

Litten, V., Roberts, L. D., Ladyshevsky, R. K., Castell, E., & Kane, R. (2018). The influence of academic discipline on empathy and psychopathic personality traits in undergraduate students. *Personality and Individual Differences*, 123, 145-150.

The Influence of Academic Discipline on Empathy and Psychopathic Personality Traits in Undergraduate Students

**Abstract**

The Attraction, Selection and Attrition (ASA) model posits that people are attracted to organizations that embody similar personality traits and values to their own. These traits are thought to be further shaped by the organization's culture, ultimately creating a homogenous workforce within the organisation (Schneider, 1987). This research applies the ASA model to investigate whether specific university disciplines have an impact on the development of psychopathic traits and empathy in students. An online survey collected data on levels of psychopathic traits and empathy from 259 psychology and business undergraduate students to examine whether group level variations were present across years and disciplines.

Generalized Linear Mixed Modelling analyses supported the hypothesized interaction effects of year of study and discipline for psychopathic traits only. Moderate-large discipline effect sizes were noted, with psychology students reporting significantly higher levels of cognitive ( $d = .77$ ) and total empathy ( $d = .74$ ) than business students. Additionally, business students reported significantly higher levels of affective, antisocial, interpersonal and total psychopathic traits than psychology students ( $d = .36 - .45$ ). Findings provide support for the attraction and selection components of the ASA model. Implications of these findings are discussed in the context of the model and self-selection.

## 1. Introduction

The personality literature has established that external environments play a pivotal role in personality trait development (Roberts, Walton, & Viechtbauer, 2006). Changes in personality traits tend to be most dramatic during young adulthood; a period of time when many are in university and/or starting a career (Roberts, Walton, & Viechtbauer, 2006). The present study investigated the impact university discipline may have on students' personality trait development, situated within Schneider's (1987) Attraction, Selection, Attrition theoretical framework.

Schneider's (1987) Attraction, Selection, Attrition (ASA) model posits that people will be attracted to organizations that they perceive as aligning with their own personality traits, values and interests. Organizations will select employees in a similar fashion, resulting in the individual traits of the employee continuing to be accentuated by the organizational environment as well as their unique life experiences. Employees who do not fit the organization culture over time either resign or are terminated by the organization, resulting in a homogenous workforce (Schneider, 1987).

The ASA model is underpinned by the self-selection and indoctrination hypotheses. The self-selection hypothesis, congruent with the attraction and selection components of the ASA model, posits that individuals will be attracted to vocational choices that they believe to embody their own personality characteristics. The indoctrination hypothesis, congruent with the final attrition component of the ASA model, suggests that particular vocational environments will influence or enhance the development of personality characteristics which may be advantageous to that environment (Elegido, 2014). Previous literature has found

strong support for the self-selection hypothesis however evidence for the indoctrination hypothesis is sparser (Elegido, 2014).

It should be noted however that attraction, selection and attrition are also influenced by genetic factors (see Scarr & McCartney (1983) for an overview of this work), certain environmental demands and expectations such as income and societal pressures. The 'Plasticity Principle', coined by Roberts, Wood, and Caspi (2008) posits that personality trait change can also be brought about by repeated exposure to reward and punishment schedules which aim to shape behaviour to align with social roles (Roberts et al., 2008). Workplace environments are capable of influencing personality trait changes due to the operant conditioning of employees via punishment and reward within the workplace environment (Le et al., 2014).

It is a small inferential leap to apply the ASA model to a university setting. For example, Vedel and Thomsen (2017) found that students who were motivated by power, self-interest and financial gain were more likely to enrol in a business degree as this leads to a career which encourages and rewards self-interested behaviour (psychopathic alignment). Comparatively, psychology students reported the highest levels of openness and agreeableness (empathy alignment; Vedel & Thomsen, 2017) which are appropriate for working in this field. Therefore, drawing on the ASA model, it is proposed that empathic and psychopathic personality traits which initially attract students to a course in psychology or business are the same ones that may be influenced and accentuated as they progress through their degree.

### **1.1. Empathy**

The construct of empathy is the single most researched variable in relation to psychotherapeutic processes (Camarano, 2011; Marangoni, Garcia, Ickes & Teng, 1995), with psychologists thought to rely heavily on the emotional ability to exhibit empathy – to

cognitively understand another's perspective, co-experience their emotional state or ideally, both (Camarano, 2011). Additionally, empathy is considered a core component of engaging in ethical and other prosocial behaviours. It is not surprising then to think that psychology training programs might place strong emphasis on improving interpersonal communication skills and empathic understanding (Marangoni et al., 1995).

