rankings, and a weighted algorithm, the DIT measures how respondents use certain principles to frame decision-making in response to a moral dilemma. The DIT produces several indices to determine MR however; in this study we used P-Score and the composite N2-score. P score, which stands for principled score, is the weighted average of postconventional items chosen across the five/six dilemmas. The N2 score aggregates how the respondent clearly discriminates between DIT items (Bebeau & Thoma, 2003) and has been identified as demonstrating superior performance for construct validity (Rest et al., 1999). Internal reliability for N2 scores range from .77 to .81 (Rest et al., 1999a). Higher scores indicate

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higher endorsement of postconventional items (socio-centric perspectives, Thoma, 2002). Lower scores reflect moral reasoning from an egocentric perspective. The “upward bound estimate for the correlation between the two ‘true scores’ DIT1-N2 and DIT2-N2 (including correction for attenuation) is .95 to .99” (Rest et al., 1999 p. 651). The What Works Clearinghouse (WWC, 2014) requirements for outcome measures are internal consistency reliability of .50 or higher.

Responsible decision-making, one of the social emotional competence domains is aligned conceptually with the MR framework, sharing the dimension of responsible decision-making. It seems reasonable to suggest that the theoretical frameworks of MR, measurement using the Defining Issues Test, and the SEL framework, particularly, responsible decision-making share substantial features. Therefore including the DIT as a complementary measure of responsible decision-making, could advance SEL assessment and intervention research. Reflective of the investment in SEL programs, it is important that social emotional competence is evaluated using robust assessments.

Individual characteristics and responsible decision-making

Moral reasoning and academic achievement

Research suggests that academic engagement enhances the use of postconventional MR (Pascarella & Terenzini, 1991; 2005). Not surprisingly, “the greater the student’s involvement or engagement in academic work or in the academic experience of college – the greater the knowledge acquisition and general cognitive development” (Pascarella & Terenzini, 1991, p. 616). Previous research highlights several studies that report significant positive associations between academic achievement and MR as measured by the DIT1/DIT2 (Author, 2017;

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Crowson, DeBacker & Thoma, 2007; Derryberry et al., 2005; Mayhew, 2012; Mayhew et al., 2012; Thoma, Derryberry & Narvaez, 2009). Others report significant positive correlations between measures of MR and GPA (Grade Point Average) scores (Abdolmohammadi & Baker, 2007; Cottone et al., 2007; Traiser & Eighmy, 2011). However, a number of studies also report divergent findings. Cooper and Schwartz (2007) indicate that GPA scores were not significantly associated with MR. While Marx et al. (2007) report a non-significant association between MR and verbal ability (measured using Stankov's Gf/Gc Quickie Test Battery). Equally, Tirri and Pehkonen (2002) report that intellectual giftedness scores (measured using the Raven's test) did not predict MR. Differences across studies may be explained by the number of factors that can influence academic achievement including parental and peer influence and motivation (Authors, 2017).

It is also worth noting the influence of verbal intelligence in DIT performance, which has been acknowledged, with Rest (1979) suggesting that correlations between MR and intelligence were stronger where studies evaluated verbal and non-verbal intelligence. This is not surprising as like other measures of cognitive ability, the DIT Manual states the reading level, or book band of the DIT is 12-13 years or equal, indicating some verbal intellectual ability is required to complete the measure. This is echoed by Thoma (2002) who argued that cognitive tests should be associated with other measures of cognitive ability. However, associations should not be excessive, otherwise it could be argued the DIT measures general cognitive ability and not specifically MR. Thoma, Derryberry and Narvaez (2009, p. 173) suggested that "DIT scores describe a latent variable that is distinct from verbal ability." Sanders et al. (1995) challenged this position claiming "the DIT is simply another way of measuring verbal ability, probably the

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most salient marker of general intelligence” (p. 502). The authors reported that gifted individuals achieved higher scores than college freshmen, who were on average four to five years their senior, vouching that these results were due to superior verbal ability rather than any other psychological variables. Thoma et al. (1999) rebutted suggesting that the DIT, a cognitive index of MR, does not relate robustly with the non-cognitive criterion as described by Sanders et al. (1995). The summary of relevant DIT literature as provided by Thoma and his colleagues suggests that “moral judgement development as measured by the DIT provides a unique source of information that cannot be explained by general/verbal ability or political attitudes” (Thoma et al., 1999, p. 325).

Moral reasoning and religiosity

The concept of religiosity is complex and evolving. James (1902, p. 32) defines religion as “the feelings, acts and experiences of individual men in their solitudes.” This understanding developed to include definitions of religion as organisational and a ritual; and advanced the discussion of spirituality from the perspective of the personal, experiential and affective (Pargament, 1999; Stifoss-Hanssen, 1999). Previous meta-analysis have focused on religiosity and various anti-social behaviours including crime, delinquency and prejudice (Baier & Wright, 2001; Broussard, 2015; Hall et al., 2010; Kelly et al., 2015; McCleary et al., 2011), religiosity and health outcomes (Hemmati et al., 2018; Wu et al., 2015); the impact of religiosity on educational outcomes (Jeynes, 2004); the relationship between religiosity and personality trait domains (Lodi-Smith & Roberts, 2007); the relationship between religiosity and marital or parental functioning (Mahoney et al., 2001) and the integration of a religious focus during

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treatment (Captari et al., 2018; Jim et al., 2015; McCullough, 1999). However the focus of the current meta-analysis is specifically decision-making as measured by the DIT and religiosity.

Set against a context of globalization, international migration, secularization and the changing role of religion in public life (Berry, 2016; Brandt & Van Tongeren, 2017; Hall et al., 2010; Nash, 2005, Noddings, 2005; Rizvi & Lingard, 2010), the relationship between MR and religiosity should be considered as individuals become increasingly polarized perusing social agendas that require justification and defence of the team to which they belong (Abu-Nimer, 2001, 2004; Altemeyer, 2003; Haidt, 2012; Tirri & Nokelainer, 2011). Previous research suggests religiosity is correlated with MR, that is, lower scores of MR are correlated with more fundamental or conservative religious beliefs (Glock & Stark, 1996; Parker, 1990). While this research seems to corroborate Rest's findings that religiosity does not equate directly with higher MR scores (Rest et al., 1999a), an inconsistent picture emerges across the research. Some authors report significant relationships between religiosity (as measured by religious belief/commitment) and MR (Wimalasiri, 2001, 2004; Coleman & Wilkins 2002; 2004; Drake, Griffin, Kirkman & Swann, 2005). Walker, Thoma, Jones, and Kristjánsson (2017) report that religious practice and religious identification predict higher scores of MR. While others point to non-significant relationships between MR and religious affiliation (Maeda, Thoma, & Bebeau, 2009) and religious participation (Wilhelm, 2004). Exploring the relationship between religiosity and MR is important to facilitate improved understanding of the impact of local, national and cultural norms on decision making capacity. This is perhaps a neglected area in the social and emotional learning field, and requires further evidence particularly for developing effective interventions.

Moral reasoning and political orientation

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Moral reasoning has consistently been linked to an individual's political ideology when viewed through the lens of liberalism versus conservatism (Rest et al., 1999a). Political ideology was defined as a "set of beliefs about the proper order of society and how it can be achieved" (Erikson & Tedin, 2003, p. 64), and is frequently conceptualized as left or right (Kahn et al., 2018). In the US, the concepts of "liberal"/"left" and "conservative"/"right" are frequently used to indicate policy preferences, however the phrases 'liberal' and 'conservative' are used more frequently (Kahn et al., 2018). In examining the relationship between MR and political orientation, it should be acknowledged that individuals with varying political ideologies undoubtedly hold different beliefs which inform how they conceptualize and achieve societal cooperation. For example, Emile Durkheim's (1912) work supports the notion that conservatives value the foundation of authority and loyalty. While Thoma et al. (2009) observe that liberals possess greater "conceptual development in how to organize cooperation" at a macro level (p. 327) thus leading them to yield higher MR scores. Alternatively Haidt (2012) suggests that those who ascribe to a liberalist perspective have a narrow moral outlook, concerning themselves with the relief of suffering and fairness, aligning with individualistic values. Conservatives, however, concern themselves with loyalty and authority also - values aligned with social cohesiveness and "reinforcing ties amongst its members" (Blum, 2013, p. 299).

Meta-analytic research is a powerful technique for understanding political orientation and MR, facilitating more nuanced interpretations of the "collapse of cooperation across party lines" (Haidt, 2012, p. xi). Previous meta-analyses have focused on political party affiliation and political ideology (Cruz, 2017); political awareness (Görtz, 2018); political scandals (Von Sikorski, 2018); political democracy (Ahmadov, 2014; Doucouliagos & Ulubasuglu, 2008);

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voter turnout (Cancela & Geys, 2016; Geys, 2006; Stockemer, 2016) the relationship between political orientation and prejudice (Broussard, 2015; Jost, Glaser, Kruglanski & Sulloway, 2003; Terrizzi, Shook & McDaniel, 2013); the impact of internet use on political engagement (Boulliane, 2009) and the relationship between opinion climate and expression (Matthes, Knoll, & von Sikorski, 2018). However the focus of the current meta-analysis is specifically decision-making as measured by the DIT and political orientation.

