

Self-Determination Theory in Education: The Relationship between Motivation and Academic Performance of Primary School, High School, and College Students

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ABSTRACT

Studying the influence of various motivation types on academic performance has been popular in recent decades. Some studies indicated that the relationship between academic performance and intrinsic motivation is positive, while others found extrinsic motivation plays a more positive role. Different results might correlate with sample age. Moreover, instead of having an either-negative-or-positive impact, intrinsic and extrinsic motivation influence academic performance through mediating factors. By reviewing the relevant previous literature, this paper found out whether a changing trend between different motivation types and academic performance as the sample age grows exists (from primary school students to college students). Intrinsic motivation is positively related to academic performance throughout all age groups, while extrinsic motivation has a more vital influence on students' performance as they grow up. Moreover, the relationship between motivation and academic performance was also influenced by other factors. Both types of motivation have positive and negative mediators or moderators that influence their effect on performance, often related to effort, engagement, anxiety, and learning strategies. This paper adds to the understanding of motivation among students and guides educators to better maximize positive influence, whether it be of extrinsic or intrinsic motivation.

Keywords: *intrinsic motivation, extrinsic motivation, elementary school students, high school students, college students, academic performance*

1. INTRODUCTION

Motivation is what initiates and sustains goal-directed activities. Motivation has a critical impact in students' academic achievement, according to a large body of research. According to the self-determination theory, a crucial role in behavioral quality and wellbeing, particularly among students is played by the internalization of extrinsic motivation [1]. Intrinsic motivation, in which the motivation to do something fully derives from the self. Extrinsic motivation is where people perform behaviors due to outside incentive or pressure. The extent to which people consider the reasons behind their behaviors as intrinsic or extrinsic is referred to by Heider [2] as the alleged source of

causality. Different types of self-determined motivation can be classified along a spectrum, with increasing levels of extrinsic regulation internalization and a shift in the apparent focus of causality inward. Correlations between an individual's experiences and outcomes and the level of internalization of extrinsic motivation have been shown by various studies. In education, specifically, more internalized types of motivation among students manifest higher learning quality, more effective failure coping strategies [3], and stronger academic performance [4].

There is little existing literature comparing the effects of motivation type on academic performance among different age groups, thus it is still not clear how an individual's motivation type changes throughout their

school life. Extrinsic and intrinsic motivation both have an impact on academic success in some situations. In some instances. However, other factors can influence the motivation-academic performance link. As a result, assigning a 'good' or 'poor' quality to the motivation type, whether extrinsic or intrinsic, is oversimplifying.

This paper covers the literature on the correlation between intrinsic and extrinsic motivation and academic performance in students of various ages (elementary school, high school, and college), as well as probable mediating and moderating elements between motivation and academic success. This paper will answer the following questions. First, which types of motivation are most effective in elementary school, high school, and college; second, whether motivation changes as children mature; and third, how motivation affects academic success.

2. ELEMENTARY SCHOOL STUDENTS

Many works of literature show that students with intrinsic motivation have higher possibilities to get better academic performance than their peers [5]. However, some other papers show a contrasting result that intrinsic motivation is negatively related to academic performance [6]. Furthermore, the above out-performance phenomenon could be predicted 1-2 years earlier, which means if a student has a high academic intrinsic motivation now, this student may persist in this level of intrinsic motivation 1-2 years later [7]. A problem is induced whether the motivation changing trend exists for young age students.

2.1. The Better Type of Motivation in Primary School

In primary school pupils, the most significant sort of motivation is intrinsic motivation. Extrinsic and intrinsic motivation can coexist and assist students' study, according to Lemos and Verissimo [8], but intrinsic motivation is the better type for enhancing academic achievement. Several publications, in various techniques and areas, support this notion, i.e., whether a student with the intrinsic drive is more likely to achieve superior academic results (such as Carreira [9]). Furthermore, the majority of the study shows that intrinsic motivation improves academic achievement while extrinsic motivation has the opposite effect.

