Self-Determination Theory: Statistical Correlations Between Motivational Regulations and Basic Psychological Needs

Kasidid Bumrabphan[1] and Tarosh Wangwongwiroj[2] [✉]

[1] Phuketwittayalai School, Phuket, Thailand
[2] Shrewsbury International School, Bangkok, Thailand
captain.brp@gmail.com

ABSTRACT

Self-determination theory has been predominantly used as a psychological framework to describe human motivation. It classifies three types of motivation with various forms of regulations, ranging from amotivation, extrinsic motivation (i.e., extrinsic regulation, introjected regulation, identified regulation, and integrated regulation), to intrinsic motivation. In addition, it points out three basic psychological needs (i.e., autonomy, relatedness, competence) which are essential components to enhance the process of internalisation, meaning motivations driven by identified, integrated and intrinsic regulations. This study aims to provide statistical evidence of statistical correlations among these factors and regulations. To achieve this, an online questionnaire with 9 close-ended statements based on 5-Likert scale was distributed to high-school students and school leavers in Thailand. A total of 206 responses were received. Overall, a correlational analysis showed a positive correlation between internalisation and the basic psychological needs ($r = 0.4$). Furthermore, there was a moderate positive correlation between integrated correlation and intrinsic motivation ($r = 0.6$) which support the described theoretical framework. In addition, there was a moderate positive correlation between autonomy and competence ($r = 0.6$) in the perspective of psychological needs. However, the statistical evidence shows a moderate relationship between identified regulation and external regulation ($r = 0.6$) which adds an insightful finding to our current understanding. It is suggested that in order to increase the level of internalisation, it is essential to provide a learning environment where students can feel the sense of success (competence), constructive relationship with others (relatedness), and a fair degree of self-regulated learning (autonomy).

Keywords: motivation, self-determination theory, autonomy, relatedness, competence

1. Introduction

Self-determination theory refers to frameworks of human motivation and other perspectives such as self-development, self-regulation and psychological needs (Deci et al., 2005). According to Vallerand and others (1992), motivation could be classified into three main categories which consist of amotivation, extrinsic motivation and intrinsic motivation. In terms of education, there are many rationales behind the motive in achieving a goal for each individual ranging from basic biological needs to self-actualisation (Baker, 2004).

First and foremost, self-determination theory emphasises types of motivation and performance rather than quantity of effort committed to a certain task (Deci and Ryan, 2008). The term amotivation refers to lack of intention to act in order to achieve a certain goal which is suggested as the lowest form of motivation. Another type of motivation is extrinsic motivation. This type of motivation involves external factors such as financial reinforcers,

peer expectations and other forms of inducements as a motive to accomplish a certain task (Deci et al., 2005). On the other hand, intrinsic motivation is presented as the highest level of motivation. This type of motivation is driven by pure interest and passion of each individual. In other words, people with intrinsic motivation tend to confront challenges and explore their own curiosity without the reinforcement of external factors (Lin et al., 2003).

Focusing on the influences of various types of motivation on the educational field, learners who exhibit amotivation framework tend to aimlessly learn due to lack of intention to achieve their academic goals (Lin et al., 2003). Furthermore, extrinsic motivation could lead to low academic performances. This is due to the fact that learners with this type of motivation depend on external factors, so they have a low level of motivation. As a result, individuals with extrinsic motivation tend to be negatively affected both physically and psychologically because of stressful and pressure conditions (Cabus and De Witte, 2016). On the contrary, learners with intrinsic motivation mostly excel in their academic performance and also have a greater level of resilience and perseverance compared with other types of motivation. Hence, educators should enhance intrinsic motivation to their students in return for more satisfying learning experiences and greater academic achievements (Gottfried, 1985; Hein et al., 2004).

