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Master of Social Sciences in Psychology

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Course code and title: _ PSY 509/510 Research Project I&II ____

Research Topic:

To Investigate How Motivation affects one with Light Traits Personality/ Dark Traits Personality on Their Volunteer Participation

Submitted on: _29th November, 2020

Abstracts

There is a growing concern in setting up volunteer group and promoting volunteerism at the company level. 215 adults in a construction company of China background were invited to participate, 193 valid response was used to investigate the relationship of Light Traits Personality, Dark Traits Personality, motivations, and volunteer participation. We found that introjected regulation (a kind of external motivation) showed a significant moderation effect between people with Dark Traits Personality and volunteer participation. The presence of significant others is critical in mobilizing people with both high or low Dark Traits Personality, low in Machiavellianism and high in Narcissism to volunteer. However, the presence of motivation did not moderate the relationship between people with Light Traits Personality and volunteer participation, as well as Psychopathy and volunteer participation. Introjected regulation strategies are suggested to promote volunteerism in a company level.

Introduction

Research Background

There has been growing emphases on volunteering work in Hong Kong (Ling & Chui, 2016). For many years, corporates in Hong Kong have been setting up volunteer groups to promote volunteerism, for instance, the CLP Volunteers, initiated in 1994, and HSBC volunteer Scheme, established in 1993, are two famous examples. Snell and Wong pointed out in their article in 2013 that corporations were taking an active role in encouraging volunteering than ever before. According to the Volunteer Movement Website (Volunteer Movement, 2020), an initiative driven by the Social Welfare Department in promoting volunteerism in Hong Kong, there are 758 companies registered as Volunteer Movement Participating Organizations, and the number is fast-growing. It would be worth trying to identify the ways to encourage volunteer participation at the company level.

Literature review

There are many schools of thoughts trying to identify different personality traits and understand how they influence a person's behaviours, for example Eysenck's hierarchical organization of personality, the sixteen-personality factor developed by Cattell, and the Big Five suggested by Goldberg (Cervone & Pervin, 2012). Intuitively, I would relate volunteer participation to positive personality traits. Among the many schools of thoughts, the light trait personality immediately caught my attention about volunteerism.

According to an article published by Kaufman, Yaden, Hyde & Tsukayama in 2019, the light trait personality was a person's loving and beneficent orientation toward others. There were three constituents in it, namely Kantianism – treating people as good as the way they treat themselves; Humanism – putting human dignity and human worth at top priority; and Faith in Humanity – believing that the basic nature of human-kind is positive and loving. The three constituents were also called light triad ("LT") in short, and they were believed to be related to every positive behaviour, including volunteerism.

Kaufman et al (2019) also indicated in their research that, LT correlated positively with relatedness, competence, autonomous, and motive for affiliation and intimacy; but correlated negatively with power motive. The above description could easily be found in describing a volunteer. However, it will never be a sound argument assuming all people with LT will participate in volunteer work. It will also worth investigating what motivate a person with the inverse of personality traits to volunteer.

Paulhus & Williams first introduced the term dark personality in 2002, long before the reinvention of LT personality. There were two commonly accepted approaches to the definition of dark personality, the Hogan's Model and the Paulhus' Model (Spain, Harms & LeBreton, 2014). Hogan (2009) based on the Diagnostic and Statistical Manual of Mental Disorder IV - Axis II Personality Disorder and the Hogan Development Survey to developed 11 subclinical traits of negative characteristics. On the other hand, Paulhus & Williams (2002) focused on how a person wrongly built up their ego and caused unease to others, producing the Dark Triad ("DT"), namely the Machiavellianism – the distrustful and suspicious of others; Narcissism – the elevated sense of self-importance and entitlement; and the subclinical Psychopathy – the disregard for the common truth, impulsiveness and failure to conform rules and regulations. The presentation of Hogan and Paulhus might be different, but both of them shared the same idea that although they were described as bad characters, the socially-aversive personalities were still in the normal range of behaving (Furnham, Richards & Paulhus, 2013; Spain, Harms & LeBreton, 2014; Paulhus & Williams, 2002; Hogan & Hogan, 2001).

In this research, I would take the definition of DT because of the simpler definition of DT traits; and there is more follow-up research to put DT into different applications. Furnham, Richards & Paulhus (2013) mentioned in their article that the outcome of DT had been applied to the workplace, education, mating, interpersonal and antisocial behaviours, focusing on the negative influence. However, it is not uncommon to find some people who definitely show some DT characters but are still keen in volunteer work in our daily life. After all, what motivates a person with DT Personality to volunteer? What turns their motivation into action?

Visser & Campbell (2018) thought alternatively and pointed out that some characteristics of DT could be commonly found in an organization or in a volunteer group which brought about good results, for example, Machiavellian people are sometimes flexible, co-operative and keen in alliance-building; Narcissistic people sometimes demonstrate leadership (although authoritative), ready to present their ideas, and desire for entitlement; and psychopathic people sometimes show positive aggression in teamwork.

In this research, I would like to look into the interaction between LT/ DT and volunteer participation. It is so easy for us to assume LT positively correlate with volunteer participation and DT negatively correlate to volunteer participation. However, by natural observation, we can always find examples of LT people participate no volunteer work, and DT people not only volunteer but also take up some leading roles in a volunteer organization. It turns out, all is about the motivation how to turn LT/DT people's intention to volunteer into actions.

When talking about motivation, Self-determination Theory ("SDT") is the most prominent among motivation theories (Pelletier et al, 1995). SDT assumes that people's behaviors were motivated by satisfying three general needs: the need to feel competent, autonomous, and social connectedness (Deci & Ryan, 1985; 2000), and how these three needs are perceived would lead to a continuum of motivation ranging from amotivation (no motivation) ("AM") to extrinsic motivation ("EM") and intrinsic motivation ("IM"). IM refers to the form of autonomous motivation, and pursuing such behavior is simply for the intrinsic satisfaction of the behavior itself. EM can be subdivided into 4 regulatory styles, namely, external regulations, introjected regulations, identified regulations and integrated regulations. "External regulation" of EM occurs due to an external acting influence such as rewards or punishments. "Introjected regulation" takes place with a motivation from an internalized, pressuring voice while the source is guilt, worry or shame. "Identified regulation" motivates an individual if he recognizes a behavior is personally important and beneficial toward his development. "Integrated Regulation" arise when an individual has fully integrated a motivation with himself when he undergoes self-examination and then internalize and assimilates the reasons behind an action.