Business schools are designed to equip students with skills for success in a traditionally competitive field. It has been argued that business degrees often lack an empathic, person centred approach and in-depth focus on moral and ethical behavioural practice (Frank, 2004). The literature yields mixed results on the efficacy of increased empathy for therapists, as well as the extent to which empathy skills training, built into psychology and business courses, is effective in furthering the development of this particular construct (Marangoni et al., 1995; Toto et al., 2014). Therefore, further investigation into the development of empathy in both psychology and business students is warranted.

## **1.2. Psychopathy**

A deficit or lack of empathy is associated with antisocial behaviour and is a defining feature of psychopathy (Camarano, 2011). Other features of psychopathy include superficial charm, egocentricity, dishonesty, risk-taking and manipulative behaviour as well as a lack of guilt and remorse, masked by normalcy (Wilson & McCarthy, 2011). Traditionally, psychopathy has been conceptualized as a dyadic and fixed personality disorder used primarily as a psychiatric diagnosis in forensic settings. However, there is a growing body of literature focused on psychopathy within community settings, specifically in the workplace (Wilson & McCarthy, 2011), with research suggesting around 4% of corporate leaders meet the threshold for a psychopathic pathology, considerably higher than the 1% reported prevalence in the general population (Babiak, Newman, & Hare, 2010).

This shift in research focus has been accompanied by an updated conceptualization of the construct which evaluates psychopathy as a collection of personality traits, existing on a spectrum, displayed in varying levels of severity (Babiak et al., 2010; Boddy, 2015). Further, research suggests that these traits tend to cluster into four unique areas of personality, namely; the interpersonal, affective, antisocial, and lifestyle psychopathy facets (Paulhus et al., 2016). This view of psychopathy is in line with current personality development research, emphasizing the role of both genetics and environment, and as such was adopted for the purposes of the present study.

Despite increased interest, research investigating the role of psychopathic traits in the business world remains in its infancy (Babiak et al., 2010; Boddy, 2015), resulting in limited knowledge of the manifestation and longer-term implications these traits may have within this sector. Even sparser literature exists which has examined the development of psychopathic personality traits in business students, a pre-cursor to the business world (Brown et al., 2010; Frank, 2004; Hassall, Boduszek & Dhingra, 2015; Vedel & Thomson, 2017; Wilson & McCarthy, 2011). Two previous studies have directly examined levels of psychopathy in business and psychology students, reporting business students possess higher levels of psychopathic traits than psychology students ( $d = .32 - .75$ ) (Hassall et al., 2015; Vedel & Thomson, 2017). Cross-sectional and longitudinal research is required to understand the influence university courses may have on the further development of empathy and psychopathic traits (Wilson & McCarthy, 2011).

### **1.3. Present Study**

The relationship between empathy and psychopathy has produced some mixed findings. Whilst much of the previous forensic literature supports an inverse relationship between psychopathy and empathy, new findings are emerging which suggest that empathy levels tend to be higher in non-incarcerated psychopathic individuals (Mullins-Nelson, Salekin, &

Leistico, 2006). For example, Mullins-Nelson et al. (2006) found psychopathy was negatively correlated with affective empathy ( $r = -.406$ ), but not significantly correlated with cognitive empathy, suggesting that psychopathic individuals in the community may possess normative levels of cognitive empathy, allowing them to exhibit adequate social skills to evade detection from the judicial system. These mixed findings highlight the need for further research into the relationship between facet level empathy and psychopathic traits.

Investigation of psychopathic traits and empathy in a university student population would provide valuable information regarding the prevalence of these traits in non-clinical populations and identify possible external perpetuating factors involved in their development. Previous cross-sectional research has established that different personality types will be attracted to different academic environments, what remains unknown is whether these traits are further developed from exposure to these learning environments. Further, the two previous studies that have directly compared business and psychology students on levels of psychopathic traits used a UK sample of 3<sup>rd</sup> year students and a Dutch sample of 1<sup>st</sup> year students. The present research provides an Australian comparison of these traits and adds to the sparse literature in this area.

Therefore, working within an ASA framework, the present research was the first to examine the influence university course discipline has on the manifestation of psychopathic traits and empathy in business and psychology students. As empathy deficit is considered a core feature of psychopathy and empathy is a possible predictor of selecting a helping profession discipline (Marsh, 1988), it was hypothesized that after controlling for age, gender, and social desirability, year of study and discipline would interact in predicting levels of empathy and psychopathic traits. Specifically, year of study would be negatively related to levels of empathy (cognitive and affective) for business students, but positively related for psychology students; and year of study would be positively related to levels of psychopathic

traits (Interpersonal, Antisocial, Affective and Lifestyle facets) for business students, but negatively related for psychology students. Findings can provide insight into the influence university courses may have on the development of these personality traits.