DIT researchers regard political orientation and MR as autonomous constructs (e.g. Crowson et al., 2007; Thoma et al., 1999) with Thoma and Dong (2014, p. 57) suggesting that “the distinction between conventionality and post-conventionality is what tends to drive so many public policy disputes such as the reactions to the wars in Iraq and Afghanistan, how best to stimulate an economy, minority rights, religion in the schools, medical policy, and so on”. For instance, individuals that endorse the maintaining norms moral schemata value existing roles and formal organizational structures as the basis for cooperation in society and are therefore less open to change. Alternatively, individuals who subscribe to postconventional moral schemata are more inclined to query the status quo and therefore are more open to social change (Maeda et al., 2009). Rest et al. (1999a) report that MR was significantly associated with political attitudes and political choices (in the range $r = .40$ to $.60$) and show discriminant validity from political attitudes either conservative or liberal (Thoma et al., 1999). A number of studies support this contention indicating a significant association between political orientation and MR, that is, those individuals who identified as liberal had higher scores of MR (Abdolmohammadi & Ariail, 2009; Maeda et al., 2009; Marx et al., 2007; Mayhew et al., 2012; Narvaez et al., 1999; Thorne, Massey & Magnan, 2003). However, a consistent story line does not arise as some studies

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indicate that no significant relationship emerged between MR and political orientation (Ashe & Hettihew, 2011; Bailey, 2011; Crowson et al., 2007; Mayhew, 2012; Wilhelm & Czyzewski, 2006). Synthesizing the relationship between political orientation and MR is critical in facilitating a deeper understanding of why individuals adopt particular positions about macro-moral issues, such as fairness, equity and corruption. In doing so, the current study can help advance understanding of the potential of SEL to contribute at individual and societal level.

Moral reasoning and personality

“It would be surprising if personality constructs had no bearing on the ways that people relate to others and to society” (Dollinger & LaMartina, 1998, p. 350), therefore at the outset it is expected that MR is correlated with various traits of personality. Rest (1988, p. 192) suggests “the picture we now have of the conditions for moral [reasoning] development involve both person characteristics and environmental characteristics”. Since the seminal work in personality trait theory (Allport, 1937; Tupes & Christal, 1961) there is, to an extent, a degree of consensus of a five-factor model that “may adequately describe the structure of personality” (Maltby et al., 2007, p. 170). These five factors are agreeableness, conscientiousness, extraversion, openness to experience (Intellect), and neuroticism (emotional stability). Together, they are referred to as the Big Five Framework, often assessed using personality inventories (Costa & McCrae, 1985; Goldberg et al., 2006). The Big Five framework is advocated as the prevailing approach in personality research (Barrio, Aluja & Garcia, 2004; Matthews & Deary, 1998) due to ease of assessment. Costa and McCrae (1992) suggest that the Big Five personality factors comprise the majority of the individual variance in behavioral patterns, and therefore are suitable for examining behavior and performance in assorted domains.

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In terms of MR, the maintaining norms schema considers how people should cooperate within society at large, and is a prevalent first solution to conceptualizing whole community based (society-wide) cooperation (Narvaez, 2002). Moral decisions are framed from the perspective of maintaining the status quo, where the community and all who take part in said community are governed by accepted colloquial social norms. These norms are upheld/enforced by hierarchical roles and structures; in other words, “one must obey authorities, not necessarily out of respect for the personal qualities of the authority, but out of respect for the social system” (Narvaez, 2002, p.6). One personality trait domain, "conscientiousness," seems conceptually similar to the maintaining norms schema. McCrae and Costa (1990) define conscientious individuals as "adhering scrupulously to their moral precepts and rigorously fulfilling their social and civic duties" (p. 45), and, noted that "(L)ow scorers are not necessarily lacking in moral principles, but they are less exacting in applying them” (Costa & McCrae, 1992, p. 16).

Loevinger's (1966) theory of ego development examines individual differences in adult personality and includes stages of psychological maturation beginning in childhood that develop through adolescence and adulthood (Loevinger & Wessler, 1970). These stages describe how individuals function interpersonally and intrapersonally with regards to cognitive complexity, conscious preoccupations and impulse control (Loevinger, 1976). In this work, Loevinger (1994) challenged the consensus of a five-factor model of personality. Rather, she suggested her ego development theory together with Kohlberg's conceptualization of moral development offered “an integrated and structural aspect of personality and character that is not accessible to tests that can be treated with factorial methods” (p. 3). In elaborating this point, she theorized that the stages of ego development included both conscientiousness and conformity as individual stages.

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While one of the five-factors of personality is labelled conscientiousness, Lovienger (1966, 1994) asserts that it measures a different construct - ‘conformity’ which she describes as following the rules and where appearance and social acceptance is imperative. According to Lovienger’s theory, conscientiousness is perhaps more a tendency toward conformity and maintaining the status quo, suggesting that conscientiousness may be negatively correlated with MR.

Equally, one may hypothesise a relationship between openness to experience (Costa & McCrae, 1992) and MR, as the cognitive skills required, described as philosophical, abstract-thinking, being inquisitive and reflective could improve levels of MR. Openness to experience is included as one of the ‘Big Five’ personality traits and encompasses receptivity to experience, an open mind, absorption, creativity, and openness to feelings (McCrea, 1987; McCrea & Costa, 1990; Costa & McCrae, 1992). Similar to MR, openness includes intellectual performance among its typical correlates “however, it seems to involve much more than sheer intellectual power ... It also includes an independence of thought that refuses to be constrained by social or normative boundaries (Dollinger & LaMartina, 1998, p. 351.)

Some studies report significant relationships between measures of personality and levels of MR (Hren et al., 2006, 2011; Heinze et al., 2010; Lan et al., 2008, 2010; Mudrack 2006). Others however have reported non-significant relationships using a variety of measurements (Forte, 2005; Sechler, 2000; Traiser, 2007; Traiser & Eighmy, 2011). The focus of the current meta-analysis is to summarize similar studies on decision-making as measured by the DIT and

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personality. Examining the relationship between personality and MR advances our understanding of the relationships between psychological characteristics and decision-making capacity.

Method

This study aimed to explore the magnitude of the relationship between MR and a number of personal and psychological characteristics. Establishing a consistent empirical link between an individual's level of MR and various measures of personal and psychological characteristics proves to enhance our understanding of the processes required for postconventional MR. It also facilitates deeper thought in terms of providing targeted interventions with a view to facilitating MR development. This study examines two research questions:

Q.1 Is there a relationship between MR and participants' individual characteristics (academic achievement, political orientation and religiosity)?

Q.2 Is there a relationship between MR and participants' psychological characteristics (personality)?

Search procedures

The authors conducted a search to identify studies that explored the measurement of MR from 1999 to 2018 using the DIT. This time frame was selected as the DIT2 was developed in 1999 and began to replace usage of the original DIT. Most research approached the study of MR from a psychological perspective, theorizing ontological foundations; investigating the measurement and relationship of MR to a vast array of psychological constructs and

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demographic variables. Also included were a number of studies that attempted to understand how curricular or extracurricular interventions related to MR capacity.

Informed by the methods suggested by Lipsey and Wilson (2001) and Glass, McGaw and Smith (1981), this review included the following steps: a search was conducted to identify possible studies; studies were screened for inclusion against a preset criteria; included studies were coded for design and substantive features. Electronic searches were conducted of educational databases (including, ERIC, EBSCO, PsycINFO, Dissertation Abstracts), web-based repositories, and recent tables of contents of key journals, using different combinations of keywords. References from other reviews of MR were examined (for example, Cummings, Maddux, Richmond & Cladianos, 2010; Cummings, Dyas, Maddux & Kochman, 2001). Our search terms included “moral reasoning”, “defining issues test (DIT)” and “personality”, “academic ability/achievement”, “political orientation” and “religious belief/commitment”. The initial search procedures yielded 285 studies, these studies were appraised against pre-set inclusion criteria.

Selection criteria

Studies included in this meta-analysis had to a) use the Defining Issues test (DIT1 or DIT2) as a measure of MR, b) incorporate a measure of academic ability/achievement, personality, political orientation, or religiosity and c) include adequate information to calculate effect sizes from zero-order correlations. Studies had to be written in English but could have been conducted in any country. Having applied the selection criteria 43 studies were included in this meta-analysis – 18 reporting measures of academic ability/achievement, 15 reporting

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measures of religiosity, 14 reporting measures of political orientation, and 8 reporting personality.

Each of the studies were coded for sample size, MR index (P/N^2), and the magnitude of the relationship between psychological/personal characteristics and MR score. Academic ability included a variety of measurements including ACT (American College Testing), GPA (Grade Point Average), crystallised intelligence and verbal ability measures. The personality category reflected a number of measures including the Myers-Briggs Type Indicator, the MACH-IV test of Machiavellianism, the Psychopathic Personality Inventory and Rotter's I-E Scale. Religiosity included measures of bible knowledge, religious fundamentalism, the Spiritual Experience Index and the DIT index, religious orthodox, while political orientation reflected measures of political liberalism/conservatism.

Meta-analysis procedures

The index of effect size was the conventional correlation coefficient (r). Comprehensive Meta-Analysis (V3, Borenstein, Hedges, Higgins & Rothstein, 2016) software was employed to conduct all the analyses. The random model rather than the fixed model was used in the present study since the Q-test showed that the magnitude of the effect varied substantially across studies depending on types of intervention, representativeness of the sample, etc. (Borenstein et al., 2009). One-study removed analysis was employed to determine if there were any outliers that could potentially skew the overall effect size. To explore moderator effects, mixed-effects analysis was used. The Classic fail-safe N (Rosenthal, 1979) test and Orwin's fail-safe N (Orwin & Boruch, 1982) analyses were used to examine publication bias.

Results

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Overall Effects

Forty-three studies qualified for inclusion in the final analysis: 18 studies included measures of MR and academic ability ($N = 6,992$), 15 studies included measures of MR and religiosity ($N = 3,441$), 14 studies included measures of MR and political orientation ($N = 12,814$) and 8 studies included measures of MR and personality ($N = 1,659$) [where N refers to the total number of participants across relevant studies]. Table 2 displays the overall mean effect sizes for MR and academic ability, MR and religiosity, MR and political orientation, and MR and personality were $+0.24$, -0.00 , -0.07 , and $+0.01$, respectively. A random effects model was used to account for the distribution of effect sizes in this collection of studies ($Q_B = 61.96$, $df = 18$, $p < 0.001$, $Q_B = 74.46$, $df = 15$, $p = 0.76$, $Q_B = 96.27$, $df = 14$, $p = 0.02$, $Q_B = 317.01$, $df = 7$, $p = 0.92$, respectively). This finding indicates that the variation of effect sizes for these studies was highly heterogeneous.