In this research, I would like to prove our assumption: 1. People with LT will be motivated by IM (like self-fulfillment) and it turns their ideation into actual volunteer participation. 2. DT people will also be motivated to become a volunteer, but the motivator would be extrinsic (such as the recognition from others, chance to lead a group of people, etc).

I assume LT people will be motivated by IM to volunteer, that is when they know there are chances to volunteer and when they know it, they would be very eager to participate unless there is something more important than helping others. I would like to prove the correlation between LT and IM are so strong that, the presence of other motivations will not hinder the above-said correlation; on the other hand, I would like to look for statistic support that DT people will volunteer, under the influence of EM, for gaining recognition from significant others or avoiding negative consequences that followed by rejection of an invitation to volunteer. I would like to identify which kind of EM would best influence DT people to volunteer, so as to suggest some strategies to motivate DT people to become active volunteers.

Research gaps

In this research, we would like to find out which kinds of motivation could best motivate a person with LT/ DT to volunteer. This might help a corporate develop tactics to promote volunteerism in a company context. I aim to bridge the theoretical concept of LT and DT towards application in promoting volunteerism in Hong Kong.

Research questions and hypotheses

[RQ] What kinds of motivation can facilitate a person with LT/ DT to volunteer?

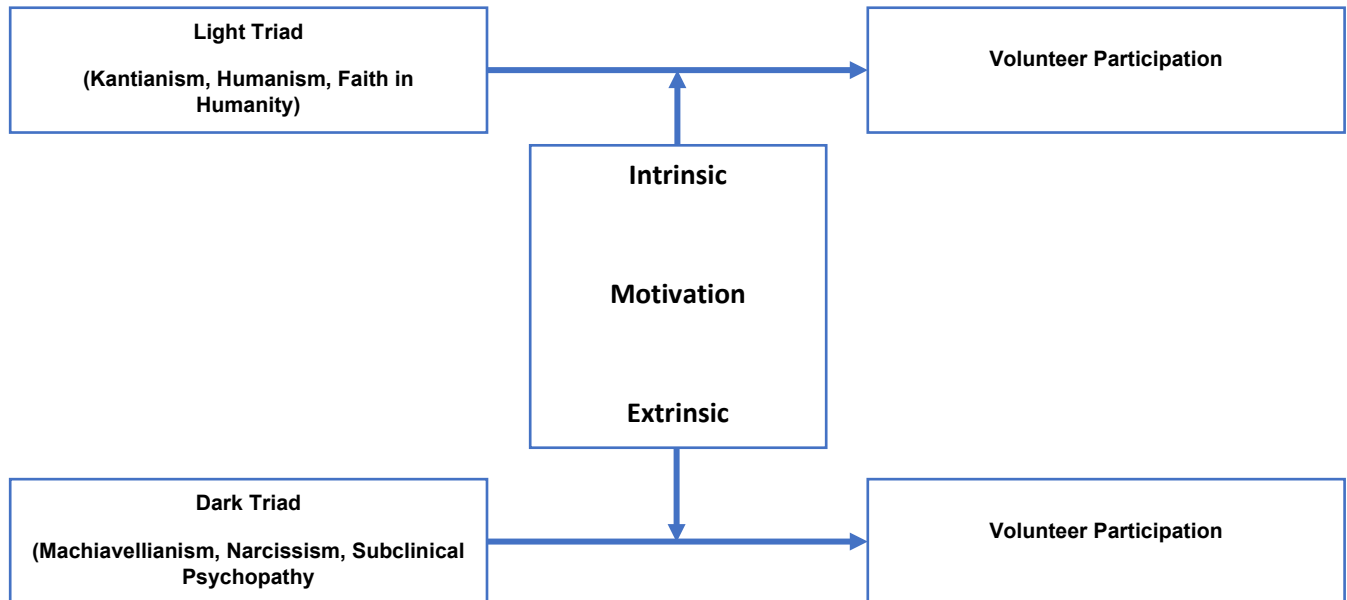
[H1] LT will be positively related to volunteer participation

[H2] IM will strengthen the positive association between LT and volunteer participation

[H3] DT will be negatively related to volunteer participation

[H4] EM will strengthen the positive association between DT and volunteer participation

Theoretical Framework



Methodology

Design

A cross-sectional survey was used to examine the relationship between LT/DT and volunteer participation, and the moderation effect of different kinds of motivations. Quantitative data was captured by a structured online survey.

Participants

118 adults in a construction company of China background were invited to participate.

No specific exclusion criteria were set. Participants of both genders, adult aged 18 or above, both HK residents and non-HK residents (some of the employees were seconded from their hometowns to Hong Kong for several years) were invited to join this research.

Measurements

Measuring LT

The Light Triad Scale (LTS) was used (Kaufman, Yaden, Hyde, & Tsukayama, 2019). It is a 12-item measurement of the LT. There were 4 items for the Faith in Humanity, 4 items for the Humanism, and 4 items for Kantianism. Participants evaluated the extent to which they agreed to the given statement on a 5-point Likert scale running from 1 (strongly disagree) to 5 (strongly agree). Sample items for Kantianism included 'I prefer honesty over charm' and 'I don't feel comfortable overly manipulating people to do something I want'.

Summarization of all 4 items formed the score for Faith in Humanity, Humanism, and Kantianism respectively, with a score range from 4 to 20. The average score created a composite LT score. The score with 387 participants recruited online from Amazon's Mechanical Turk has shown a good reliability for both subscales (Cronbach alpha ranging from 0.72 to 0.84) and total scale (Cronbach alpha = 0.84) (Kaufman, Yaden, Hyde, & Tsukayama, 2019).