Interestingly, another aspect of self-determination theory is the level of regulation. Non-regulation is the lowest level of regulation as individuals might find that their motivation is impersonal, so they lack concern toward their achievement. Furthermore, extrinsic motivation can be classified into four different regulations (Deci and Ryan, 2012). Firstly, external regulation refers to external factors such as financial reward, academic grade and praise that are not related to their own interest, which leads to an act that is expected for a mere outcome. Secondly, introjected regulation is also known as the sense of guilt. For instance, individuals desire to meet their parents or peers' expectations so that they maintain their feeling of self-worth in other people's perspective. Thirdly, individuals consciously perceive the value of accomplishing the task for themselves, which leads to their commitment in that task as they might find it personally meaningful. This is suggested by the self-determination theory as identified regulation. Lastly, integrated regulation occurs when individuals fully assimilate motivations into themselves as their own determination toward achieving the task (Markland et al., 2005). Although integrated regulation shares some common ground with intrinsic motivation, integrated regulation is implemented to obtain beneficial outcomes rather than the sense of enjoyment (Deci and Ryan, 2000a).

Internalisation (identified, integrated and intrinsic regulations) is endorsed by autonomy, relatedness and competence which are three factors of needs (Deci and Ryan, 2000a). Autonomy refers to the need to control one's own life and decisions. Moreover, the term relatedness is defined as the need to socialise and to be involved in close relationships with others in the social group. On the other hand, competence is defined as the ability to effectively interact with the environment (Deci and Ryan, 2012). Therefore, basic psychological needs are as important as basic biological needs such as food, water and shelter, if psychological needs are absent, individuals will not thrive in their social environment (Ryan et al., 1995).

2. Research Method

A self-administered online questionnaire was distributed to participants, ranging from high school students to school leavers in Thailand. A total of 206 responses were received, 76.7 per cent from senior high school (Grade 10-12), followed by 16.5 and 6.8 per cent received

by school leavers and junior high school (Grade 7-9), respectively. According to the study's participants, the proportion of female, male, and LGBTQ are 52.9, 29.6, and 16.5, respectively. The remainder is unidentified. The sampling method used in this analysis was done with a convenience sampling method in which we had collected data from those respondents based on availability and willingness to take part in the online survey during the COVID-19 pandemic. The purpose of this study was informed to the respondents before proceeding with their online response so that their assumed consent could be implied.

The survey included 9 questionnaire statements which were designed to be closed-ended questions on the 5-point Likert scale in which responders specify their level of agreement ranging from strongly disagree (scale 1) to strongly agree (scale 5). The statements were divided into two categories, the Self-Determination Continuum and Basic Psychological Needs. The former comprises amotivation, external regulation, introjected regulation, identified regulation, integrated regulation, and intrinsic motivation. Autonomy, competence, and relatedness are parts of the latter. The statements and their identified category are indicated below in Table 1. The respondents were capable of choosing one out of five choices that mainly reflects their level of agreement in order to complete the survey.

Table 1.
Self-determination questionnaire items

	Statement	Category
1	I do not put any effort in my study because I do not like it at all	Amotivation
2	I put effort in my study because I want to get good grades	External regulation
3	I put effort in my study because I don't want to upset my parents	Introjected regulation
4	I put effort in my study because I know that it is important for my higher education	Identified regulation
5	I put effort in my study because I like to learn new things	Integrated regulation
6	I put effort in my study because it is interesting and enjoyable	Intrinsic motivation
7	In my class, I can be myself and make a decision that I think appropriate on my own	Autonomy
8	In my class, I have good relationships with peers and teachers	Relatedness
9	In my class, I can challenge my own ability and develop new skills	Competency

All of 206 compiled responses were analysed using descriptive statistics including mean scores and standard deviation values were used to represent the spreading of the data of 206 respondents. Every two statements were used to determine the relationship between two properties by using correlation coefficient, which was based on Mukaka (2012) in which values range between -1.0 and 1.0. Mukaka demonstrated 5 sizes of correlation, between 0.0 and 0.3, 0.3 and 0.5, 0.5 and 0.7, 0.7 and 0.9, and those values above 0.9 represent negligible, low, moderate, high, and very high, relatively both in positive and negative correlation. Even though below 0.3 are considered to be negligible correlation, this study identifies a plausible tendency of all related variables. However, values are lower than 0.3 for the purpose of the process, without having to discuss the outcomes.