Academic Achievement

This analysis included 18 studies with 19 independent effect sizes for correlations between MR and academic ability. Nine studies included in the final analysis used ACT (or its equivalent) as a measure of academic achievement (Authors, 2016; Crowson, 2002; Crowson et al., 2007; Hevel Martin, Weeden, & Pascarella, 2015; Derryberry et al., 2005; Mayhew, 2012; Mayhew, Pascarella, Trolan & Selznick, 2015; Parker et al., 2016; Thoma et al., 2009). Four studies used GPA scores (Peeters & Boddu, 2016; Sisola, 2000; Traiser, 2007; Traiser & Eighmy, 2011). The remaining five studies used a variety of measures including: the Kaufman Adolescent and Adult Intelligence Test (KAIT, Kaufman & Kaufman, 1993) (Derryberry et al.,

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2007); the Gf/Gc Quickie Test Battery (Stankov, 1997) (Marx et al., 2007); Academic Profile (Nelson, 2004); the Graduate Record Exam (Nodie Oja, et al., 2011); and the Wechsler Adult intelligence Scale (Wechsler, 1955) (Skoe & von der Lippe, 2002).

Religiosity

The current review included 15 studies reporting measures of religiosity. Three of the studies included in the final analysis used a situational judgement test (DIT religious orthodox score, Rest, 1979a; Rest et al., 1999) to capture religiosity (Behar-Horenstein & Garvan, 2016, Drake, Griffin, Kirkman & Swann, 2005, Wilhelm & Chaichompoo, 2015). The DIT index, religious orthodox represents the sum of the rates and ranks for item 9 in the doctor's dilemma (DIT1) and the cancer story included in the DIT2. Item 9 evokes the notion that only God can determine whether or not someone should live or die. This variable is computed by adding the rating given to item 9 with the ranking value – thus lower scores indicate higher levels of religiosity.

Thoma, Derryberry and Narvaez (2009) measured religiosity using Brown and Lowe's 15-item Inventory of Religious Belief (1951). Items are measured using a 5-point Likert-type scale. Scores on the Brown-Lowe range from 15 to 75. Higher scores indicate strong literal Christian belief. Prior research (Narvaez et al., 1999) report Cronbach's alpha of .95 for the measure. Thomas and Dunphy (2014) measured religiosity using the Batson and Ventis Religious Orthodoxy Scale (Batson & Ventis, 1982). The Batson and Ventis Religious Orthodoxy Scale measures respondents' perception of religion as a quest. Religion as a quest was defined as “openly facing complex, existential questions ... and resisting clear-cut, pat

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answers” (Batson & Schoenrade, 1991, 430). The Batson and Ventis (1982) scale adapted the Christian Orthodoxy Scale Religious Orthodoxy Scale (Glock & Stark, 1966).

Morton, Worthley, Testerman and Mahoney (2006) assessed religiosity using Genia’s 23-item Spiritual Experience Index (SEI; 1997) and a measure of religious belief. Genia’s (1997) SEI items were summed to form a spiritual maturity index ($\alpha=.73$) (Morton et al., 2006). Higher scores indicate individuals reported a mature commitment to spirituality without being dogmatic or intolerant of ambiguity. Religious belief was measured using responses to five items ($\alpha=.90$): “worship service attendance, prayer frequency, commitment to Jesus, importance of faith and the sense that God is guiding you” (Morton et al., 2006, p. 393). Higher scores indicated that an individual held a world view where their maintaining norms schema included religious beliefs. Nelson (2004) assessed religiosity using the Standardized Bible Content Test (American Association of Bible Colleges, 1991). Form E of this measure comprises 150 multiple choice questions, with higher scores indicating higher levels of Bible knowledge.

Two studies measured religiosity using a self-report of religious preference or affiliation. Wimalasiri (2001) firstly categorized respondents by broad religious tradition including Catholic, Protestant, Buddhist, Hindu, No Religion, Others. Religious commitment was measured by asking respondents to rate their degree of commitment on a 5-point Likert-type scale (1 = no commitment to 5 = strongly committed). Tatum et al. (2013) measured religious preference using the following categories None, Protestant and Roman Catholic. Due to an insufficient number of participants, a number of other categories were excluded from the final analysis including Eastern Orthodox Christian, Jewish, Hindu, Muslim, and Undisclosed. Wilhelm (2004) measured religious participation using a five point Likert-type scale (No participation, little participation,

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somewhat active, highly active, and extremely active). Wade (2015, p. 144) requested respondents to select “the item in each set that is closest to your personal point-of-view ... a) I attend church, synagogue, or regularly scheduled spiritual meetings often. b) I do not attend church, synagogue, or regularly scheduled spiritual meetings often.” Wimalasiri (2004) measured religiosity with a self-report of religious commitment (5-point Likert-type scale, 1 = no commitment to 5 = strongly committed).

Coleman and Wilkins (2002) measured religiosity using a religious composite score which included: religious affiliation (Protestant, Catholic, Jewish, none and other) and religious belief (7 = extremely liberal to 1 = extremely fundamentalist). Coleman and Wilkins (2004) requested participants to self-report their degree of religiosity (extremely religious = 7 to extremely nonreligious = 1) and religious beliefs (extremely fundamentalist = 7 to extremely liberal = 1). Finally, Maeda et al. (2009) measured religiosity using self-reported religious affiliation of the higher education institution (secular vs. religious schools). Religious affiliation was categorized dichotomously, with a code of 1 for a religious school and 0 for a secular school.

Political Orientation

Fourteen included studies reported measures of political orientation. Eleven of the fourteen studies included in the final analysis used a self-report Likert-type scale to capture political orientation ranging from liberal to conservative. Three studies used the five-point Likert-type scale (ranging from very liberal to very conservative) included in the DIT to capture political orientation (Behar-Horenstein & Garvan, 2016, Maeda, Thoma, & Bebeau, 2009, Wilhelm & Chaichompoo, 2015). Crowson and DeBacker (2008) used a five-point Likert-type

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scale (ranging from 1 = extremely liberal to 5 = extremely conservative) to measure political orientation. They also used a 2-point forced-choice political identification scale (0 = liberal, 1 = conservative) and a 2-point forced-choice political party identification scale (0 = democrat, 1 = republican). Crowson, DeBacker and Thoma (2007) used a five-point Likert-type scale (ranging from 1 = liberal to 5 = conservative) to measure political orientation. Hevel, Martin, Weeden, and Pascarella (2015) used a five-point Likert-type scale (ranging from 1 = far left/liberal to 5 = far right/conservative) to measure political orientation. Mayhew, Pascarella, Trolian and Selznick (2015) used a five-point Likert-type scale (ranging from 1 = far left/liberal to 5 = far right/conservative), similar to the Wabash National Study of Liberal Arts Education, to measure political orientation. Narvaez, Getz, Rest and Thoma (1999) used a five-point Likert-type scale (ranging from 1 = liberal to 5 = conservative) to measure political orientation. Parker, Barnhardt, Pascarella and McCowin (2016) used a five-point Likert-type scale (ranging from 1 = far left/liberal to 5 = far right/conservative) to measure political orientation. Crowson (2004) used a seven-point Likert-type scale (ranging from 1 = extremely liberal to 7 = extremely conservative) to measure political orientation. Passini (2014) used a 10-point Likert-type scale (ranging from 1 = extreme left/liberal to 10 = extreme right/conservative) to measure political orientation.

Crowson, Thoma and Hestevold (2005) used a number of measures in study 1 to capture political orientation including: the Right-Wing Authoritarianism (RWA) Scale (Altemeyer, 1988). The RWA scale comprises 30 items and purports to measure three traits: authoritarian submission, authoritarian aggression, and conventionalism. Higher scores indicate greater levels of right-wing authoritarianism. Cronbach's alpha was adequate for the study sample ($\alpha = .90$).

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They also used the Conservatism–Liberalism Scale (McClosky & Bann 1979) to measure political orientation. McClosky and Bann’s Conservatism–Liberalism Scale comprised 26 items reflecting conservative attitudes toward economic, social, and political issues. Higher scores reflect greater compliance with conservative political attitudes. Cronbach’s alpha was adequate for the study sample ($\alpha = .66$). Crowson, Thoma and Hestevold (2005) also used measures of political orientation in study 2 including: the Right-Wing Authoritarianism (RWA) Scale (Altemeyer, 1988), the Conservatism–Liberalism Scale (McClosky & Bann 1979), and Conservative Political Identification (ranging from 1 = extremely liberal to 7 = extremely conservative).

Rizzo and Swisher (2004) used a three-point Likert-type scale to measure political orientation (Conservative/Moderate/Liberal). Finally, Marx, Soames Job, White and Wilson (2007) used a 28-item scale to measure political orientation. Respondents were required to indicate whether or not they supported each of 28 political policies (e.g. death penalty, abortion) on a 5-point Likert-type scale (ranging from 1 = strongly disagree to 5 = strongly agree). Items were gathered from a range of sources including other measures (political measures; Collins & Hayes, 1993) relevant literature, political textbooks and political items in the news at the time. Cronbach’s alpha was adequate for the study sample $\alpha = .85$.