Measuring DT

The Traits of DT was measured separately (Raskin, & Terry, 1988; Ames, Rose & Anderson, 2006; Gentile et al., 2013; Back et al., 2013; Williams, Nathanson, & Paulhus, 2003; Lilienfeld & Widows, 2005; Levenson, Kiehl & Fitzpatrick, 1995; Patrick, 2010; Christie & Geis, 1970; Rauthmann, 2013; Dahling Whitaker & Levy, 2009; Kessler et al., 2010) or in groups; Paulhus and Williams (2002) originally used the Narcissistic Personality Inventory, Self-Report Psychopathy Scale–III, and Mach IV to yield their scores. However, in this research, a simplified way of measurement called the Dirty Dozen was used.

Dirty Dozen was a 12-item measurement of the DT (Jonason & Webster, 2010). There are 4 items for the Narcissism, 4 items for the Psychopathy, and 4 items for the Machiavellianism. Participant evaluated the extent to which they agreed to the given statement on a 9-point Likert scale running from 1 (strongly disagree) to 9 (strongly agree). Sample items for Machiavellianism included 'I tend to manipulate others to get my way', and 'I have used deceit or lied to get my way'.

Summarization of all 4 items formed the score for Narcissism, Psychopathy, and Machiavellianism respectively, with a score range from 4 to 36. The average score created a composite DT score. The score with 173 psychology students from the Southwestern United States has shown a good reliability (Cronbach alpha = 0.86; Jonason & Webster, 2010)

Measuring motivation

Behavioural Regulation in Exercise Questionnaire - 2 ("BREQ-2") (Markland, 2014) was used to measure the participant's motivation. It comprises of 19 items with ratings on a 5-point Likert scale ranging from 0 (not true for me) to 4 (very true for me). The scores were calculated according to the scoring key to identify what type of motivation the participant has. There are 4 items for the subscale of amotivation (e.g. 'I don't see why I should have to exercise'); 4 items for the subscale of external regulation (e.g. 'I exercise because other people say I should'); 3 items for introjected regulation (e.g. 'I feel guilty when I don't exercise'); 4 items for identified regulation (e.g. 'I value the benefits of exercise'); and 4 items for the intrinsic regulation (e.g. 'I exercise because it's fun). The score with 589 students has shown a good reliability (Cronbach alpha = 0.75 to 0.89; Markland, 2014).

The scale was adapted to measure volunteer motivation by changing the wording 'exercise' to 'volunteering'. Item 17 was removed as suggested by Liu, Chung, Zhang & Si (2015) for prevention of potential problematic results.

Volunteer Participation

3 questions were asked to assess the volunteer participation of the respondents. Question 1 was 'What is your participation of volunteer in the previous 12 months?' – a numerical answer was expected. When the respondent's answer was '0', it meant no volunteer participation; but when the response was '1' or above, a continuous variable was formed and used for further analysis.

Question 2 was 'Which term can best describe your role in the volunteering?' The respondent was expected to answer "Volunteer Member/ Volunteer Leader" to this question. When the respondent's answer was 'Volunteer Member', it indicated an

affirmation to the role general participant; when the answer was 'Volunteer Leader', it indicated an affirmation to the role of leader in the volunteer group.

Question 3 was 'I am going to participate in volunteer work in the next 6-month-time.' The respondent was expected to answer either 'Yes/ No' to this question. When the answer was 'Yes', it indicated a motivation to volunteer in the coming future; but when the answer was 'No', it indicated a lack of motivation to volunteer in the coming future.

Other Demographic data

3 other questions were asked to collect information on the participant's age (a numerical value), gender (Male/ Female) and the status of Hong Kong Permanent Residency (Yes/ No). The above information was coded and used to control the individual difference due to demographic difference.

Procedures

A snowball convenient research had been used until 118 participants took the questionnaires. That is, 10 initial participants were invited to take part in the research and served as the Tier 1 seed participants. After the Tier 1 participant had completed the questionnaire, they were asked to invite 5-10 more people to participate and became the Tier 2 participants. The same approach was used for Tier 2 to locate the Tier 3 until the targeted number of responses was reached.

Statistical analysis

Linear regression with JASP version 0.14.0.0 was used with the LT/DT, volunteer participation, and the influence of motivation on them.

Ethical concerns

Since I was working in the company I was going to research on, I had written explicitly in the consent page that, the participation in this research was fully voluntary. Potential participants had no obligation to complete the questionnaire and they could quit whenever they wanted. No decision on promotion or punishment would be made for a potential participant to fully complete the research questionnaire or not.

The whole data collection process was done in a totally anonymous way, no personally identifiable information was collected, not even the IP address of the respondents.

All data collected was used solely for the research study only, and data was stored totally in an anonymous way.

Raw data and processed data would be stored in an USB for 6 months after the submission of this research report for checking purpose. All data will be destroyed afterwards.

Result and Discussion

Demographic distribution of samples

A totally of 215 responses were collected. In my samples, 109 were males (50.7%) and 106 were females (49.3%). The male to female ratio was close to 1:1.

The participants were asked to report their age. There were 7 missing values. 1 participant reported that he/she was at his/her 80s. The mean, median, and mode of our samples were 33.4, 30.0 and 24.0, with a standard deviation of 11.5. The 25th percentiles, 50 percentiles, and 75 percentiles are 24.0, 30.0 and 40.0. Overall, we have had a young working adult sampling.

Also, in my samples, 8 respondents were not Hong Kong Permanent Resident (3.7%), while 207 were Hong Kong Residents (96.3%). This resembled the 'mainlander to Hong Kong' employee ratio of the company (5% mainlander employees: 95% Hong Kong employees). However, as there were only 8 samples collected from the mainlanders, the number of samples was too small for statistical analysis. Thus, in this research, the 'status of Hong Kong Permanent Residency' was not used for further analysis.

With a question asked to identify respondent's role in volunteering, 66 of them regarded themselves as leaders (30.7%) and 149 indicated their role being general participants (69.3%).