## 2. Method

### 2.1. Participants

The sample was comprised of 135 (64 = Male, 71 = Female) business and 124 (26 = male, 98 = female) psychology undergraduate students from four Australian universities with a mean age of 24 years ( $SD = 8.35$ ). A summary of participant demographics is presented in Table 1.

### 2.2. Materials

#### 2.2.1. Self-Report Psychopathy Scale (SRP-4: SF); (Paulhus, Neumann, & Hare, 2016).

Psychopathic personality traits were measured using the SRP-4: SF; a 29-item self-report measure designed to emulate the item-to-factor relations in the current gold standard psychopathy measure, the Psychopathy Checklist Revised (PCL-R). Items are scores on a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree) and yield a total T-score and four 7-item facet (affective, interpersonal, lifestyle and antisocial) T-scores. T-Scores range from 30 (low psychopathy) to 80 (elevated psychopathy). The four-facet model of psychopathy has good fit across community, forensic and student samples and acceptable internal and test-retest reliability and validity (Paulhus et al., 2016). Cronbach's alphas for the total score ( $\alpha = .89$ ) and four facets ( $\alpha = .68 - .75$ ) were acceptable in the present sample.

#### 2.2.2. Basic Empathy Scale (BES; Jolliffe & Farrington, 2006).

Empathy was assessed using BES, a 20-item self-report measure of both cognitive and affective empathy, scored on a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree), with scores ranging from 20 (deficit in empathy) to 100 (high empathy). The BES

demonstrates good construct, convergent and divergent validity (Jolliffe & Farrington, 2006) and adequate internal and test-retest reliability (Carre, et al., 2013). Cronbach's alphas for the facets ( $\alpha = .79 - .82$ ) and total BES score ( $\alpha = .86$ ) were adequate in the present sample.

### **2.2.3. The Social Desirability Scale-17 (SDS-17; Stöber, 2001).**

Deception is considered a core psychopathic trait and, as such, the potential for response bias when using self-report psychopathy measures forms a concern (Ray et al., 2013).

Findings from a recent meta-analysis suggest that this concern is often exaggerated within community and student samples, however, the potential effect can be statistically controlled for using a measure of social desirability (Ray et al., 2013). The SDS-17 is a brief and valid measure of socially desirable responding, comprised of 16 true or false items with raw scores ranging from 0-16 (Stöber, 2001). The SDS-17 has demonstrated sound internal and test-retest reliability as well as adequate convergent and discriminant validity (Stöber, 2001).

Cronbach's alpha for the present sample was .62.

### **2.3. Procedure**

Following Human Research Ethics Committee approval, the study was advertised through social media, university online communication boards, teaching staff, and a psychology student participant pool. Business and psychology undergraduate students were invited to complete an online survey titled 'Personality Traits in Students' via a password protected link. A chance to win one of five \$50 gift certificates (lottery) was offered to students as incentive for participation. Students in the psychology participant pool were provided with partial course credit. A total of 345 students across 3 years of undergraduate study were recruited, however, responses with large amounts of missing data (50), students identifying as 'other gender' (2) and students studying both business and psychology (11) were excluded from the final sample for analysis. Missing data for a further six cases (2.17%) in the final sample were replaced using Expectation Maximization.

## 2.4. Analysis

Data was analysed in SPSS (v. 24) using a series of eight Generalized Linear Mixed Models (GLMMs) to examine the impact of year and discipline on cognitive, affective and total empathy scores and the four psychopathic facets and total psychopathy scores after controlling for age, gender, and social desirability scores. Each GLMM included one nominal random effect (student), one ordinal fixed effect (year of study), one binary fixed effect (student discipline), one binary covariate (gender), two scale covariates (Social desirability and age) and the Year x Discipline interaction effect. GLMM assumed a normal probability distribution for each dependent variable and linked it to the predictors with an identity function. The slight negative skew shown by the outcomes was accommodated by the GLMM 'robust statistics' option. A correlation matrix of the covariates and dependent variables is displayed in Table 2.

## 3. Results

A correlation matrix of empathy and psychopathic facets and total scores is presented in Table 3.