Personality

Eight included studies reported measures of personality including: the Attributional Complexity Scale (ACS; Fletcher et al., 1986), High Pole Openness to experience (HPO, Walker, 1999) (Derryberry et al., 2005); Rotter's (1966) I-E Scale (Forte, 2005); the

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Psychopathic Personality Inventory (PPI, Lilienfeld & Andrews, 1996), the MACH-IV (Christie & Geis, 1970) (Heinze et al., 2010); the Machiavellianism Scale (Milas, 1998), the Paulhus Socially Desirable Responding scales (SDR, Paulhus, 2002) (Hren, et al., 2006); the California Psychological Inventory Scale (CPI, Gough, 1975) (Mudrack, 2006); the Ethical Rating A and B (Richmond Pope, 2004); and finally the Narcissistic Personality Inventory (NPI, Raskin & Hall, 1979) (Traiser & Eighmy, 2011). Sechler (2000) administered measures of broad personality domains as classified by the author including: the EF1-EF12 (Simmons & Simmons, 1997), the Myers-Briggs Type Indicator (Briggs, 1987) and the Science Teaching Efficacy Belief Instrument (STEBI, Riggs & Enochs, 1990) (Sechler, 2000).

Sensitivity Analysis

Results from the one-study removed analysis showed that the range of effect sizes was still between the 95% confidence interval of the overall effect size (MR and academic ability, between +0.19 and +0.28; MR and religiosity, between -0.08 and +0.08; MR and political orientation, between -0.13 and -0.01; MR and personality, between -0.16 and +0.17). In other words, the removal of any one effect size did not substantially influence the overall effect.

Publication Bias

Classic fail-safe N and Orwin's fail-safe N analyses were used to check for robustness. The Classic fail-safe N test indicated that 1323 studies (MR and academic ability), 16 studies (MR and religiosity), 134 studies (MR and political orientation) and 73 studies (MR and personality) with null results were required for the effect to be nullified. The Orwin's test provides an estimate of the total number of missing null studies needed to approximate the mean

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effect size at a level that would be considered trivial. This study set the trivial value at a 0.01 level. Results suggest that the total number of missing null studies needed to approximate an overall mean effect size of 0.01 was 344 (MR and academic ability), 56 (MR and religiosity), 111 (MR and political orientation) and 121 (MR and personality). Overall, the findings suggest the effect size observed were not driven by publication bias.

Sample Size

Previous research indicates that studies with small sample sizes tend to produce a much larger effect size than those with large sample sizes (Liao, 1999). As indicated in Table 3, statistically significant differences were found between large studies and small studies for MR and academic ability ($p < 0.01$), and for MR and political orientation ($p < 0.01$). However, no statistically significant differences were found between the large studies and the small studies for MR and religiosity. The results obtained should however be interpreted with caution due to the small number of studies in each category. Moderator analysis was not conducted for MR and personality as there was only 1 study with a sample size > 250 .

Discussion

Social emotional learning, comprising responsible decision-making, is crucial for success in school (Author, 2018; Domitrovich et al., 2017) and has been associated with important long term health and labor market outcomes (Belfield et al., 2015; Deming, 2017; Moffitt et al., 2011). The current study aimed to explore the relationship between MR (responsible decision-making) as measured by the DIT and a number of characteristics including: academic achievement, political orientation, religiosity and personality. Previous research presented

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somewhat inconsistent findings with some authors reporting strong correlations between MR and various characteristics, while others did not replicate these findings. Results from the current review indicated a positive effect between MR and academic ability (AA) ($ES = + 0.24$), a small negative effect between MR and political orientation ($ES = - 0.07$), and non-significant effects between MR and religiosity ($ES = + 0.00$), and MR and personality ($ES = + 0.01$). Possible ways of understanding these findings will be discussed.

Results from the current study indicated that higher academic ability was associated with higher MR scores, signifying a positive relationship between MR and AA. This reflects a moderate relationship and explains a fraction of the variance in MR scores. The moderate relationship evident between AA and MR may be partly due to influential factors such as personal motivation, parental or peer group influence and IQ. This finding aligns with previous research (Crowson et al., 2007; Derryberry et al., 2005; Mayhew, 2012; Mayhew et al., 2012; Thoma et al., 2009). Derryberry et al. (2007) suggest that MR develops in combination with cognitive abilities. Rest (1979b) suggests that the DIT and IQ scores relate in a similar way to reported findings for IQ scores and other indices of cognitive development. This assumption is echoed by Thoma (2002) suggesting that while the overlap should not be excessive, tests which claim to be cognitive should correlate with other cognitive ability measures.

Kohlberg and Power (1981) argue religious persuasion has no influence on the psychology of moral decision-making. Results from the current study corroborate this perspective indicating non-significant effects between MR and religiosity ($ES = + 0.00$). Nonetheless, many commentators historically argue a religious basis to moral decision-making

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suggesting the need for a strong source for morality often lauded as increasingly missing in public life and education (Hunter, 2000; Taylor, 1989). Individuals that specify a religious identity often commit to a particular religious and moral code. Carnes, Lickel and Janoff-Bulman (2015) suggest that religious institutions and traditions foster respect for authority, sacred practices and ingroup loyalty that can bond members to a cooperative and trustful community. However, adherence to certain values and ingroup loyalty can also encourage negative attitudes and even violence towards outgroups. Equally, individuals may make decisions that do not align with the group code and face disapproval from a group, yet remain part of the group (Haidt, 2012; McKay & Whitehouse, 2015). For example, Allport and Ross (1967) suggest that individuals who use religion to achieve non-religious goals (i.e. extrinsic religious orientation) often participate in religion as a means to serve instrumental goals (i.e., enhancing social status and social identity), whereas people with intrinsic religious orientation often use religious teachings to guide other aspects of their lives. Further research is required, as perhaps it is religious salience (Roof & Perkins, 1975) - the relative importance of religion in one's personal life that potentially impacts decision-making capacity. However, if a compelling societal entity reminds group members to make decisions in the interest of the group as opposed to the individual, cooperation regarding macro-moral issues may remain elusive (Shariff, 2015).

Results from the current study demonstrate a negative relationship between MR and political orientation, that is, participants who reported conservative views also had lower levels of MR. In exploring political ideology/orientation it is important to deconstruct one's perspective of liberal and conservative so as to avoid an overly simplistic dichotomization. Some commentators suggest that self-identifying as conservative can coincide with support for liberal

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policies (Devine, 2015). Zschornt (2011) indicates that self-identifying conservatives may be reacting against liberalism while self-identifying liberals may reflect an increased hostility towards conservatism. Blum (2013) also argues that liberal self-ascription does not necessarily correlate with liberal policy stance. While Hatemi et al. (2014) discuss political attitudes variance as explained by genetic influences.

Chua (2018) describes political orientation in terms of tribalism, arguing that tribes provide a sense of belonging for their members. Once connected to a group, tribe members view the world through the groups' lens which "binds and blinds" decision-making (Haidt, 2012, p. 369). Chua (2018) offers some possible reasons for the blurring of political ideologies or orientations. Demographic changes in the US for example, whites losing their historical majority status may lead to groups feeling threatened including whites, Christians, and men. Tribalism emerges when one tribe believe another tribe's claims of persecution and discrimination are unfounded. That said, degrees of conflict are necessary between different groups for a healthy functioning society (Haidt, 2012). Reflective of the sentiments expressed by Chua (2018), Goodhart (2017) describes the tribalism of block voting and how it manifested in the UK, with 52% of Brexit voters selecting to leave the European Union. He describes this as a revolt from the more socially conservative, less educated and less mobile tier of British society - pushing back against globalising forces that manifested in a liberal leaning system that views the world from whatever global perspective they inhabit. Goodhart (2017) suggests that this result could never have been realised in the polls or through elections as most of the political party offerings in the UK display a shared sense of identity, sovereignty, economic and political values. However, when offered the chance to push back against liberal perspectives, 52% of voters opted

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to leave. Accounting for these arguments it is important to consider how religiosity and political orientation are measured. Further research is required in terms of problematizing the measurement of these domain areas for example, what constructs are captured and whether inferences can be made across different faith/political groups.

The relationship evidenced between personality and MR is consistent with extant literature as many studies have reported non-significant correlations between measures of personality and levels of MR (Forte, 2005; Sechler, 2000; Traiser, 2007; Traiser & Eighmy, 2011). Personality is understood as how the individual organises psychophysical systems and makes adjustments in response to particular environments (Allport's 1937). Personality therefore refers to individual traits. Each of the subdomains of the Big Five Factor Model of personality infers decisions that are of particular concern to the individual, for example an individual's inclination to control impulses and achieve particular goals (conscientiousness John & Srivastava, 1999), to be adventurous and try new things (openness Costa & McCrae, 2006), to thrust and be cooperative (agreeableness Costa & McCrae, 2006), to remain calm and even-tempered (neuroticism Costa and McCrae, 2006) and finally to be sociable (extraversion Costa and McCrae, 2006). MR scores capture an individual's consideration of macro-moral issues pertaining to contemporary societies' formal structures, as defined by laws, rules, institutions that enable societal cooperation (Rest et al., 1999, 1999a, 1999b). Macro-morality exemplifies impartiality and being guided by a set of principles. Arguably each of these dispositional personality traits reflect individual attributes and may not necessarily align with macro-level decision-making processes that seek to achieve societal cooperation. Personality traits can change in response to societal pressure and sometimes in response to changing norms of

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behavior or a changing environment (Block, 1971). Framed by particular norms about appropriate or inappropriate behaviour, and ability to achieve certain goals perhaps a tribalism emerges in terms of how individuals with particular personality traits make decisions (Covey, 2006; Robins, Fraley, Roberts & Trzesniewski, 2001). Further research is required examining particular personality subdomains and their relationship with responsible decision-making for example consciousness and agreeableness.