The participants were also asked to report their volunteer participation in the past 6 months. Simple static was run and the skewness of 4.96 told us that there must be

outliner in the samples. A mean of 5.78, median of 2.0, minimum of 0 and maximum of 100 participation told us that, the outlier was in those who reported lots of volunteer participation. As all participants were full-time employees, I assumed that a monthly volunteer of twice would have been very challenging for them. Thus, in the following part, we would only keep those who reported volunteer participants of 0-12 times for further analysis.

After adjustment for volunteer participation between 0-12 times in the past 6 months, the demographic distribution of our samples became:

Gender	Responses	%
Male	101	52.3
Female	92	47.7

HK Residents	Responses	%
No	7	3.6%
Yes	186	96.4%

Role	Responses	%
Leaders	52	26.9%
General Participants	141	73.1%

Zero-order correlation

Zero-order correlation between the Dark Triad score, Light Triad score, scores of different motivations subscales, and volunteer participation in the past 6 months was summarized in the following table:

Correlation of Volunteer Participation in the Past 6 months, with Dark Sum Score, Light Sum Score, and Motivations					
	<i>Mean</i>	<i>SD</i>	<i>Cronbach's α</i>	<i>Pearson's r</i>	<i>P-value</i>
Dark Triad Score	51.54	15.39	0.85	-0.256***	<.001
Light Triad Score	44.27	5.73	0.75	0.382***	<.001
Amotivation	4.34	3.44	0.87	-0.258***	<.001
External Regulation	3.72	3.12	0.74	0.023	0.756
Introjected Regulation	3.00	2.19	0.57	0.051	0.484
Identified Regulation	5.73	2.47	0.57	0.351***	<.001
Internal Regulation	10.61	2.99	0.85	0.334***	<.001

* $p < .05$, ** $p < .01$, *** $p < .001$

A Pearson product-moment correlation coefficient was computed to assess the relationship between the volunteer participation in the past 6 months and Dark Triad score. There was a significant correlation between the two variables [$r = -0.256$, $p < .001$]. Overall, there was a strong, negative correlation between volunteer participation and Dark Triad score. Increase in Dark Triad score was correlated with decrease in volunteer participation.

Another Pearson product-moment correlation coefficient was computed to assess the relationship between the volunteer participation in the past 6 months and Light Triad score. There was a significant correlation between the two variables [$r = 0.382$, $p < .001$]. Overall, there was a strong, positive correlation between volunteer participation and Light Triad score. Increase in Light Triad score was correlated with increase in volunteer participation.

The third Pearson product-moment correlation coefficient was computed to assess the relationship between the volunteer participation in the past 6 months and amotivation. There was a significant correlation between the two variables [$r = -0.258$, $p < .001$]. Overall, there was a strong, negative correlation between volunteer participation and amotivation. Increase in amotivation was correlated with decrease in volunteer participation.

The fourth Pearson product-moment correlation coefficient was computed to assess the relationship between the volunteer participation in the past 6 months and identified regulations. There was a significant correlation between the two variables [$r = 0.351$, $p < .001$]. Overall, there was a strong, positive correlation between volunteer participation and identified regulations. Increase in identified regulations was correlated with decrease in volunteer participation.

The fifth Pearson product-moment correlation coefficient was computed to assess the relationship between the volunteer participation in the past 6 months and external regulation. There was no significant correlation between the two variables [$r = 0.023$, $p = .756$].

The sixth Pearson product-moment correlation coefficient was computed to assess the relationship between the volunteer participation in the past 6 months and introjected regulations. There was no significant correlation between the two variables [$r = 0.051$, $p = .484$].

The final Pearson product-moment correlation coefficient was computed to assess the relationship between the volunteer participation in the past 6 months and internal regulations. There was a significant correlation between the two variables [$r = 0.334$, $p < .001$]. Overall, there was a strong, positive correlation between volunteer participation and internal regulation. Increase in internal regulations was correlated with increase in volunteer participation.

We also computed a Pearson product-moment correlation coefficient to assess the relationship between the Light Triad score and Dark Triad score. There was a significant correlation between the two variables [$r = -0.360$, $p < .001$]. Overall, there was a strong, negative correlation between Light Triad score and Dark Triad score. Increase in Light Triad score was correlated with decrease in Dark Triad score.

In conclusion, an increase in Light Triad score and internal regulation correlated with increase in Volunteer Participation; an increase in Dark Triad score, amotivation and identified regulation correlated with a decrease in volunteer participation. And Light Triad score and Dark Triad score were proven to be an antagonistic concept.

Linear regressions

A. DT, motivation and volunteer participation

To test the moderation effect of motivation on DT and volunteer participation, a number of linear regressions were run.

A multiple linear regression has been calculated to explore the moderation effect of motivation on the relationship between DT and volunteer participation. Results showed that the model was significant, $\Delta R^2 = .123$, $F(3, 189) = 8.839$, $p < .001$. The main effect of DT was non-significant, $b = -0.077$, $t(189) = -3.490$, $p < .001$. The main effect of motivation was non-significant, $b = -0.668$, $t(189) = -3.113$, $p = .002$. The interaction effect was significant, $b = 0.009$, $t(189) = 2.405$, $p = .017$.

A multiple linear regression has been calculated to explore the moderation effect of external regulation on the relationship between DT and volunteer participation. Results showed that the model was significant, $\Delta R^2 = .081$, $F(3, 189) = 5.539$, $p = .001$. The main effect of DT was significant, $b = -0.063$, $t(189) = -2.696$, $p = .008$. The main effect of external regulation was non-significant, $b = 0.160$, $t(189) = 0.614$, $p = .540$. The interaction effect was non-significant, $b < 0.001$, $t(189) = -0.082$, $p = .935$.

A multiple linear regression has been calculated to explore the moderation effect of introjected regulation on the relationship between DT and volunteer participation. Results showed that the model was significant, $\Delta R^2 = .109$, $F(3, 189) = 7.708$, $p < .001$. The main effect of DT and introjected regulation were significant (DT: $b = -0.109$, $t(189) = -4.535$, $p < .001$; introjected regulation: $b = -0.689$, $t(189) = -2.091$, $p = .038$). The interaction effect was significant, $b = 0.016$, $t(189) = 2.683$, $p = .008$.