### 3.1. Empathy

A summary of the empathy GLMM results is displayed in Table 4. The hypothesised Year x Discipline interaction effect was not supported by the cognitive, affective or total empathy GLMM results. The main effect for discipline was significant for all three empathy analyses, indicating that psychology students reported significantly higher levels of cognitive ( $d = .77$ ), affective ( $d = 0.51$ ) and total empathy ( $d = .74$ ) than business students. A plot of the total empathy score and main effects is presented in Figure 1.

The other main effect for year of study was not significant for any of the empathy GLMMs. After controlling for all other covariates, gender was significant for affective and

total empathy, indicating that females reported higher levels of affective and total empathy than males. Social Desirability was significant for cognitive empathy only, with higher SDS scores being associated with higher levels of cognitive empathy. Age was not significant for any of empathy GLMMs.

### **3.2. Psychopathy**

A summary of the SRP facets and SRP total score GLMM results are displayed in Table 5.

The hypothesised year X discipline interaction effect was significant for psychology students for the lifestyle facet ( $p = .028$ ) and total psychopathy ( $p = .030$ ) scores. The simple main effect was not significant for business students for the lifestyle facet ( $p = .573$ ) or total psychopathy ( $p = .345$ ) scores. The Year x Discipline interaction was non-significant for the affective, interpersonal and antisocial SRP facets. The main effect for student discipline was significant for the interpersonal, affective, antisocial and total SRP GLMMs, indicating that business students reported significantly higher levels of these traits than psychology students. The other main effect for year of study was not significant for any of the SRP facets or total scores. A plot of the total psychopathy score main effects is presented in Figure 2.

Additionally, after controlling for all other covariates, gender was significant for all SRP facets and total SRP score GLMM, with males reporting higher levels of psychopathic traits than females. Age was significant for the total SRP scores and all facets except lifestyle, with higher scores being associated with younger participants. Social desirability was significant for all SRP facets and total scores, with higher SDS scores being associated with lower levels of psychopathic traits.

## **4. Discussion**

The present research aimed to examine the influence university course discipline has on the manifestation of psychopathic traits and empathy in business and psychology students. As empathy deficit is considered a core feature of psychopathy and a possible predictor of

selecting a helping profession discipline (Marsh, 1988), it was hypothesized that year of study would be negatively related to levels of empathy (cognitive and affective) for business students, but positively related for psychology students. Findings did not support a year of study and discipline interaction effect for levels of empathy. However, a significant discipline effect was evident, with psychology students reporting higher levels of empathy than business students. It was also hypothesized that year of study would be positively related to levels of psychopathic traits for business students, but negatively related for psychology students. Results supported this hypothesis as a significant year of study and discipline interaction effect was found for the total score as well as the lifestyle facet. However, the other psychopathic trait scores did not support the hypothesised interaction effect. Further, year of study was not significantly related to any of the psychopathy facets or total score, regardless of student discipline. Findings provide insight into the types of personality traits possessed by individuals whom are attracted to business and psychology disciplines and how these courses might influence the development of these traits.

#### **4.1. Empathy**

A prominent finding was the medium to large discipline effect sizes observed for empathy, with psychology students reporting significantly higher levels of cognitive ( $d = .77$ ), affective ( $d = .51$ ) and total empathy ( $d = .74$ ) than business students. This finding is consistent with the attraction and selection components of the ASA model, as it suggests that students possessing greater empathic ability are attracted to the psychology profession. This finding is also supported by Marsh's (1988) research suggesting that increased empathy may be predictive of selection into the study of a helping profession.

In contrast to Elegido's (2014) findings that business schools promote more self-interested behaviour in students, the present results did not support the hypothesis that year of study would be negatively related to cognitive, affective or total empathy for business

students but positively related for psychology students. This finding does not support the final attrition component of the ASA model and may be reflective of a more recent emphasis on implementing ethical practice standards in business schools. For example, many universities now adopt an international standard such as Principles of Responsible Management Education (PRME) in order to meet accreditation requirements of ethics learning (UN Global Compact, 2007).

Furthermore, consistent with the findings of Toto et al. (2015), year of study was not found to be a significant predictor of cognitive, affective, or total empathy. This could be interpreted as business and psychology courses not having a significant impact on student empathy development, however, further research examining individual differences over time would be required to support this explanation. It is also likely this finding may reflect the scientific and theoretically based nature of psychology undergraduate degrees (Holmes, 2014). Accordingly, whilst students with high levels of empathy may initially self-select into psychology, the undergraduate course content is not focused on developing the professional clinical skills of students. Similarly, business undergraduate courses are not designed to have an impact on empathy. Instead, business school curricula teach an economically based model of human behaviour which minimizes the role of human emotionality in business decision making (Elegido, 2014).