Limitations

It is necessary to interpret these findings framed by methodological limitations. First, one (albeit the most commonly used) measure of MR was used in this study, however, there may be other measures of interest. Furthermore, the DIT arguably captures ability/capacity, but further research should explore measures that simultaneously capture performance. Second, measure reliabilities should be considered and could have inflated or possibly reduced effect sizes. Third, most studies are quantitative in nature; however inclusion of qualitative methods may assist researchers to further understand the constructs. Fourth, accounting for the low number of studies and the relatively small to moderate effect sizes, this research agenda requires more studies to increase the sample size to adequately detect significant effects. Fifth, many of the studies included in the meta-analysis were correlational. Experimental studies are required to investigate causal relationships between various outcomes (WWC, 2014). Future research should consider study design and quality. Sixth, results primarily involved North American samples and caution is needed in terms of the generalizability of the findings. Seventh, drawing primarily on a unidimensional conception of political ideology is limited (Kahn et al., 2018). There are more

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differentiated concepts of political ideology (for example communitarism and republicanism) that go beyond the simple dichotomous distinction between liberalism and conservatism. Thus, many commentators advocate a multi-dimensional conceptualization of political orientation that distinguishes philosophical, economic, social and cultural political ideology (Blum, 2013; Conover & Feldman 1981; Duckitt, 2001; Feldman & Johnston, 2014). Finally, relying on self-report measures of religiosity and political orientation offers a limitation. Similar to all self-report measures, respondents may complete assessments in socially desirable ways (Dunning, Heath & Suls, 2004). Therefore objective measures could be used to better reflect these domains.

Conclusion

The issues of macro-morality are as real today as ever before. Marty and Appleby's (1993) series provide a contemporary lens to current ideological clashes between fundamentalism and modernism or as others detail it, between religious nationalism and the secular state (Rest et al., 1999b). These disputes may result in ethnic and sectarian strife, border control issues and civil wars (Marty & Appleby, 1993). Therefore, understanding how individuals manage to acquire and harness particular positions about macro-moral issues (fairness, equity and corruption) are more important than ever.

Numerous researchers have appealed to schools and higher-level institutions in the United States and elsewhere to take an essential role in the provision of academic social and emotional learning (Authors, 2018; Mayhew and King, 2008, Weissberg et. al., 2015). Many colleges claim to develop students' social emotional competence (Authors, 2017; Mayhew & King, 2008). However, evidence-based practices and universal interventions are needed to

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effectively implement such change. A number of recent meta-analyses have evidenced that social emotional competence can be improved with interventions implemented with fidelity (Author 2018; Durlack et al., 2011; Taylor et al., 2017). Higher education is uniquely positioned to influence contributions to the academic, social and emotional learning of future professionals. It is necessary to reimagine the role of the university and the competences and values that should be imparted to students, faculty and staff. Lukianoff and Haidt (2015) discuss higher education's overly protectionist trends leading toward intellectual homogeneity where diverse viewpoints are seldom encountered by students. If universities are committed to developing social emotional competence they need to balance freedom of speech with equality, diversity and inclusion agendas, and provide opportunities where students are exposed to intellectual diversity which may at times cause discomfort. "The presumption that students need to be protected rather than challenged in a classroom is ... anti-intellectual" (Lukianoff & Haidt, 2015, p. 4).

The surge in demand for social and emotional learning programs, practices and measures is an important catalyst for innovation. This, in turn, calls for renewed focus and clarity around what it means to rigorously evaluate and measure SEL, and what it looks like in different contexts. With widespread adoption of SEL within our grasp, there has never been a more important moment for the field to insist on evidence-based SEL programs and rigorous measurement of SEL to lift the future generations of students, educators, leaders, adults to achieve their full potential. Results from the current study improve policy-makers, practitioners, researchers' and other stakeholders understanding of the crucial role of social emotional competence and the types of practices and policies that potentially support the development of such competence. In doing so, the study contributes to our understanding of whole person

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development, specifically as it relates to the development of an individual's academic social emotional competence. However, further research is required on the specific social emotional competence prioritized through intervention delivery that results in a range of positive outcomes. Measuring SEL is an obvious and growing area of such research and development efforts. But, measuring SEL is complex. Given the myriad of frameworks available for conceptualising SEL, it is perhaps not surprising that little consensus has emerged in the field regarding measurement. For example measures of mathematics and reading are not perfect, but widely accepted standardized measurements are available in these areas. In order to gather evidence pertaining to social and emotional competence, context specific and performance based measures are needed. However, no single test, nor single type of test, can as of yet serve this purpose. Acknowledging the limits of self-report measures, they have a place in the field of SEL and could be particularly advantageous for triangulating measures such as observation and situational judgment tests. However, these measures should be administered independently, that is, independent raters/observers ideally blinded to treatment assignment and data analysis. The inclusion of measures that minimise potential bias, and triangulate with self-report measures would strengthen SEL measurement (Author, 2012) and untimely could improve teaching and learning. In the meanwhile, we encourage education providers to use evidence based SEL programs (Author, 2018) that seek to address multiple positive outcomes including, but not limited to, social emotional competence as well as achievement outcomes.

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Table 1

Coding Table

Reference	Research Design	Sample Size (n)	Grade	Country	Domain	Outcome	Effect Size
Behar-Horenstein & Garvan (2016)	Correlation Study (S)	245	First-year dental students	United States of America	Religiosity	DIT2 (Rest, et al., 1999) P Score and DIT2 (Rest, et al., 1999) Religious Orthodox Score	-0.17
						DIT2 (Rest, et al., 1999) N2 Score and DIT2 (Rest, et al., 1999) Religious Orthodox Score	-0.22
		245			Political orientation	DIT2 (Rest, et al., 1999) P Score and political affiliation (five-point political conservatism scale, ranging from 1=liberal to 5=conservative).	-0.11
						DIT2 (Rest, et al., 1999) N2 Score and political affiliation (five-point political conservatism scale, ranging from 1=liberal to 5=conservative).	-0.05
Coleman & Wilkins (2002)	Correlation Study (S)	72	Journalists	United States of America	Religiosity	DIT1 (Rest, 1979a) P Score and Religious Composite Score (religious affiliation and religious beliefs).	0.326
Coleman & Wilkins (2004)	Correlation Study (S)	249	Journalists	United States of America	Religiosity	DIT1 (Rest, 1979a) P Score and Religious Composite Score (religious affiliation and religious beliefs).	-0.24
Authors (2016)	Correlation Study (L)	547	Undergraduates	Ireland	Academic Ability	DIT 2 (Rest, et al., 1999) N2 and Leaving Certificate examination score (state equivalent of SAT scores, DES, 2018)	0.18
Crowson (2002)	Correlation study (S)	180	Undergraduates	United States of America	Academic Ability	DIT1 (Rest, 1979a) N2 Score and ACT English	0.437
						DIT1 (Rest, 1979a) P Score and ACT English	0.369
						DIT1 (Rest, 1979a) N2 Score and ACT Social Studies	0.536
						DIT1 (Rest, 1979a) P Score ACT Social Studies	0.46

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Crowson (2004)	Correlation study (S)	236	University students	United States of America	Political Orientation	DIT1 (Rest, 1979a) P score and Political conservatism (1=extremely liberal, 7=extremely conservative),	-0.12
					Political Orientation	DIT1 (Rest, 1979a) N2 score and Political conservatism (1=extremely liberal, 7=extremely conservative)	-0.04
Crowson & DeBacker (2008)	Correlation Study (S)	205	Undergraduate and graduate students	United States of America	Political Orientation	DIT2 (Rest, et al., 1999) N2 score and liberalism- conservatism (1=extremely liberal, 5=extremely conservative)	0.037
					Political Orientation	DIT2 (Rest, at al., 1999) N2 score and Political identification (0 = liberal, 1=conservative)	0.04
					Political Orientation	DIT2 (Rest, et al., 1999) N2 score and Political party identification (0 = democrat, 1 = republican)	-0.029
Crowson, DeBacker & Thoma (2007)	Correlation study (S)	217	Undergraduate students	United States of America	Academic Ability	DIT2 (Rest et al., 1999) N2 Score and ACT Score	0.45
	Correlation Study (L)	262	Undergraduate students	United States of America	Political Orientation	DIT2 (Rest et al., 1999) N2 score and Political liberalism / conservatism (1=liberal, 5=conservative)	-0.02
Crowson, Thoma & Hestevold (2005)	Correlation Study (L)	382	Undergraduate freshman students	United States of America	Political Orientation	DIT1 (Rest, 1979a) P Score and Right-Wing Authoritarianism (RAW) Scale (Altemeyer, 1988): Study 1	-0.09
					Political Orientation	DIT1 (Rest, 1979a) P Score and Mainstream conservative attitudes (Conservatism–Liberalism Scale, McClosky & Bann 1979): Study 1	0.07
					Political Orientation	DIT1 (Rest, 1979a) N2 Score and Right-Wing Authoritarianism (RAW) Scale (Altemeyer, 1988): Study 1	-0.06
					Political Orientation	DIT1 (Rest, 1979a) N2 Score and Mainstream conservative attitudes (Conservatism–Liberalism Scale, McClosky and Bann 1979): Study 1	0.09
Crowson et al. (2005)	Correlation Study (S)	211	Undergraduate students	United States of America	Political Orientation	DIT1 (Rest, 1979a) P Score and Right-Wing Authoritarianism (RAW) Scale (Altemeyer, 1988): Study 2	-0.29
					Political	DIT1 (Rest, 1979a) P Score and Mainstream	-0.05