A multiple linear regression has been calculated to explore the moderation effect of identified regulation on the relationship between DT and volunteer participation. Results showed that the model was significant, $\Delta R^2 = .176$, $F(3, 189) = 13.502$, $p < .001$. The main effect of DT and identified regulation were non-significant (DT: $b = -0.058$, $t(189) = -1.605$, $p = .110$; identified regulation: $b = 0.372$, $t(189) = 1.313$, $p = .191$). The interaction effect was non-significant, $b = 0.001$, $t(189) = 0.265$, $p = .792$.

A multiple linear regression has been calculated to explore the moderation effect of internal regulation on the relationship between DT and volunteer participation. Results showed that the model was significant, $\Delta R^2 = .157$, $F(3, 189) = 11.735$, $p < .001$. The main effect of DT was non-significant, $b = 0.020$, $t(189) = 0.398$, $p = .691$. The main effect of internal regulation were significant, $b = 0.631$, $t(189) = 2.533$, $p = .012$. The interaction effect was non-significant, $b = -0.006$, $t(189) = -1.288$, $p = .199$.

In conclusion, amotivation and introjected regulation had a significant moderation effect of the relationship between Dark Triad and Volunteer Participation.

B. To further explore the direction of moderation effect of amotivation on the relationship between DT and volunteer participation

As the interaction effect between amotivation and DT was significant, to explore the direction of moderation effect, the data was mean-split into high DT verse low DT, and high amotivation verse low introjected regulation.

Among the group with high DT (≥ 55), the correlation between amotivation and volunteer participation was non-significant, $r = -.185$, $p = .087$. Among the group with low DT (≤ 54), the correlation between amotivation and volunteer participation was significant, $r = -.208$, $p = .033$.

Among the group with high amotivation (≥ 7), the correlation between DT and volunteer participation was non-significant, $r = -0.143$, $p = .327$. Among the group with low amotivation (≤ 6), the correlation between dark triad and volunteer participation was significant, $r = -0.228$, $p = .006$.

In summary, amotivation moderated the effect between DT and volunteer participation, such that participant who has low amotivation and low in DT are more likely to volunteer.

C. To further explore the direction of moderation effect of introjected regulation on the relationship between DT and volunteer participation

As the interaction effect between introjected regulation and DT was significant, to explore the direction of moderation effect, the data was mean-split into high DT verse low DT, and high introjected regulation verse low introjected regulation.

Among the group with high DT (≥ 55), the correlation between introjected regulation and volunteer participation was non-significant, $r = .172$, $p = .580$. Among the group with low DT (≤ 54), the correlation between introjected regulation and volunteer participation was non-significant, $r = .067$, $p = .495$.

Among the group with high introjected regulation (≥ 7), the correlation between DT and volunteer participation was non-significant, $r = .509$, $p = .076$. Among the group with low introjected regulation (≤ 6), the correlation between DT and volunteer participation was significant, $r = -0.315$, $p < .001$.

In summary, introjected regulation moderated the effect between DT and volunteer participation, such that participant who has Low Introjected Regulation are less likely to volunteer, no matter he was high or low DT.

D. LT, motivation and volunteer participation

To test the moderation effect of motivations on LT score and volunteer participation, a number of linear regressions was run.

A multiple linear regression has been calculated to explore the moderation effect of amotivation on the relationship between LT and volunteer participation. Results showed that the model was significant, $\Delta R^2 = .173$, $F(3, 189) = 13.207$, $p < .001$. The main effect of LT was significant, $b = 0.239$, $t(189) = 4.122$, $p < .001$. The main effect of amotivation was non-significant, $b = 0.330$, $t(189) = 0.772$, $p = .441$. The interaction effect was non-significant, $b = -0.011$, $t(189) = -1.134$, $p = .258$.

A multiple linear regression has been calculated to explore the moderation effect of external regulation on the relationship between LT and volunteer participation. Results showed that the model was significant, $\Delta R^2 = .148$, $F(3, 189) = 10.915$, $p < .001$. The main effect of LT was significant, $b = 0.239$, $t(189) = 4.076$, $p < .001$. The main effect of external regulation was non-significant, $b = 0.275$, $t(189) = 0.496$, $p = .620$. The interaction effect was non-significant, $b = -0.005$, $t(189) = -0.432$, $p = .666$.

A multiple linear regression has been calculated to explore the moderation effect of introjected regulation on the relationship between LT and volunteer participation. Results

showed that the model was significant, $\Delta R^2 = .146$, $F(3, 189) = 10.812$, $p < .001$. The main effect of LT was significant, $b = 0.226$, $t(189) = 3.562$, $p < .001$. The main effect of introjected regulation was non-significant, $b = 0.180$, $t(189) = 0.216$, $p = .829$. The interaction effect was non-significant, $b = -0.003$, $t(189) = -0.166$, $p = .868$.

A multiple linear regression has been calculated to explore the moderation effect of identified regulation on the relationship between LT and volunteer participation. Results showed that the model was significant, $\Delta R^2 = .211$, $F(3, 189) = 10.850$, $p < .001$. The main effect of LT was non-significant, $b = 0.216$, $t(189) = 2.507$, $p = .013$. The main effect of identified regulation was non-significant, $b = 0.695$, $t(189) = 1.044$, $p = .298$. The interaction effect was non-significant, $b = -0.008$, $t(189) = -0.521$, $p = .603$.

A multiple linear regression has been calculated to explore the moderation effect of internal regulation on the relationship between LT and volunteer participation. Results showed that the model was significant, $\Delta R^2 = .173$, $F(3, 189) = 13.147$, $p < .001$. The main effect of LT was non-significant, $b = 0.066$, $t(189) = 0.492$, $p = .623$. The main effect of internal regulation was non-significant, $b = -0.182$, $t(189) = -0.364$, $p = .717$. The interaction effect was non-significant, $b = 0.009$, $t(189) = 0.778$, $p = .438$.