Future longitudinal research might explore the individual development of student empathy in business and psychology courses at a post-graduate level, when students are engaging in more experiential learning such as fieldwork placements (Elegido, 2014; Holmes, 2014). For example, psychology post-graduate courses aim to prepare students for engaging in psychological practice through clinical placements whilst business post-graduate courses promote student engagement in organizational internships. It is plausible that greater

importance would be placed on displays of empathic behaviour and interpersonal skill building during these activities (Marangoni et al., 1995).

Present findings should be interpreted in the context of known factors of empathy variation. The results supported previously established gender differences in empathy (Jolliffe & Farrington, 2006; Konrath, O'Brien & Hsing, 2011), finding medium-large effect sizes for affective, cognitive and total empathy scores, with females reporting significantly higher levels than males. Prior research has also suggested that older individuals display greater empathy than younger individuals (Toto et al., 2015), however, the present research found no significant age effects for empathy; possibly due to the restricted age range of the university student sample.

#### **4.2. Psychopathy**

Findings provide mixed support for the hypothesised year of study x discipline interaction, with a significant interaction evident for the total psychopathy score, however at a facet level; only the lifestyle facet interaction effect was significant. Within the total score and lifestyle facet, year of study was significant for psychology students, but not for business students. This suggests there was a significant decrease in lifestyle psychopathic traits across years of study for psychology students, but no significant change across years of study for business students. The significant interaction effect noted for the total psychopathy scores provides some support for the attrition component of the ASA model and indoctrination hypothesis, and allows for some speculation around the influence student discipline choice has on the development of empathy and psychopathic traits of students. However, it is important to note that due to the limited sample size and unequal distribution of students across years of study, these findings would need to be replicated in a larger sample than that of the present study.

The findings supported significant discipline effects, with business students reporting higher levels across the interpersonal, antisocial and affective facets as well as the total SRP score (medium effect sizes) than psychology students. This finding is consistent with previous research (Hassall et al., 2015; Vedel & Thomsen, 2017; Wilson & McCarthy, 2011). Vedel and Thomsen (2017) suggest the differences between business and psychology students are representative of differing motivations for self-selection into the disciplines. For example, students motivated by self-interest, power and financial gain (psychopathic alignment) may be more likely to enrol into a business degree. Vedel and Thomsen's (2017) conclusions and the present findings can therefore be considered consistent with the initial attraction and selection components of the ASA model (Schneider, 1987).

Year of study was not significant for any of the SRP facets or total score, indicating that these traits did not significantly differ across years of study for either discipline. Interestingly, findings were consistent with the previously established negative correlation between age and psychopathy (Paulhus et al., 2016, p. 79). Significant age effects were noted for the total psychopathy score as well as all facets except lifestyle, indicating that as a student ages, levels of these traits tend to decline as part of normal development. It is also possible that as students' progress through their degree, levels of psychopathic traits decrease due to increased group work in order to succeed academically (Hassall et al., 2015). Business schools may also be more responsive today with greater moral and ethical behaviour practice applied in their curriculum (Frank, 2004). Given the increasing research on theoretical approaches to conceptualizing psychopathy, future research might be directed at further exploring these facet level psychopathic trait variations across academic majors in a larger population and their implications for academic success.

In addition to age, psychopathy findings should be considered in the context of previously identified covariates such as gender. Regardless of student discipline, males

possessed higher levels of psychopathic traits than females ( $d = .74$ ), consistent with well-established gender differences within the literature and in the initial validation of the SRP 4:SF measure (Paulhus, Neumann & Hare, 2016, p. 79; Vedel & Thomson, 2017).

### **4.3. Limitations**

The magnitude of the present findings should not be over interpreted and interpretations must be considered in the context of several limitations. First, as the research adopted a cross-sectional design which examined group differences over years of study, it is possible the findings are subject to cohort bias. Longitudinal research examining individual differences over time in this population is required to reliably examine all three components of the ASA framework and assess the impact course of study has on individual student empathy and psychopathic trait development. This study was also limited by the small and unequal sample size distributions across each year of study for both discipline groups, reducing the likelihood of finding a significant interaction effect between discipline and year of study which could be generalizable to a wider population.

## **5. Conclusions**

Notwithstanding the limitations, this research provides support for the attraction and selection components of Schneider's (1987) ASA model, and the self-selection hypothesis. Results suggest that students who possess higher levels of empathy and lower levels of psychopathic traits tend to be more likely to self-select into studying a psychology degree, whilst students with lower levels of empathy and higher levels of psychopathic traits tend to be more likely to self-select into a business degree. Findings also suggest that years of study within a discipline may have an impact on the development of student empathy and psychopathic traits, supporting the indoctrination hypothesis. However, little comment can be made on the extent to which findings support the attrition component of the ASA model as further longitudinal research with a larger sample size is required to determine individual trait

development through the course of study. The present study provides an encouraging platform for such future research.