3. Results and Discussion

As reported by Table 2, the data analysis showed that among the Self-determination levels, the mean score of identified regulation (4.16) was statistically the highest. Among basic psychological needs, relatedness was shown to be highest mean score (4.10) and also being the smallest dispersion to the mean among the available categories by considering from standard deviation values, followed by external regulation (3.97), introjected regulation (3.92), autonomy (3.69), integrated regulation (3.65), competence (3.64) and intrinsic regulation (3.19), respectively. Nevertheless, the lowest mean score belongs to non-regulation (2.65).

Table *2*.
Descriptive statistics results based on Self-determination questionnaire (N = 206)

	Category	Mean	SD.
1	Amotivation	2.65	0.99
2	External regulation	3.97	0.92
3	Introjected regulation	3.92	0.95
4	Identified regulation	4.16	0.90
5	Integrated regulation	3.65	0.94
6	Intrinsic motivation	3.19	1.03
7	Autonomy	3.69	1.00
8	Relatedness	4.10	0.79
9	Competence	3.64	0.92

According to Table 3, statistical tests based on Pearson's correlation are used to determine statistical relationships among the explored factors. Various significant relationships can be seen from the Table. However, only few important findings are highlighted here. Overall, a correlational analysis showed a positive correlation between internalisation and the basic psychological needs ($r = 0.4$). The score of internalisation was calculated from scores given to identified regulation, integrated regulation, and intrinsic motivation. The score of the basic psychological needs was calculated from the scores given to autonomy, relatedness and competence. This provides a statistical support to the theory described (Deci and Ryan, 2012). It is suggested that in order to increase the level of internalisation, it is essential to provide a learning environment where students can feel the sense of success (competence), constructive relationship with others (relatedness), and a fair degree of self-regulated learning (autonomy).

Furthermore, several correlations were found among the types of motivational regulations according to self-determination. However, chief among them was a moderate positive correlation between integrated correlation and intrinsic motivation ($r = 0.6$). Like above, this confirms the proximity of integrated regulation and intrinsic motivation. An integrated regulation serves as an external goal which well aligns with one's identity, while intrinsic motivation concerns enjoyment and interest. People who are likely to do what they like (intrinsic motivation) are likely to do it in the way they are (integrated regulation), revealed in this statistical evidence. Nonetheless, there was no statistical relationship between identified regulation with one of these which is rather different from the hypothesis we had from the theory. This area has to be validated by other studies to see if this also recurs in other findings. Interestingly, the statistical evidence shows a moderate relationship between identified regulation and external regulation ($r = 0.6$) which adds an insightful finding to our current understanding. We believed that this is because the context of this survey is based on students. It indicated that most of our respondents yearn for acquiring a good grade with a view to pursuing a university they desire, which is consistent accurately with the truth. The external regulation described in the statement is to do with grades and the identified regulation is to do with their further study. Therefore, it is not surprising that there was a positive relationship between these two factors.

Self-determination theory presently plays an important role in scholastic achievement. From my point of view, high school students are driven to study in order to get a good grade because they know that it is crucial for their higher education. This action is more likely to be a part of external motivation factors, yet if we look at another aspect, they are just striving for their best opportunities with a view to acquiring better future existences, which are internal sources. Hence, the behaviour to decide what is pragmatically right or wrong is impractical.

Nowadays in our pluralistic society, people are related to extrinsic motivation, together with intrinsic in one's act; nevertheless, there are various things that both parents and teachers encompass children can do for helping them such as encouraging their child even though they make some mistakes or enjoying their successfulness. These are little things that could enhance the pride a child has physically. The more they increase their basic psychological needs, the more chance they gain self-determination.