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					Orientation	conservative attitudes (Conservatism–Liberalism Scale, McClosky and Bann 1979): Study 2	
					Political Orientation	DIT1 (Rest, 1979a) P Score and Conservative Political Identification (from 1 (extremely liberal) to 7 (extremely conservative): Study 2	-0.12
					Political Orientation	DIT1 (Rest, 1979a) N2 Score and Right-Wing Authoritarianism (RAW) Scale (Altemeyer, 1988): Study 2	-0.12
					Political Orientation	DIT1 (Rest, 1979a) N2 Score and Mainstream conservative attitudes (Conservatism–Liberalism Scale, McClosky and Bann 1979): Study 2	-0.01
					Political Orientation	DIT1 (Rest, 1979a) N2 Score and Conservative Political Identification (from 1 (extremely liberal) to 7 (extremely conservative): Study 2	-0.02
Derryberry, Jones, Grieve & Barger (2007)	Correlation Study (S)	117	Undergraduate students	United States of America	Academic Ability	DIT1 (Rest, 1979a) N2 Score and Kaufman Adolescent and Adult Intelligence Test (KAIT, Kaufman & Kaufman, 1993) Definitions Subtest	0.367
					Academic Ability	DIT1 (Rest, 1979a) N2 Score and Kaufman Adolescent and Adult Intelligence Test (KAIT, Kaufman & Kaufman, 1993) Auditory Comprehension Subtest	0.225
					Academic Ability	DIT1 (Rest, 1979a) N2 Score and Kaufman Adolescent and Adult Intelligence Test (KAIT, Kaufman & Kaufman, 1993) Double Meanings Subtest	0.253
					Academic Ability	DIT1 (Rest, 1979a) N2 Score and Kaufman Adolescent and Adult Intelligence Test (KAIT, Kaufman & Kaufman, 1993) Rebus Learning Subtest	0.193
					Academic Ability	DIT1 (Rest, 1979a) N2 Score and Kaufman Adolescent and Adult Intelligence Test (KAIT, Kaufman & Kaufman, 1993) Logical Steps Subtest	0.11
					Academic Ability	DIT1 (Rest, 1979a) N2 Score and Kaufman Adolescent and Adult Intelligence Test (KAIT, Kaufman & Kaufman, 1993) Mystery Codes	0.199

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Derryberry, Wilson, Snyder, Norman, & Barger (2005)	Correlation Study (S)	97	Gifted youth	United States of America	Academic Ability	Subtest Gifted youth: DIT1 (Rest, 1979a) P Score and ACT Score	0.231
	Correlation Study (S)	140	Undergraduate	United States of America	Academic Ability	College students: DIT1 (Rest, 1979a) P Score and ACT Score	0.335
	Correlation Study (S)	97	Gifted youth	United States of America	Personality	DIT1 (Rest, 1979a) P Score and Attributional Complexity Scale (ACS; Fletcher et al., 1986) Preference for complex explanations Score (ACScE) - Gifted	0.24
					Personality	DIT1 (Rest, 1979a) P Score and Attributional Complexity Scale (ACS; Fletcher et al., 1986) ACS composite score minus complex explanations (ACScmp-ce)	0.22
					Personality	DIT1 (Rest, 1979a) P Score and to High Pole Openness to experience (HPO) (Walker, 1999) - Gifted	0.081
					Personality	DIT1 (Rest, 1979a) P Score and Low Pole Agreeableness (LPA) -Gifted	0.045
					Personality	DIT1 (Rest, 1979a) P Score and High Pole Conscientiousness (HPC) (Walker, 1999) - Gifted	-0.109
					Personality	DIT1 (Rest, 1979a) P Score and Attributional Complexity Scale (ACS; Fletcher et al., 1986) Preference for complex explanations Score (ACScE) - College students	0.283
					Personality	DIT1 (Rest, 1979a) P Score and Attributional Complexity Scale (ACS; Fletcher et al., 1986) ACS composite score minus complex explanations (ACScmp-ce) -College students	0.244
					Personality	DIT1 (Rest, 1979a) P Score and High Pole Openness (HPO) (Walker, 1999) - College students	0.18
Personality	DIT1 (Rest, 1979a) P Score and Low Pole Agreeableness (LPA) (Walker, 1999) - College	0.037					
Correlation Study (S)	140	College students	United States of America	Personality	DIT1 (Rest, 1979a) P Score and Attributional Complexity Scale (ACS; Fletcher et al., 1986) Preference for complex explanations Score (ACScE) - College students	0.283	
				Personality	DIT1 (Rest, 1979a) P Score and Attributional Complexity Scale (ACS; Fletcher et al., 1986) ACS composite score minus complex explanations (ACScmp-ce) -College students	0.244	
				Personality	DIT1 (Rest, 1979a) P Score and High Pole Openness (HPO) (Walker, 1999) - College students	0.18	
				Personality	DIT1 (Rest, 1979a) P Score and Low Pole Agreeableness (LPA) (Walker, 1999) - College	0.037	

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					students		
				Personality	DIT1 (Rest, 1979) P Score and High Pole		
					Conscientiousness (HPC) (Walker, 1999) - College		
					students		-0.056
Drake, Griffin, Kirkman & Swann (2005)	Pre/Post Test	264	Undergraduate students	United States of America	Religiosity	DIT2 (Rest et al., 1999) P Score and DIT2 Religious Orthodox Score (Rest et al., 1999)	0.219
				Religiosity	DIT2 N2 Score (Rest et al., 1999) and DIT2 Religious Orthodox Score (Rest et al., 1999)		0.168
Forte (2005)	Correlation Study (L)	214	Managerial and executive level employees	United States of America	Personality	DIT1 (Rest, 1979) P Score and Rotter's (1966) I-E Scale (locus of control)	-0.015
Heinze et al. (2010)	Correlation Study	65	MBA Students	United States of America	Personality	DIT2 (Rest et al., 1999) N2 Score and Total PPI (Psychopathic Personality Inventory) (Lilienfeld & Andrews, 1996)	-0.26
				Personality	DIT2 (Rest et al., 1999) N2 Score and PPI Subscale (Lilienfeld & Andrews, 1996): Machiavellian Egocentricity		-0.32
				Personality	DIT2 (Rest et al., 1999) N2 Score and PPI Subscale: (Lilienfeld & Andrews, 1996): Social Potency		-0.14
				Personality	DIT2 (Rest et al., 1999) N2 Score and PPI Subscale (Lilienfeld & Andrews, 1996): Fearlessness		-0.11
				Personality	DIT2 (Rest et al., 1999) N2 Score and PPI Subscale (Lilienfeld & Andrews, 1996): Coldhearted		-0.09
				Personality	DIT2 (Rest et al., 1999) N2 Score and PPI Subscale (Lilienfeld & Andrews, 1996): Impulsive		-0.13
				Personality	DIT2 (Rest et al., 1999) N2 Score and PPI Subscale (Lilienfeld & Andrews, 1996): Blame Externalization		-0.18
				Personality	DIT2 (Rest et al., 1999) N2 score and PPI Subscale (Lilienfeld & Andrews, 1996): Carefree Nonplanfulness		0.01
				Personality	DIT2 (Rest et al., 1999) N2 Score and PPI Subscale		-0.12

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Hevel, Martin, Weeden, & Pascarella (2015)	Correlation Study (L)	1001	First year undergraduates	United States of America	Personality	(Lilienfeld & Andrews, 1996): Stress Immunity DIT2 (Rest et al., 1999) N2 Score and PPI-1 (fearless dominance, consisting of the Social Potency, Stress Immunity, and Fearlessness subscales) (Benning et al., 2003)	-0.16
					Personality	DIT2 (Rest et al., 1999) N2 Score and PPI-2 (Self-Centered Impulsivity, consisting of the Carefree Nonplanfulness, Impulsive Nonconformity, Machiavellian Egocentricity, and Blame Externalization subscales.) (Benning et al., 2003)	-0.28
Hren, et al. (2006)	Multiple regression analysis (S)	208	2nd-year medical students	Croatia	Academic Ability	DIT2 (Rest et al., 1999) N2 Score and MACH-IV (Christie & Geis, 1970)	-0.15
						DIT 2 (Rest, et al., 1999) N2 and ACT scores	0.141
					Political orientation	DIT 2 (Rest, et al., 1999) N2 and political views (1 = far left (liberal), 5 = far right (conservative))	-0.01
					Personality	DIT2 (Rest et al., 1999) N2 score and Machiavellianism Scale (Milas, 1998): Deceiving subscale	0.052
					Personality	DIT2 (Rest et al., 1999) N2 score and Machiavellianism Scale (Milas, 1998): Amorality Subscale	-0.149
					Personality	DIT2 (Rest et al., 1999) N2 score and Machiavellianism Scale (Milas, 1998): Cynicism Subscale	-0.173
					Personality	DIT2 (Rest et al., 1999) N2 score and Machiavellianism Scale (Milas, 1998): Flattering Subscale	0.126
					Personality	DIT1 (Rest, 1979) N2 score and Paulhus Socially Desirable Responding scales (SDR, Paulhus, 2002): Self-deception	-0.108
					Personality	DIT2 (Rest et al., 1999) N2 score and Paulhus Socially Desirable Responding scales (SDR,	0.13

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Maeda, Thoma, & Bebeau, 2009	Correlation Study (L)	7462	Student data from the Centre for Study of Ethical Development (CSED)	United States of America	Political Orientation	Paulhus, 2002): Impression management DIT2 (Rest et al., 1999) P Score and DIT2 (Rest et al., 1999) Political Orientation Score	-0.14
Maeda et al. (2009)	Correlation Study (S)	65	Student data from the CSED	United States of America	Political Orientation	DIT2 (Rest et al., 1999) N2 Score DIT2 (Rest et al., 1999) Political Orientation Score	-0.1
					Religiosity	DIT2 (Rest et al., 1999) P Score and Religiosity (institutional religious affiliation: Secular/Religious)	0.186
					Religiosity	DIT2 (Rest et al., 1999) N2 Score and Religiosity (institutional religious affiliation: Secular/Religious)	0.187
Marx, Soames Job, White & Wilson (2007)	Correlation Study (S)	115	First year psychology students	Australia	Academic Ability	DIT1 (Rest, 1979a) and P Score Verbal Ability (vocabulary subscales from Stankov's (1997) Gf/Gc Quickie Test Battery)	0.27
		140	First year psychology students	Australia	Political Orientation	DIT1 (Rest, 1979a) P score and Political score (Political Questionnaire - a 28-item shortened form of the questionnaire employed in Marx et al. (2006). Respondents were required to indicate whether or not they supported each of 28 political policies (e.g. death penalty, abortion) on a 5-point Likert scale (1- strongly disagree to 5 -strongly agree).	-0.38
Mayhew (2012)	Correlation study (L)	1469	First-year college students	United States of America	Academic Ability	DIT2 (Rest et al., 1999) ACT scores	0.178
Mayhew, Pascarella, Trolian & Selznick (2015)	Correlation Study (L)	923	First year undergraduates	United States of America	Academic Ability	DIT 2 (Rest, et al., 1999) N2 and ACT Score (or SAT equivalent)	0.105
		923			Political	DIT 2 (Rest, et al., 1999) N2 and political views (1	-0.013