### References

- Babiak, P., Newman, C. J., & Hare, R. D. (2010). Corporate psychopathy: Talking the walk. *Behavioural Sciences and the Law*, 28, 174-193. doi:10.1002/6sl.925
- Boddy, C. R. (2015). Organisational psychopaths: A ten-year update. *Management Decision*, 53, 2407-2432. doi:10.1108/MD-04-2015-0114
- Brown, T. A., Sautter, J. A., Littvay, L., Sautter, A. C., & Bearnes, B. (2010). Ethics and personality: Empathy and narcissism as moderators of ethical decision making in business students. *Journal of Education for Business*, 85, 203-208. doi: 10.1080/08832320903449501
- Camarano, V. (2011). Examining emotional and cognitive empathy in psychology graduate students. *Dissertation Abstracts International: Section B: The Sciences and Engineering*, 71, 7748-7808.
- Carré, A., Stefaniak, N., D'Ambrosio, F., Bensalah, L., & Besche-Richard, C. (2013). The Basic Empathy Scale in adults (BES-A): Factor structure of a revised form. *Psychological Assessment*, 25, 679-691. doi:10.1037/a0032297
- Elegido, J. M. (2014). Business education and erosion of character. *African Journal of Business Ethics*, 4, 16-24. Retrieved from <https://ssrn.com/abstract=2458369>
- Frank, R. H. (2004). *What price the moral high ground*. Princeton, NJ: Princeton University Press
- Hassall, J., Boduszek, D., & Dhingra, K. (2015). Psychopathic traits of business and psychology students and their relationship to academic success. *Personality and Individual Differences*, 82, 227-231. doi:10.1016/j.paid.2015.03.017

- Holmes, J. D. (2014). Undergraduate psychology's scientific identity dilemma student and instructor interests and attitudes. *Teaching of Psychology, 41*, 104-109. doi: 10.1177/0098628314530339
- Jolliffe, D., & Farrington, D. P. (2006). Development and validation of the Basic Empathy Scale. *Journal of Adolescence, 29*, 589-611. doi:10.1016/j.adolescence.2005.08.010
- Konrath, S. H., O'Brien, E. H., & Hsing, C. (2011). Changes in dispositional empathy in American college students over time: A meta-analysis. *Personality and Social Psychology Review, 15*, 180-198. doi:10.1177/1088868310377395
- Krick, A., Tresp, S., Vatter, M., Ludwig, A., & Wihlenda, M. (2016). The relationships between the dark triad, the moral judgment level, and the students' disciplinary choice. *Journal of Individual Differences, 37*, 24-30. doi:10.1027/1614-0001/a000184
- Marangoni, C., Garcia, S., Ickes, W., & Teng, G. (1995). Empathic accuracy in a clinically relevant setting. *Journal of Personality and Social Psychology, 68*, 854-869. doi:10.1037/0022-3514.68.5.854
- Marsh, S. R. (1988). Antecedents to choice of a helping career: Social work vs. business majors\*. *Smith College Studies in Social Work, 58*, 85-100. doi:10.1080/00377318809516637
- Paulhus, D. L., Neumann, C. S., & Hare, R. D. (2016). *SRP 4: Self-report psychopathy scale 4<sup>th</sup> edition technical manual*. Toronto, CA: Multi-Health Systems Inc
- Ray, J. V., Hall, J., Rivera-Hudson, N., Poythress, N. G., Lilienfeld, S. O., & Morano, M. (2013). The relation between self-reported psychopathic traits and distorted response styles: A meta-analytic review. *Personality Disorders: Theory, Research, and Treatment, 4*, 1-14. doi:10.1037/a0026482