2.2. Changing Trend

Meanwhile, some studies have found that as students become older, their motivation shifts. For example, in an experiment conducted by Carreira [9], the relationship between intrinsic and extrinsic motivation and foreign language learning motivation was investigated, and it revealed a motivation change trend

as grades increased. They chose two hundred participants from 3-6 grades in a public school in Japan and used two different questionnaires to test students' motivation and attitudes toward learning FL and their intrinsic motivation for general studying. Finally, the experiment's result showed that the intrinsic motivation for learning FL declined from 3-6 grades. While it is different from what Gottfried [7] stated. A reason for that outcome might be the differentiation motivation of different school subjects. As Guay et al. [10] demonstrated that as the grades get higher, the differentiation effects increase. Additionally, children's capacity of distinguishing self-representations promotes as they get older. That is, high grades students tend to have better integration and acknowledgment toward evaluative feedback, which means they can better distinguish different subjects and get to know themselves by others' responses to their behavior [10]. Since young pupils do not form a complete cognition of themselves, they cannot verify what they truly want to do and the "external" motivations are seen as "internal" ones, such as teachers caring [11]. But as pupils grow up, they start to know what are the things they desire to do or the things they can be immersed in, then the differentiation of motivation trend in school subjects emerges.

A further question that needs to be answered is *how motivation influences academic performance*. Usually, motivation makes an impact on academic performance through some mediators, such as academic anxiety and social relationships [12,13]. Moreover, the approach of these mediators to influence academic achievement are not the same.

3. HIGH SCHOOL STUDENTS

3.1. Academic performance and intrinsic motivation, extrinsic motivation

Extrinsic and intrinsic motivation are both regarded to help high school students' academic success, with intrinsic motivation having a greater beneficial impact than extrinsic drive. Ogundokun and Adeyemo [14] carried out a study with 1563 secondary school students aged from 12 to 17 to investigate several factors which affect students' academic performance. According to their research, there is a larger positive effect on academic performance due to intrinsic motivation than extrinsic motivation in the Mathematics Achievement Test as well as the English Language Achievement Test. However, it is noticeable that another study found that intrinsic motivation is becoming less common among students. This is because students commit less to their school work [15], enjoy less academic studying [16], and consider school less useful and essential. This decreasing trend was agreed upon by Gottfried [7], claiming that the overall academic intrinsic motivation

was declining, especially in domains of science and math [17]. Although this might be the trend, the significance of intrinsic motivation should not be questioned, as students who are enthusiastic about their work perform better [14]. Overall, Ogundokun and Adeyemo [14] suggested both extrinsic and intrinsic motivations are good for middle school or high school student's academic performance, but either paying attention to extrinsic motives or intrinsic motives singly is not as effective as having both intrinsic and extrinsic motivation.

3.2. Achievement motivation and academic performance

Aside from extrinsic and intrinsic motivation, achievement motivation influences students' academic success. Achievement motivation refers to the will to perform well and achieve one's goals, and it is beneficial to academic performance. Emmanuel et al. [18] assessed 120 students' general motivation, as well as the motivation of males and females, as well as their academic success. It was found that male students have greater motivation and also better performance than female students. This research shows that achievement motivation is linked to academic success, implying that children with stronger motivation do better academically. Although high school students' general motivation is high, there is no meaningful association between motivation and academic success because the coefficient figure is low [18]. One possible explanation is that the link between motivation and academic success is high in male students but low in female students, resulting in a weaker correlation when both male and female findings are combined. In this case, gender acts as a moderator variable to adjust the correlation figure. As a consequence, the result might still be supportive of the belief that achievement motivation positively affects high school students' academic performance.

Overall, it was found in high school students that their academic performance is positively correlated to their achievement motivation, especially intrinsic motivation plays a greater role than extrinsic motivation. However, there is a potentially decreasing trend in intrinsic motivation in high school students. It might show that students are more and more relying on their extrinsic motivation for achievement.