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					orientation = far left (liberal), 5 = far right (conservative))		
Morton, Worthley, Testerman & Mahoney (2006)	Correlation Study (S)	114	Freshman medical students	United States of America	Religiosity	DIT2 (Rest, et al., 1999) N2 Score and Spiritual Experience Index (SEI, Genia, 1997)	0.13
					Religiosity	DIT2 (Rest, et al., 1999) N2 Score and religious belief.	-0.07
Mudrack (2006)	Correlation Study (S)	230	High school students (Polovy, 1980)	United States of America	Personality	DIT1 (Rest, 1979a) P score and California Psychological Inventory Scale (Gough, 1975): Achievement via Independence Subscale	0.44
					Personality	DIT1 (Rest, 1979a) P score and California Psychological Inventory Scale (Gough, 1975): Intellectual Efficiency Subscale	0.36
					Personality	DIT1 (Rest, 1979a) P score and California Psychological Inventory Scale (Gough, 1975): Tolerance Subscale	0.32
					Personality	DIT1 (Rest, 1979a) P score and California Psychological Inventory Scale (Gough, 1975): Responsibility Subscale	0.32
					Personality	DIT1 (Rest, 1979a) P score and California Psychological Inventory Scale (Gough, 1975): Capacity for status Subscale	0.3
	Correlation Study (S)	227	College students (Polovy, 1980)	United States of America	Personality	DIT1 (Rest, 1979a) P score and California Psychological Inventory Scale (Gough, 1975): Achievement via Independence Subscale	0.48
					Personality	DIT1 (Rest, 1979a) P score and California Psychological Inventory Scale(Gough, 1975): Intellectual Efficiency Subscale	0.38
					Personality	DIT1 (Rest, 1979a) P score and California Psychological Inventory Scale (Gough, 1975) : Tolerance Subscale	0.45
					Personality	DIT1 (Rest, 1979a) P score and California Psychological Inventory Scale (Gough, 1975): Responsibility Subscale	0.31
					Personality	DIT1 (Rest, 1979a) P score and California Psychological Inventory Scale (Gough, 1975):	0.36

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	Correlation Study (S)	92	Graduate School (Polovy, 1980)	United States of America	Personality	Psychological Inventory Scale (Gough, 1975) : Capacity for status Subscale	
					Personality	DIT1 (Rest, 1979a) P Score and California Psychological Inventory Scale (Gough, 1975): Achievement via Independence Subscale	0.4
					Personality	DIT1 (Rest, 1979a) P Score and California Psychological Inventory Scale (Gough, 1975): Intellectual Efficiency	0.34
					Personality	DIT1 (Rest, 1979a) P Score and California Psychological Inventory Scale (Gough, 1975): Tolerance	0.19
					Personality	DIT1 (Rest, 1979a) P Score and California Psychological Inventory Scale (Gough, 1975): Responsibility Subscale	0.21
					Personality	DIT1 (Rest, 1979a) P Score and California Psychological Inventory Scale (Gough, 1975): Capacity for status Subscale	0.07
	Correlation Study (S)	98	Undergraduate students (Rest, 1979)	United States of America	Personality	DIT1 (Rest, 1979a) P Score and California Psychological Inventory Scale (Gough, 1975): Achievement via Independence Subscale	0.48
					Personality	DIT1 (Rest, 1979a) P Score and California Psychological Inventory Scale (Gough, 1975): Intellectual Efficiency Subscale	0.42
					Personality	DIT1 (Rest, 1979a) P Score and California Psychological Inventory Scale (Gough, 1975): Tolerance Subscale	0.39
					Personality	DIT1 (Rest, 1979a) P Score and California Psychological Inventory Scale (Gough, 1975): Responsibility Subscale	0.33
					Personality	DIT1 (Rest, 1979a) P Score and California Psychological Inventory Scale (Gough, 1975): Capacity for status Subscale	0.32
Narvaez, Getz, Rest & Thoma (1999)	Correlation Study (S)	96	Members from two congregations	United States of America	Political Orientation	DIT1 (Rest, 1979a) P score and Political ideology (1=liberal to 5=conservative)	-0.47

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Nelson (2004)	Correlation Study (S)	56	Bible college seniors	United States of America	Academic Ability	DIT1 (Rest, 1979a) P Score and Academic skill (AP, Academic Profile)	0.33
					Academic Ability	DIT1 (Rest, 1979a) N2 Score and Academic skill (AP, Academic Profile)	0.3
		56			Religiosity	DIT1 (Rest, 1979a) P Score and Bible knowledge (Standardized Bible Content Test, American Association of Bible Colleges, 1991)	0.38
						DIT1 (Rest, 1979) N2 Score and Bible knowledge (Standardized Bible Content Test, American Association of Bible Colleges, 1991)	0.31
Nodie Oja, Graham & Andrew (2011)	Quasi-experimental	82	Graduate students	United States of America	Academic Ability	DIT2 (Rest et al., 1999) N2 Score and Graduate Record Exam Verbal Ability score (GREV)	0.366
					Academic Ability	DIT2 (Rest et al., 1999) P Score Graduate Record Exam Verbal Ability score (GREV)	0.385
Parker, Barnhardt, Pascarella, & McCowin (2016)	Correlation Study (L)	998	First year undergraduates	United States of America	Academic Ability	DIT 2 (Rest, et al., 1999) N2 and ACT Score (or SAT equivalent)	0.126
		998			Political orientation	DIT 2 (Rest, et al., 1999) N2 and political views (1 = far left (liberal), 5 = far right (conservative))	-0.004
Passini (2014)	Correlation Study (S)	191	General population	Italy	Political orientation	DIT 1 (Rest, 1979a) P Score and political affiliation (10-point scale, from 1 = extreme left - liberal to 10 = extreme right - conservative).	-0.27
Peeters & Boddu (2016)	Correlation Study (S)	167	Doctor of Pharmacy (Pharm.D.) students	United States of America	Academic Ability	DIT 2 (Rest, et al., 1999) N2 Score and GPA Score	0.23
Richmond	Correlation	59	Accounting	No	Personality	DIT2 (Rest et al., 1999) N2 Score and MACH-IV	-0.138

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Author (Year)	Study Type	Sample Size	Participant Group	Location	Scale	Correlation
Pope (2004)	Study (S)		students	information given.	Scale (Christie & Geis, 1970)	
					Personality DIT2 (Rest et al., 1999) N2 Score and Ethical Rating A (Richmond Pope, 2004)	-0.273
					Personality DIT2 (Rest et al., 1999) N2 Score and Ethical Rating B (Richmond Pope, 2004)	-0.243
Rizzo & Swisher (2004)	Cross-sectional Study (S)	65	Public Administrators	United States of America	Political Orientation DIT2 (Rest et al., 1999) P Score and Political orientation (Conservative/Moderate/Liberal)	0.308
					Political Orientation DIT2 (Rest et al., 1999) N2 Score and Political orientation (Conservative/Moderate/Liberal)	0.239
Sechler (2000)	Correlation Study (S)	23	Classroom teachers	United States of America	Personality DIT1 (Rest, 1979a) P Score and Science Teaching Efficacy Belief Instrument (STEBI, Riggs & Enochs, 1990): Outcome Efficacy	-0.16
					Personality DIT1 (Rest, 1979a) P Score and Science Teaching Efficacy Belief Instrument (STEBI, Riggs & Enochs, 1990): Self Efficacy	-0.01
					Personality DIT1 (Rest, 1979a) P Score and EF1 (Simmons & Simmons, 1997): Emotional energy	-0.16
					Personality DIT1 (Rest, 1979a) P Score and EF2 (Simmons & Simmons, 1997): Emotional Stress	0.2
					Personality DIT1 (Rest, 1979a) P Score and EF3 (Simmons & Simmons, 1997): Optimism	-0.26
					Personality DIT1 (Rest, 1979a) P Score and EF4 (Simmons & Simmons, 1997): Self-esteem	0.12
					Personality DIT1 (Rest, 1979a) P Score and EF5 (Simmons & Simmons, 1997): Commitment to work	-0.07
					Personality DIT1 (Rest, 1979a) P Score and EF6 (Simmons & Simmons, 1997): Attention to detail	-0.07
					Personality DIT1 (Rest, 1979) P Score and EF7 (Simmons & Simmons, 1997): Desire for change	-0.21
					Personality DIT1 (Rest, 1979a) P Score and EF8 (Simmons & Simmons, 1997): Courage	0.32
					Personality DIT1 (Rest, 1979a) P Score and EF9 (Simmons & Simmons, 1997): Self-direction	0.21
					Personality DIT1 (Rest, 1979) P Score and ET10 (Simmons & Simmons, 1997): Assertiveness	0.34