- Roberts, B. W., Walton, K. E., & Viechtbauer, W. (2006). Patterns of mean-level change in personality traits across the life course: a meta-analysis of longitudinal studies. *Psychological Bulletin, 132*, 1-25. doi:10.1037/0033-2909.132.1.1
- Roberts, B. W., Wood, D., & Caspi, A. (2008). The development of personality traits in adulthood. In John, O. P., Robins, R. W., and Pervin, L. A. (Eds.), *Handbook of personality: Theory and research 3<sup>rd</sup> Edition* (pp. 375-398). New York, NY: The Guildford Press.
- Schneider, B. (1987). The people make the place. *Personnel Psychology, 40*, 437-453. doi:10.1111/j.1744-6570.1987.tb00609.x
- Stöber, J. (2001). The Social Desirability Scale-17 (SDS-17): Convergent validity, discriminant validity, and relationship with age. *European Journal of Psychological Assessment, 17*, 222-232. doi:10.1027//1015-5759.17.3.222
- Toto, R. L., Man, L., Blatt, B., Simmens, S. J., & Greenberg, L. (2015). Do empathy, perspective-taking, sense of power and personality differ across undergraduate education and are they inter-related? *Advances in Health Sciences Education, 20*, 23-31. doi:10.1007/s10459-014-9502-z
- UN Global Compact (2007). The principles for responsible management education. Retrieved from [https://www.grli.org/wp-content/uploads/2015/09/prme\\_main\\_document.pdf](https://www.grli.org/wp-content/uploads/2015/09/prme_main_document.pdf)
- Vedel, A., & Thomsen, D. K. (2017). The Dark Triad across academic majors. *Personality and Individual Differences, 116*, 86-91. doi:10.1016/j.paid.2017.04.030
- Wilson, M. S., & McCarthy, K. (2011). Greed is good? Student disciplinary choice and self-reported psychopathy. *Personality and Individual Differences, 51*, 873-876. doi:10.1016/j.paid.2011.07.028

**Tables and Figures**

Sample	Covariate	1 <sup>st</sup> Year	2 <sup>nd</sup> Year	3 <sup>rd</sup> Year
		( <i>N</i> = 157)	( <i>N</i> = 49)	( <i>N</i> = 53)
Business	Female	46	11	14
Students	Male	50	8	6
Psychology	Female	48	24	26
Students	Male	13	6	7

Table 1.

*Participant Demographics (N = 259)*

DV	Facet	Age		Gender		SDS	
		B	P	B	P	B	P
	Discipline						
	Cognitive	.020	.100	.083	.172	.192*	.174
BES	Affective	-.053	.002	.273**	.229*	-.140	-.112
	Total	-.026	.047	.224**	.251**	.003	-.005
SRP	Interpersonal	-.202*	-.150	-.221*	-.238**	-.289**	-.183*
	Affective	-.139	-.111	-.317**	-.275**	-.238**	-.140
4:SF	Antisocial	-.105	-.187*	-.251**	-.186*	-.177	-.053

Lifestyle	-.070	-.062	-.317**	-.076	-.210*	-.150
Total	-.151	-.160	-.329**	-.241**	-.264**	-.181*

Table 2.

*Correlation matrix of dependent variable outcomes and covariates by discipline (N = 259)*

*Note: \* correlation is significant at the 0.05 level (2-tailed) \*\* correlation is significant at the 0.01 level (2-tailed).*

Scale Facet	BES	BES	BES	SRP	SRP	SRP	SRP	SRP
	Affective	Cognitive	Total	INT	AFF	ANT	LIF	Total
BES Affective								
BES Cognitive	.428**							
BES Total	.898**	.771**						
SRP INT	-.286**	-.341**	-.358**					
SRP AFF	-.380**	-.401**	-.452**	.597**				
SRP ANT	-.275**	.322**	-.348**	.433**	.494**			

SRP LIF	-.104	-.153*	-.142*	.477**	.518**	.428**	
SRP Total	-.290**	-.353**	-.368**	.794**	.822**	.673**	.811**

Table 3.

*Empathy and Psychopathic Traits Spearman Correlation Matrix*

Facet		Age	Gender	SDS	Discipline	Year	Interaction
<b>COG</b>	<b>F</b>	1.08	3.84	9.62*	26.26**	0.46	0.00
	$\eta_p^2$	0.00	0.01	0.04	0.09	0.00	0.00
<b>AFF</b>	<b>F</b>	0.61	19.74**	3.50	6.15*	0.81	0.64
	$\eta_p^2$	0.00	0.07	0.01	0.02	0.00	0.00
<b>Total</b>	<b>F</b>	0.00	16.12**	0.05	16.97**	0.29	0.33
	$\eta_p^2$	0.00	0.06	0.00	0.06	0.00	0.00

Table 4.