In conclusion, the present of any kinds of motivations did not show moderation effect on the relationship of LT and volunteer participation. One of the explanations was that, the relationship between LT and volunteer participation was so strong that the presence of any kinds of motivation did not influence of the interaction between the two concepts at al.

In the meanwhile, it was obvious that the combination of amotivation and introjected regulation have a significant moderation effect on the relationship between DT (especially those with low Dark Triad Score) and volunteer participation. It was worth breaking down the DT score into sub-score of Machiavellianism, Psychopathy and Narcissism for further analysis.

E. Machiavellianism, amotivation and volunteer participation

A multiple linear regression has been calculated to explore the moderation effect of amotivation on the relationship between Machiavellianism and volunteer participation. Results showed that the model was significant, $\Delta R^2 = .128$, $F(3, 189) = 9.227$, $p < .001$. The main effect of Machiavellianism was significant, $b = -0.177$, $t(189) = -3.537$, $p < .001$. The main effect of amotivation were significant, $b = -0.177$, $t(189) = -3.537$, $p = .005$. The interaction effect was significant, $b = 0.017$, $t(189) = 2.058$, $p = .041$.

F. To further explore the direction of moderation effect of amotivation on the relationship between Machiavellianism and volunteer participation

As the interaction effect between amotivation and Machiavellianism was significant, to explore the direction of moderation effect, the data was mean-split into high Machiavellianism verse low Machiavellianism, and high amotivation verse low amotivation.

Among the group with high Machiavellianism (≥ 19), the correlation between amotivation and volunteer participation was non-significant, $r = -.186$, $p = .119$. Among the group with low Machiavellianism (≤ 18), the correlation between amotivation and Volunteer Participation was significant, $r = -.234$, $p = .010$.

Among the group with high amotivation (≥ 7), the correlation between Machiavellianism and volunteer participation was non-significant, $r = -0.258$, $p = .074$. Among the group with low amotivation (≤ 6), the correlation between Machiavellianism and volunteer participation was significant, $r = -0.241$, $p = .004$.

In summary, amotivation moderated the effect between Machiavellianism and volunteer participation, such that participant who has low amotivation and low Machiavellianism are less likely to volunteer.

G. Machiavellianism, introjected regulation and volunteer participation

A multiple linear regression has been calculated to explore the moderation effect of introjected regulation on the relationship between Machiavellianism and volunteer participation. Results showed that the model was significant, $\Delta R^2 = .118$, $F(3, 189) = 8.415$, $p < .001$. The main effect of Machiavellianism was significant, $b = -0.234$, $t(189) = -$

4.555, $p < .001$. The main effect of introjected regulation were non-significant, $b = -0.382$, $t(189) = -1.617$, $p = .108$. The interaction effect was significant, $b = 0.032$, $t(189) = 2.423$, $p = .016$.

H. To further explore the direction of moderation effect of introjected regulation on the relationship between Machiavellianism and volunteer participation

As the interaction effect between introjected regulation and Machiavellianism was significant, to explore the direction of moderation effect, the data was mean-split into high Machiavellianism versus low Machiavellianism, and high introjected regulation versus low introjected regulation.

Among the group with high Machiavellianism (≥ 19), the correlation between introjected regulation and volunteer participation was non-significant, $r = -.039$, $p = .746$. Among the group with low Machiavellianism (≤ 18), the correlation between introjected regulation and volunteer participation was non-significant, $r = -.020$, $p = .825$.

Among the group with high introjected regulation (≥ 7), the correlation between Machiavellianism and volunteer participation was significant, $r = 0.614$, $p = .026$. Among the group with low introjected regulation (≤ 6), the correlation between Machiavellianism and volunteer participation was significant, $r = -0.348$, $p < .001$.

In summary, introjected regulation moderated the effect between Machiavellianism and volunteer participation, such that participant who has high introjected regulation are more likely to volunteer, while those who have low introjected regulation are less likely to volunteer.

I. Psychopathy, amotivation and volunteer participation

A multiple linear regression has been calculated to explore the moderation effect of amotivation on the relationship between Machiavellianism and volunteer participation. Results showed that the model was significant, $\Delta R^2 = .077$, $F(3, 189) = 5.276$, $p = .002$. The main effect of Psychopathy was non-significant, $b = -0.091$, $t(189) = -1.476$, $p = .142$. The main effect of amotivation were significant, $b = -0.354$, $t(189) = -2.210$, $p = .028$. The interaction effect was non-significant, $b = 0.010$, $t(189) = 0.974$, $p = .331$.

J. Psychopathy, introjected regulation and volunteer participation

A multiple linear regression has been calculated to explore the moderation effect of introjected regulation on the relationship between Machiavellianism and volunteer participation. Results showed that the model was significant, $\Delta R^2 = .041$, $F(3, 189) = 3.241$, $p = .047$. The main effect of Psychopathy was significant, $b = -0.149$, $t(189) = -2.395$, $p = .018$. The main effect of introjected regulation were non-significant, $b = -0.116$, $t(189) = 0.438$, $p = .662$. The interaction effect was non-significant, $b = -0.016$, $t(189) = -0.986$, $p = .325$.

K. Narcissism, amotivation and volunteer participation

A multiple linear regression has been calculated to explore the moderation effect of amotivation on the relationship between Narcissism and volunteer participation. Results showed that the model was significant, $\Delta R^2 = .111$, $F(3, 189) = 7.888$, $p < .001$. The main effect of Narcissism was significant, $b = -0.142$, $t(189) = -2.966$, $p = .003$. The main effect of amotivation were significant, $b = -0.765$, $t(189) = -3.792$, $p < .001$. The interaction effect was significant, $b = 0.023$, $t(189) = 2.762$, $p = .006$.

L. To further explore the direction of moderation effect of amotivation on the relationship between Narcissism and volunteer participation

As the interaction effect between amotivation and Narcissism was significant, to explore the direction of moderation effect, the data were mean-split into high Narcissism verse low Narcissism, and high amotivation verse low amotivation.

Among the group with high Narcissism (≥ 19), the correlation between amotivation and volunteer participation was non-significant, $r = -.146$, $p = .094$. Among the group with low Narcissism (≤ 18), the correlation between amotivation and volunteer participation was significant, $r = -.434$, $p < .001$.