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Personality	DIT1 (Rest, 1979a) P Score and ET11 (Simmons & Simmons, 1997): Tolerance	-0.24
Personality	DIT1 (Rest, 1979a) P Score and ET12 (Simmons & Simmons, 1997): Consideration for others	-0.25
Personality	DIT1 (Rest, 1979a) P Score and EF13 (Simmons & Simmons, 1997): Sociability	0.29
Personality	DIT1 (Rest, 1979a) P Score and The Myers-Briggs Type Indicator: Extroversion-Introversion Scale (Briggs, 1987)	0.19
Personality	DIT1 (Rest, 1979a) P Score and The Myers-Briggs Type Indicator: Sensing-Intuiting Scale (Briggs, 1987)	-0.13
Personality	DIT1 (Rest, 1979a) P Score and The Myers-Briggs Type Indicator: Thinking Feeling Scale	-0.04
Personality	DIT1 (Rest, 1979a) P Score and The Myers-Briggs Type Indicator: Judgment-Perception Scale (Briggs, 1987)	-0.11
Personality	DIT1 (Rest, 1979a) N2 Score and Science Teaching Efficacy Belief Instrument (STEBI, Riggs & Enochs, 1990): Outcome Efficacy	-0.15
Personality	DIT1 (Rest, 1979a) N2 Score and Science Teaching Efficacy Belief Instrument (STEBI, Riggs & Enochs, 1990): Self Efficacy	0.04
Personality	DIT1 (Rest, 1979a) N2 Score and EF1 (Simmons & Simmons, 1997): Emotional Energy	0.12
Personality	DIT1 (Rest, 1979a) N2 Score and EF2 (Simmons & Simmons, 1997): Emotional Stress	0.19
Personality	DIT1 (Rest, 1979a) N2 Score and EF3 (Simmons & Simmons, 1997): Optimism	-0.33
Personality	DIT1 (Rest, 1979a) N2 Score and EF4 (Simmons & Simmons, 1997): Self-esteem	0.02
Personality	DIT1 (Rest, 1979a) N2 Score and EF5 (Simmons & Simmons, 1997): Commitment to work	-0.1
Personality	DIT1 (Rest, 1979a) N2 Score and EF6 (Simmons & Simmons, 1997):	-0.22
Personality	DIT1 (Rest, 1979a) N2 Score and EF7 (Simmons & Simmons, 1997): Desire for change	-0.05

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					Personality	DIT1 (Rest, 1979a) N2 Score and EF8 (Simmons & Simmons, 1997): Courage	0.51
					Personality	DIT1 (Rest, 1979a) N2 Score and EF9 (Simmons & Simmons, 1997): Self-direction	0.4
					Personality	DIT1 (Rest, 1979a) N2 Score and ET10 (Simmons & Simmons, 1997): Assertiveness	0.46
					Personality	DIT1 (Rest, 1979a) N2 Score and ET11 (Simmons & Simmons, 1997): Tolerance	-0.44
					Personality	DIT1 (Rest, 1979a) N2 Score and ET12 (Simmons & Simmons, 1997): Consideration of others	-0.41
					Personality	DIT1 (Rest, 1979a) N2 Score and EF13 (Simmons & Simmons, 1997): Sociability	0.08
					Personality	DIT1 (Rest, 1979a) N2 Score and The Myers-Briggs Type Indicator: Extroversion-Introversion Scale (Briggs, 1987)	0.11
					Personality	DIT1 (Rest, 1979a) N2 Score and The Myers-Briggs Type Indicator: Sensing-Intuiting Scale	-0.13
					Personality	DIT1 (Rest, 1979a) N2 Score and The Myers-Briggs Type Indicator: Thinking Feeling Scale (Briggs, 1987)	0.05
					Personality	DIT1 (Rest, 1979a) N2 Score and The Myers-Briggs Type Indicator: Judgment-Perception Scale (Briggs, 1987)	-0.19
Sisola (2000)	Correlation Study (S)	58	Physical therapist students	United States of America	Academic Ability	DIT1 (Rest, 1979a) P Scores and GPA scores	0.265
Skoe & von der Lippe (2002)	Correlation Study (S)	141	Norwegian men and women	Norway	Academic Ability	DIT1 (Rest, 1979a) P Score and Verbal Ability (Vocabulary sub test of the Wechsler Adult intelligence Scale) (Wechsler, 1955)	0.35
Tatum et al. (2013)	Correlation Study (S)	161	College students	United States of America	Religiosity	Short Form DIT1 (Rest, 1993) P Score and religious preference (Protestant, Catholic, Nonreligious)	-0.21
Thoma, Derryberry & Narvaez (2009)	Correlation Study (S)	146	College students	United States of America	Academic Ability	DIT2 (Rest et al., 1999) P2 Score and ACT English Score	0.32
					Academic	DIT2 (Rest et al., 1999) P2 Score and ACT Social	0.19

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		146			Ability Religiosity	Studies score DIT2 (Rest et al., 1999) P2 Score and Religious Fundamentalism (Brown & Lowe's Inventory of Religious Belief, 1951)	0.12
					Religiosity	DIT1 (Rest, 1979a) P Score and Religious Fundamentalism (Brown & Lowe's Inventory of Religious Belief, 1951)	0.16
Thomas & Dunphy (2017)	Multiple regression analysis (L)	268	College students	United States of America	Religiosity	DIT1 (Rest, 1979a) P Score and Orthodoxy (Batson and Ventis Religious Orthodoxy Scale, Batson and Ventis, 1982)	-0.17
Traiser (2007)	Correlation study (L)	269	College students	United States of America	Academic Ability	DIT2 (Rest et al., 1999) N2 Score and GPA scores	0.168
Traiser & Eighmy (2011)	Correlation Study (L)	269	Students majoring in general business	United States of America	Academic Ability	DIT2 (Rest et al., 1999) N2 Score and GPA scores	0.16
		206			Personality	DIT2 (Rest et al., 1999) N2 score and NPI (Narcissistic Personality Inventory) (Raskin & Hall (1979)	-0.07
Wade (2015)	Correlation Study (S)	20	Teacher Education students	United States of America	Religiosity	DIT 2 (Rest et al. 1999) and church attendance (Attend regularly, Do not attend)	0.3
Wilhelm, (2004)		792			Religiosity	DIT2 (Rest et al., 1999) P Score and Religiosity (Religious Participation - No participation, Little participation, Somewhat active, Highly active, Extremely active)	-0.053
					Religiosity	DIT2 (Rest et al., 1999) N2 Score and Religiosity (Religious Participation - No participation, Little participation, Somewhat active, Highly active, Extremely active)	-0.023
Wilhelm & Chaichompoo (2015)	Correlation Study (L)	403	Graduate and undergraduate students	Thailand and United States of America	Religiosity	DIT2 N2 Score (Rest et al., 1999) and DIT2 (Rest et al., 1999) Religious Orthodoxy Score	-0.123
		397			Political orientation	DIT N2 (Rest, et al., 1999) and DIT 2 (Rest, et al., 1999) political liberalism	0.13

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Wimalasiri (2001)	Correlation Study (S)	189	Management students and practitioners in Sydney, Australia	Australia	Religiosity	DIT1 P Score (Rest, 1979a) and Religious Commitment (No commitment vs. highly committed).	0.20
	Correlation Study (S)	248				DIT1 P Score (Rest, 1979a) and Religious Affiliation (Catholicism, Protestant, Buddhist/Hindu, or others, vs. No Religion).	-0.429
Wimalasiri (2004)	Correlation Study (S)	204	Business management students from Fiji Islands and Singapore	Fiji	Religiosity	DIT1 (Rest, 1979a) P Score and Fijians Religious Commitment (5-point Likert scale (1 = no commitment to 5 = strongly committed)).	0.039
		134		Singapore	Religiosity	DIT1 (Rest, 1979a) P Score and Singaporeans Religious Commitment (5-point Likert scale (1 = no commitment to 5 = strongly committed)).	-0.013

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Table 2

Overall Effect Sizes

Model	Effect size and 95% confidence interval		Test of null				Heterogeneity		
	<i>k</i>	ES	Lower limit	Upper limit	Z-value	<i>p</i> -value	Q-Value	<i>df</i> (Q)	<i>p</i> -Value
Moral Reasoning and Academic Ability									
Fixed	19	0.19	0.17	0.21	15.87	0.00	61.96	18	0.00
Random	19	0.24	0.19	0.28	9.45	0.00			
Moral Reasoning and Religiosity									
Fixed	16	-0.05	-0.08	-0.01	-2.61	0.01	74.46	15	0.00
Random	16	-0.00	-0.08	0.08	-0.08	0.94			
Moral Reasoning and Political Orientation									
Fixed	15	-0.08	-0.10	-0.07	-9.48	0.00	96.27	14	0.00
Random	15	-0.07	-0.13	-0.01	-2.34	0.02			
Moral Reasoning Ability and Personality									
Fixed	8	0.16	0.14	0.18	13.88	0.00	317.01	7	0.00
Random	8	0.01	-0.16	0.17	0.10	0.92			

* Note: This analysis includes 18 studies with 19 independent effect sizes for correlations between moral reasoning and academic ability, 15 studies with 16 independent effect sizes for correlations between moral reasoning and religiosity, 14 studies with 15 independent effect sizes for correlations between moral reasoning and political orientation, and 8 studies for correlations between moral reasoning and personality.

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Table 3

Mean Effect Sizes in Studies with Larger and Smaller Sample Size

	Numbers of Studies	Point Estimate	Lower limit	Upper limit	Q-Value	df (Q)	p-Value
Moral Reasoning and Academic Ability							
Small (≤ 250)	12	0.33	0.27	0.38			
Large (> 250)	7	0.15	0.12	0.17			
Total between	19				32.21	1	0.00
Moral Reasoning and Religiosity							
Small (≤ 250)	11	0.04	-0.09	0.16			
Large (> 250)	5	-0.05	-0.16	0.06			
Total between	16				1.02	1	0.31
Moral Reasoning and Political Orientation							
Small (≤ 250)	9	-0.14	-0.21	-0.07			
Large (> 250)	6	0.01	-0.06	0.09			
Total between	15				8.72	1	0.00