4. COLLEGE STUDENTS

4.1. Intrinsic and extrinsic motivation in college settings

While many took an "either-or" approach to view how extrinsic and intrinsic motivation influence learning, recent research has been looking into more

complex and interactive relationships between the motivation types, especially among college students. Contrary to those focusing on pre-college students which found extrinsic motivation strongly correlated with negative impacts [19-22], studies in college settings show that an adequate level of extrinsic motivation prompts effort and persistence in learning and is positively associated with academic performance and achievements. Importantly, despite the two motivation types being both positively related to performance, there are specific factors under intrinsic and extrinsic motivation which influence their effect on student's performance.

4.1.1. Compatibility of motivations

Extrinsic motivation is compatible with intrinsic motivation. Yi-Guang Lina et al. [23] investigated whether combining intrinsic and extrinsic motivation improves academic performance to a certain extent. They conducted a study with University students taking different courses in both western and eastern educational systems. There were 650 participants in total. They classified students' motivation as intrinsic with three levels of extrinsic. They then assessed the grades of the students using a generalizable approach. It was found in all samples that, while higher intrinsic motivation tends to improve academic performance, it combined with a mild level of extrinsic motivation correlates to the highest level of academic performance. The discovery adds to the growing body of knowledge [24] that extrinsic motivation, which is compatible with intrinsic motivation, is critical to college students learning and academic achievement. They also discovered that this particular group of students had good self-efficacy and low-test anxiety when it came to studying habits and learning tactics. They set themselves apart by employing elaboration and organization tactics more frequently.

4.1.2. The multi-dimensionality of motivation

In 342 Afghan college students, Alfza et al. [25] investigated the same topic and discovered that some aspects of intrinsic and extrinsic motivation were more effective than others. They assessed both students' extrinsic and intrinsic motivation using a questionnaire. Extrinsic motivation components included rejection of alternative choices, career and qualifications, social enjoyment, and societal pressure, whereas intrinsic motivation aspects included self-exploration and altruism. Each motivation factor corresponds to several statements providing reasons to attend university. For example, rejecting alternative options includes attending university to avoid being unemployed and self-exploration includes attending university for personal growth and development. The result showed both motivation types have a positive correlation to college

students' academic performance, while extrinsic motivation has a slightly higher correlation on amplifying academic performance than extrinsic motivation (23 percent and 34 percent). Consistent with the study conducted by Yi-Guang et al. [23], the research supports that in college settings, the negative impact of extrinsic motivation on students' performance diminishes. Self-exploration, compassion, and rejection of alternative possibilities were all linked to great academic success in students. On the other side, students who were motivated by their career or qualifications, social enjoyment, or social pressure had a less remarkable academic performance. This supports the idea that there are elements under intrinsic and extrinsic motivation which mediate their influence on academic performance, rather than the motivation type directly impacting performance either positively or negatively.

5. FACTORS AFFECTING THE RELATIONSHIP BETWEEN THE TWO

What are some of the factors that influence the link between internal motivation and academic success in students? From the perspective of college professors, Simon A. Lei [24] assessed both the positive and bad aspects of intrinsic and extrinsic motivation. Positive influencers between intrinsic motivation and academic performance include positive relationships with self-efficacy, cognitive engagement and active participation, self-regulated learning, acceptance of challenge and failure, and understanding of knowledge; and negative relationships with anxiety and depression, stress and frustration. Factors of intrinsic motivation that negatively affect academic performance are low self-awareness while working on a task, ignorance of authorities and certain mandatory tasks, unbalanced time distribution on activities, valuing learning process over outcome, and difficulty to work with absolute deadlines. For extrinsic motivation, factors that are positively related to academic performance include good response to tangible rewards, competitive attitudes, social incentives, high-performance goals, and learning compliance. Negative mediating factors between extrinsic motivation and academic performance include diminished effort, dependence on reinforcement and frequent rewards, failure to identify reasons for learning, defining worth with competition outcome; as well as its negative relationship with college life satisfaction, self-esteem, self-actualization, peer and instructor relationship quality, and cooperative learning behavior; and its positive relationship with anxiety and depression, stress and frustration, and socially-dominant attitude.