Among the group with high amotivation (≥ 7), the correlation between Narcissism and volunteer participation was non-significant, $r = 0.163$, $p = .265$. Among the group with low amotivation (≤ 6), the correlation between Narcissism and volunteer participation was non-significant, $r = -0.158$, $p = .059$.

In summary, Amotivation moderated the effect between Narcissism and volunteer Participation, such that participant who has Low Narcissism are less likely to volunteer, when they have amotivation.

M. Narcissism, introjected regulation and volunteer participation

A multiple linear regression has been calculated to explore the moderation effect of introjected regulation on the relationship between Narcissism and volunteer participation. Results showed that the model was significant, $\Delta R^2 = .042$, $F(3, 189) = 2.754$, $p = .044$. The main effect of Narcissism was significant, $b = -0.148$, $t(189) = -2.785$, $p = .006$. The main effect of introjected regulation were significant, $b = -0.593$, $t(189) = 1.775$, $p = .077$. The interaction effect was significant, $b = 0.032$, $t(189) = 2.184$, $p = .030$.

N. To further explore the direction of moderation effect of introjected regulation on the relationship between Narcissism and volunteer participation

As the interaction effect between introjected regulation and Narcissism was significant, to explore the direction of moderation effect, the data was mean-split into high Narcissism verse low Narcissism, and high introjected regulation verse low introjected regulation.

Among the group with high Narcissism (≥ 19), the correlation between introjected regulation and volunteer participation was non-significant, $r = -.039$, $p = .660$. Among the group with low Narcissism (≤ 18), the correlation between introjected regulation and volunteer participation was non-significant, $r = -.046$, $p = .726$.

Among the group with high introjected regulation (≥ 7), the correlation between Narcissism and volunteer participation was non-significant, $r = 0.271$, $p = .371$. Among the group with low introjected regulation (≤ 6), the correlation between Narcissism and volunteer participation was non-significant, $r = -0.137$, $p = .068$.

In summary, introjected regulation moderated the effect between Narcissism and volunteer participation, such that participant who has introjected regulation are less likely to volunteer, when they have Narcissism.

Discussion

The finding proved that LT had a significant positive correlation with Volunteer Participation. The correlation was so strong that, the presence of different kinds of motivations did not show significant moderation effect on it. Thus, in a company context, we do not need to do much to motivate those people of LT personality to participate in volunteer work. Once employees know there are opportunities to service, they are already very much motivated to go for it. As a result, a company should consider how to develop communication channels, keeping them abreast the latest news of volunteer programmes, so as to notify the LT people to participate.

However, when we looked at DT, which originally had a significant negative correlation with volunteer participation, the present of low motivation would make them participate in volunteer work. The reverse of amotivation is indeed motivation to volunteer and thus the result is reasonable.

Besides, the present of introjected regulation had a significant moderation effect on DT and volunteer participation, people of DT personality would volunteer occasionally due to social factors, such as the invitation of significant others, and for avoiding guilty feeling. In this sense, the mobilization from their immediate supervisors and beloved colleagues could help DT people engage in volunteering. That suggests that top down strategy may be useful in encouraging them to participate in volunteer work.

Once the DT has participated in volunteer work, the organizer and the volunteer teammates could develop themselves to be the significant others to the DT and to encourage them to participate in future. Thus, the 'connection' itself is very important in turning someone from not participating in volunteer work originally to being part of it. In a company level, strategies of developing individual connection is crucial in enlarging the volunteer population, and once employees are engaged, the LT type could influence those DT to keep participating.

It is also interesting to investigate what social connection, but not that of monetary or materialistic reward will motivate one to volunteer. This may due to the culturally accepted interpretation of volunteer work in a Chinese culture. In Hong Kong, it is well known not

to expect any kinds of monetary or materialistic benefits from participating in volunteer work. Thus for those participant, they will look for engaging with colleague or grasping a chance to contact with the management via volunteering at most. The traditional understanding of volunteer work may influence the way DT's belief of gain in volunteering.

However, not all the DT people could be engaged by the introjected regulation strategies. The research told us that Machiavellianism and Narcissism showed good responses to the introjected regulation strategies but not the Psychopathy. Theoretically speaking, both Machiavellianism and Narcissism focus on the feedback of others for the definition of self-worth (Paulhus & Williams, 2002), this explained why the presence of significant others is critical in mobilizing them to volunteer, but not for the case of Psychopathy. Further research should be done for those Psychopathy to investigate their consideration for participating in volunteer work.

One of the most important implication of this research was that, for those who do not volunteer, they would not walk-in and register for a volunteer programme. However, with proper introjected regulation strategies implemented, we could connect with those who originally have hesitation to join and turn them into a volunteer. This shed light on the development of further connection strategy and helped promotion of volunteer movement in a company level.

Limitation and Further Research

One of the limitations of this research was that, all participants were from the same company. In order to make the finding generalizable to a larger population, a further research that covers a larger population and diversity of background is recommended.

On the other hand, the time of the research was not good. Under the influence of social movement happened in 2019 and COVID-19, most of the volunteer programmes such as Flag Selling Day, were cancelled. This might reduce the number of volunteer work participated in the past 6 months in the samples and influence the analysis of data. Running the research after COVID-19 is recommended to gain a better overview of relationship between the variables.

We also notice that the Cronbach's α of introjected regulation (0.57) and identified regulations (0.57) was not satisfying. Translation error may occur which lead to the misinterpretation of items. We suggested to re-translate the scale and valid the test for the next batch of research to enhance the validity of the BREQ-2, especially for the two sub scales identified.

Finally, it would be worthy to investigate whether the mainlanders, who were being seconded to Hong Kong, hold a different perception of volunteering work from the Hong Kong employees. Although the mainlander employee took up 5% of the company staff, it was indeed 250 people under a staff size of 5,000. And 250 is already a good sampling size and deserve further investigation.