*Summary of covariates, main and interaction effects for BES empathy GLMMs*

*Note: effect size reported as partial-eta squared. \* effect is significant at the .05 level. \*\**

*effect is significant at the .001 level COG = cognitive, AFF = affective.*

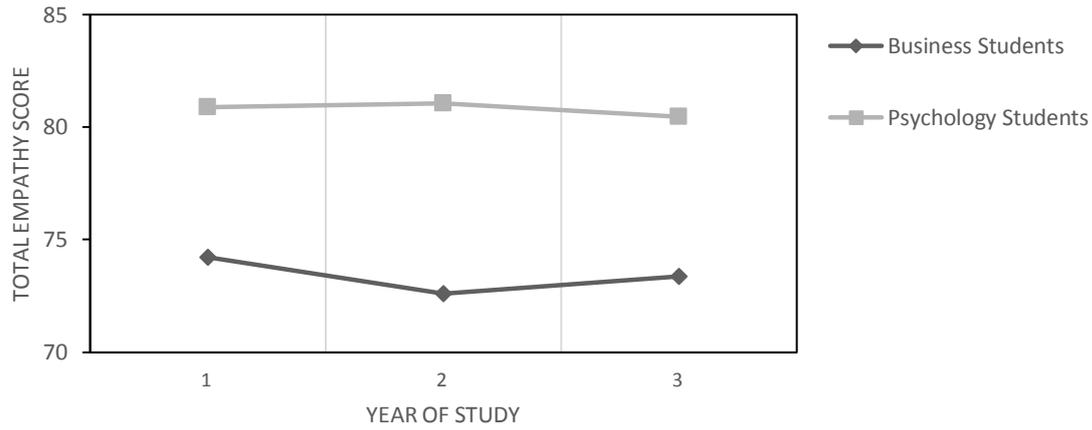


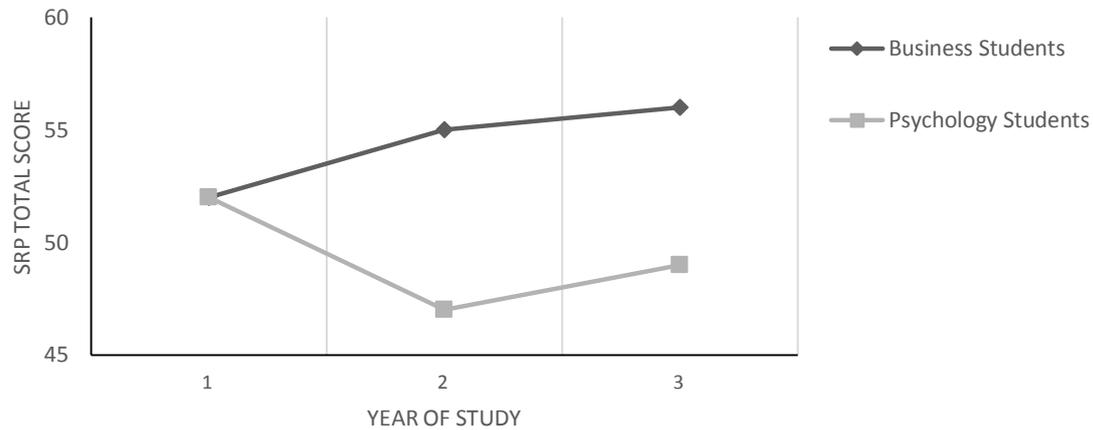
Figure 1. Plot of total empathy by year of study for business and psychology students.

Facet		Age	Gender	SDS	Discipline	Year	Interaction
<b>INT</b>	<b>F</b>	9.95*	15.89**	21.80**	9.78*	0.12	2.45
	$\eta_p^2$	0.04	0.06	0.08	0.04	0.00	0.01
<b>AFF</b>	<b>F</b>	4.44*	30.42**	15.91**	9.78*	1.02	2.07
	$\eta_p^2$	0.02	0.11	0.06	0.04	0.00	0.01
<b>ANT</b>	<b>F</b>	8.49*	13.32**	4.36*	7.72*	0.71	2.03
	$\eta_p^2$	0.03	0.05	0.02	0.03	0.00	0.01
<b>LIFE</b>	<b>F</b>	0.60	12.57**	13.55**	3.44	0.94	3.71*
	$\eta_p^2$	0.00	0.05	0.05	0.01	0.00	0.01
<b>Total</b>	<b>F</b>	7.92*	27.28**	22.89**	11.39**	0.41	3.75*
	$\eta_p^2$	0.03	0.10	0.08	0.04	0.00	0.01

Table 5.

Summary of covariates, main and interaction effects for SRP psychopathy GLMMs

*Note: effect size reported as partial-eta squared. \* effect is significant at the 0.05 level, \*\* effect is significant at the .001 level. INT = interpersonal, AFF = affective, ANT = antisocial, LIFE = lifestyle.*



*Figure 2.* Plot of total psychopathy scores by year of study for business and psychology students.