5.1. Persistence

Liao et al. [26] found that extrinsic motivation promoted persistence and re-enrollment among students in an urban community college, whereas intrinsic motivation had minimal correlation with persistence.

5.2. Coping Mechanism Towards Failure

Ryan and Connell [3] investigated the association between students' coping styles towards failure and motivation type. They categorized four coping styles, including positive coping, where students try to resolve the causes of the undesired outcome; projection, where children blame others for the failure; denial of the significance of the failure; and anxiety amplification, which includes worrying and self-invalidation. The result was that the use of a positive coping style has a positive correlation with internalized types of motivation and a negative correlation with extrinsic motivation. On the other hand, projection and denial were more related to extrinsic motivation than intrinsic types. It can be concluded that extrinsically motivated students tend to defend against failure using mechanisms that are outward focused, such as projection or outward attribution, or denial of the significance of the failure. Students with more internalized motivation types tend to use positive coping strategies.

5.3. Anxiety

It was also found in the study that when students internalized certain social values without truly identifying with it, they were the most prone to amplification of anxiety in face of failure and scored the highest on cognitive anxiety level. These students tend to be self-discouraged after undesired academic results because of the self-esteem-based nature of their motivation. Therefore, a negative mediating factor of extrinsic motivation is the amplification of academic anxiety.

5.4. Study strategy

Motivation acts as a cause of how a student adopts study strategies. As Wilkinson, Wells, & Bushnell [27] indicated that a medical school student with the high motivation of becoming a good doctor will spend a proper time studying (i.e., if a student takes a long time to study, there will be a large proportion of waste time; if the study time is too short, it might mean they may not have any interests on studying and the knowledge points are not being interpreted) and take an efficient study strategy which is related to better academic performance.

5.5. Effort

Motivation and academic performance are linked through effort. Students who are less motivated appear to put out less effort [28], and their academic performance suffers as a result. Students that are highly driven, on the other hand, put in greater effort and, as a result, earn greater academic success [29,30].

5.6. Learning engagement and self-efficacy

Extrinsic and intrinsic motivation are both strongly and positively connected to self-efficacy and learning engagement, according to a study of medical school students. Academic performance is also found to be closely connected to self-efficacy and learning engagement among university students. As a result, motivation and academic achievement are mediated by two factors: self-efficacy and learning engagement [31].

6. LIMITATION AND FUTURE DIRECTION

This review discovered some limitations among current research on motivation types and academic performance and put forward the following suggestions for future studies.

Researchers can use samples from different age groups to better understand motivation and related variables, as well as identify possible patterns in their relationship. More research is required to investigate the link between academic success and motivation at the age transition. To study this change, longitudinal studies may be a better method than cross-sectional studies. Researchers should be aware that different dimensions of one type of motivation exert distinct effects, and that mediating factors play an essential role in determining the effect on related variables when looking at the effect of motivation on related variables.

7. CONCLUSION

This paper answers three questions related to students' motivation and academic performance. First, it is shown that students with intrinsic motivation perform better academically compared to those with extrinsic motivation. Second, there is a trend that extrinsic motivation is having a greater positive impact on students' academic performance when they grow up, which means the superiority of intrinsic motivation on academic performance tends to diminish. Third, to some extent, mediating or moderating factors influence the relationship between motivation and academic performance. Given that students' motivation changes in different stages, teachers can accordingly adjust their teaching methods to fit different motivation types. More importantly, mediating and moderating factors should

be considered seriously as they regulate how students' motivation affects students' academic performance. This suggests future research directions on how motivation changes throughout an individual's life and how different elements of intrinsic and extrinsic motivation affect their academic performance.

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