Conclusion

In this research, we found that introjected regulation (a kind of external motivation) showed a signification moderation effect between DT and volunteer participation. The presence of significant others is critical in mobilizing people with both high or low DT, low in Machiavellianism and high in Narcissism to volunteer. However, the present of motivation did not moderation the relationship between LT and volunteer participation, as well as Psychopathy and volunteer participation. Introjected regulation strategies is suggested to promote volunteerism in a company level.

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Sample Questionnaire – Light Triad Scale (LTS)

Source: Kaufman, Yaden, Hyde, & Tsukayama, 2019

Instruction: Please indicate how much you agree with each of the following statements.

Code	Item	5 Point Likert scale				
		Strongly Disagree – Strongly				
FH1	I tend to see the best in people.	1	2	3	4	5
FH2	I tend to trust that other people will deal fairly with me.	1	2	3	4	5
FH3	I think people are mostly good.	1	2	3	4	5
FH4	I'm quick to forgive people who have hurt me.	1	2	3	4	5
H1	I tend to admire others.	1	2	3	4	5
H2	I tend to applaud the successes of other as valuable.	1	2	3	4	5
H3	I tend to treat others as valuable.	1	2	3	4	5
H4	I enjoy listening to people from all walks of life.	1	2	3	4	5
K1	I prefer honesty over charm.	1	2	3	4	5
K2	I don't feel comfortable overly manipulating people to do something I want.	1	2	3	4	5
K3	I would like to be authentic even if it may damage my reputation.	1	2	3	4	5
K4	When I talk to people, I am rarely thinking about what I want from them.	1	2	3	4	5

Score Item	Formula	Score
Subscale for Faith Humanity (SFH)	FH1+FH2+FH3+FH4	
Subscale for Humanism (SH)	H1+H2+H3+H4	
Subscale for Kantianism (SK)	K1+K2+K3+K4	
Total score for Light Triad	SFH+SH+Sk	

Sample Questionnaire – the Dirty Dozen

Sources: Jonason & Webster, 2010

Instruction: Please indicate how much you agree with each of the following statements.

Code	Item	9 Point Likert scale								
		Strongly Disagree – Strongly								
M1	I tend to manipulate others to get my way.	1	2	3	4	5	6	7	8	9
M2	I have used deceit or lied to get my way.	1	2	3	4	5	6	7	8	9
M3	I have use flattery to get my way.	1	2	3	4	5	6	7	8	9
M4	I tend to exploit others towards my own end.	1	2	3	4	5	6	7	8	9
P1	I tend to lack remorse.	1	2	3	4	5	6	7	8	9
P2	I tend to be unconcerned with the morality of my actions.	1	2	3	4	5	6	7	8	9
P3	I tend to be callous or insensitive.	1	2	3	4	5	6	7	8	9
P4	I tend to be cynical.	1	2	3	4	5	6	7	8	9
N1	I tend to want others to admire me.	1	2	3	4	5	6	7	8	9
N2	I tend to want others to pay attention to me.	1	2	3	4	5	6	7	8	9
N3	I tend to seek prestige or status.	1	2	3	4	5	6	7	8	9
N4	I tend to expect special favors from others.	1	2	3	4	5	6	7	8	9

Score Item	Formula	Score
Subscale for Machiavellianism. (SM)	M1+M2+M3+M4	
Subscale for Psychopathy, (SP)	P1+P2+P3+P4	
Subscale for Narcissism, (SN)	N1+N2+N3+N4	
Total score for Dark Triad	SM+SP+SN	

Sample Questionnaire – BREQ-2 (Adapted: changing ‘Exercise’ to ‘Volunteer’)

Sources: Markland, 2014

Instruction: Please indicate how much you agree with each of the following statements.

Code	Item	5 Point Likert scale				
		Strongly Disagree – Strongly				
Q1	I volunteer because other people say I should	0	1	2	3	4
Q2	I feel guilty when I don't volunteer	0	1	2	3	4
Q3	I value the benefits of volunteer	0	1	2	3	4
Q4	I volunteer because it's fun	0	1	2	3	4
Q5	I don't see why I should have to volunteer	0	1	2	3	4
Q6	I take part in volunteer because my friends/ family/ spouse say I should	0	1	2	3	4
Q7	I feel ashamed when I miss an volunteer session	0	1	2	3	4
Q8	It's important to me to volunteer regularly	0	1	2	3	4
Q9	I can't see why I should bother volunteering	0	1	2	3	4
Q10	I enjoy my volunteer sessions	0	1	2	3	4
Q11	I volunteer because others will not be pleased with me if I don't	0	1	2	3	4
Q12	I don't see the point in volunteering	0	1	2	3	4
Q13	I feel like a failure when I haven't volunteer in a while	0	1	2	3	4
Q14	I think it is important to make the effort to volunteer regularly	0	1	2	3	4
Q15	I find volunteer a pleasurable activity	0	1	2	3	4
Q16	I feel under pressure from my friends/ family to volunteer	0	1	2	3	4
Q17	I get restless if I don't volunteer regularly [Item removed; Liu, Chung, Zhang & Si, 2015]	0	1	2	3	4

Q18	I get pleasure and satisfaction from participating in volunteer	0	1	2	3	4
Q19	I think that volunteering is a waste of time	0	1	2	3	4

Score Item	Formula	Score
Subscale for Amotivation (SA)	$Q5+Q9+Q12+Q19$	
Subscale for External regulation (SER)	$Q1+Q6+Q11+Q16$	
Subscale for Introjected regulation (SIR)	$Q2+Q7+Q13$	
Subscale for Identified regulation (SIdR)	$Q3+Q8+Q14$	
Subscale for Intrinsic motivation (SIM)	$Q4+Q10+Q15+Q18$	

Other Questions that was asked in the Questionnaire

Demographic Data

1. Age: (exact number)
2. Gender: (Male/ Female)
3. Hong Kong Permanent Resident: (Yes/ No)

Volunteer Participation

1. What is your participation of volunteer in the previous 12 months? (exact number of times)
2. Which term can best describe your role in the volunteering? (Volunteer Member/ Volunteer Leader?)
3. I am going to participate in volunteer work in the next 6-month-time: (Yes/ No)