Now turning to the three basic psychological needs, there was a moderate positive correlation between autonomy and competence ($r = 0.6$). Also, there was a mild positive correlation between autonomy and relatedness ($r = 0.4$), as well as between competence and relatedness ($r = 0.4$). These findings are well aligned with the hypothesis as these three factors play interwoven roles in promoting one's internalisation (Deci and Ryan, 2000a)

Table 3.
Correlation coefficients based on the self-determination questionnaire (N = 206)

	External	Introjected	Identified	Integrated	Intrinsic	Autonomy	Relatedness	Competence
Amotivation	-0.3	-0.2	-0.4	-0.2	-0.2	-0.1	-0.1	-0.2
External		0.4	0.6	0.2	0.2	0.1	0.2	0.1
Introjected			0.4	0.2	0.0	0.1	0.2	0.2
Identified				0.2	0.2	0.1	0.3	0.2
Integrated					0.6	0.3	0.1	0.4
Intrinsic						0.3	0.1	0.4
Autonomy							0.4	0.6
Relatedness								0.4

4. Conclusion

Emphasized in this study is the investigation of statistical relationships between motivational regulations and the basic psychological needs, according to the theory of self-determination. It provides empirical evidence to support statistical links based on 206 individual responses. According to the findings, there was a correlation between internalisation (identified, integrated, and intrinsic regulations) and the basic psychological needs. It is imperative to provide a learning environment where students can feel the sense of success (competence), constructive relationship with others (relatedness), and a fair degree of self-regulated learning (autonomy). In addition, this study statistically supports the theory of self-determination in many ways such as the relationship between integrated regulation and intrinsic motivation, as well as the relationship between the three basic psychological needs themselves.

References

Baker, S. R. (2004). Intrinsic, extrinsic, and amotivational orientations: Their role in university adjustment, stress, well-being, and subsequent academic performance. *Current Psychology*, *23*(3), 189-202.

Cabus, S. J., & De Witte, K. (2016). Why do students leave education early? Theory and evidence on high school dropout rates. *Journal of Forecasting*, *35*(8), 690-702.

Deci, E. L., & Ryan, R. M. (2008). Self-determination theory: A macrotheory of human motivation, development, and health. *Canadian psychology/Psychologie canadienne*, *49*(3), 182.

Deci, E. L., & Ryan, R. M. (2012). Self-determination theory.

Gagné, M., & Deci, E. L. (2005). Self-determination theory and work motivation. *Journal of Organizational behavior*, *26*(4), 331-362.

Gottfried, A. E. (1985). Academic intrinsic motivation in elementary and junior high school students. *Journal of educational psychology*, *77*(6), 631.

Hein, V., Müür, M., & Koka, A. (2004). Intention to be physically active after school graduation and its relationship to three types of intrinsic motivation. *European Physical Education Review*, *10*(1), 5-19.

Lin, Y. G., McKeachie, W. J., & Kim, Y. C. (2003). College student intrinsic and/or extrinsic motivation and learning. *Learning and individual differences*, *13*(3), 251-258.

Markland, D., Ryan, R. M., Tobin, V. J., & Rollnick, S. (2005). Motivational interviewing and self–determination theory. *Journal of social and clinical psychology*, *24*(6), 811-831.

Mukaka, M. M. (2012). A guide to appropriate use of correlation coefficient in medical research. *Malawi medical journa*l, 24(3), 69-71.

Ryan, R. M. (1995). Psychological needs and the facilitation of integrative processes. *Journal of personality*, *63*(3), 397-427.

Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American psychologist*, *55*(1), 68.

Vallerand, R. J., Pelletier, L. G., Blais, M. R., Briere, N. M., Senecal, C., & Vallieres, E. F. (1992). The Academic Motivation Scale: A measure of intrinsic, extrinsic, and amotivation in education. *Educational and psychological measurement*, *52*(4), 1003-1017.