

# Academic success a by product of environmental factors education essay



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## **Abstract**

The research question of this essay is, ' To What Extent is Academic Success a By-Product of Environmental Factors?' I investigated this question by researching the effect that environmental factors have on academic success. This was then moderated by various other possible factors, including cognitive and biological ones. I evaluated my findings by weighing out the significance of each factor and the value of the supporting studies. Upon completing the research it was found motivation was a very significant factor influencing academic success, not only because the studies described were reliable and gave strong support, but also because motivation linked with the other factors too, for example, it showed up in peer networks and parenting. This brought me to the conclusion that motivation was the most dominant factor affecting academic success. After motivation, I evaluated that environmental factors were the next most influential factors, followed by intelligence. It was also noted that the factors didn't lie on separate continuums and could be combined to increase academic success. Moreover, the factors should be researched more collectively in future research to assess the research question, rather than investigating each separately.

## **Introduction**

Much research has gone into education in psychology, particularly the factors influencing academic success. However, not enough research has focused on determining which factors are the most influential. Such factors may include environmental influences; such as peer networks, parents, teachers and socioeconomic status, cognitive influences such as motivation, and biological influences such as intelligence.

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The main weakness of the existing research on factors affecting academic success is the focus on only one factor, and the lack of comparison to other factors. One such example is the experiment conducted by Kruse (1996), where the influence of socioeconomic status (SES) on academic achievement was investigated by comparing grade averages of students from different income groups. Results showed an insignificant difference between the groups, however research cited in Kruse's review of literature suggested otherwise. Despite the use of this study to determine the effect of SES on academic achievement, it does not help to determine how influential SES compared to other factors.

Nevertheless, one strength of the existing research is the abundance and reliability of it. As it is a popular area of research due to its applicability to education, the data and conclusions made can be considered highly reliable.

The principal topic of this essay is factors affecting academic success, but more precisely, the research question is 'To What Extent is Academic Success a By-Product of Environmental Factors?' The terms 'Academic Success' and 'Environmental Factors' should be defined; Academic success is the high achievement and performance in academic subjects most often measured in terms of standardized scores or average grades in research, and Environmental Factors include peer networks, parents, teachers and socioeconomic status. Both terms will be defined in more detail in the review of literature.

### Review of Literature

## **Academic Success**

The primary purpose of schools is seen as preparing students to become knowledgeable, responsible, and caring citizens (Payton et al., 2000; Zins, Elias, Greenberg, & Weissberg, 2000). This is consistent with Combs (1986) who argued that schools are concerned with creating the kinds of experiences that develop productive, healthy people. Fullan argued that the purpose of education is to build learning communities- communities that bring moral purpose back into teaching and reconnect teachers with their fundamental purpose of making a difference in young people's lives (2000). Clearly, education is about more than just achieving in exams, it is about developing emotionally and socially, and preparing for life beyond school. However, for the purpose of this essay a singular less nuanced view of education: Education's purpose is to cultivate high-achieving students. Such a narrow focus has limitations but it will allow the topic to be explored within the word limit. Therefore, someone who achieves academic success is someone who performs well in academics/education. Academic success is the high achievement and performance in academic subjects. Achievement and performance is measured through scores on exams, tests and Grade Point Averages (GPAs). Examples include the International Baccalaureate, the A-Levels and Scholastic Aptitude Tests (SATs). These achievement and aptitude tests measure knowledge and understanding of a curriculum. Students who are not intelligent are still able to achieve highly in these exams as there is a whole range of factors affecting performance. The following sections will discuss factors affecting academic success.

## **Environmental Influences**

### **a) Socioeconomic status**

Today many definitions of socioeconomic status (SES) include the idea of capital (resources, assets) (Bradley & Corwyn, 2002). Capital includes financial and material resources (income, assets), human or nonmaterial resources (e. g., parental education), and social resources (those obtained through social networks and connections) (Putnam, 2000). Intuitively, SES seems to be very influential for a child's motivation and academic success. Children from non-low income families have the benefit of interacting with parents of higher educational achievement and business success of some level. Kruse (1996) argued that this environment can motivate students to strive for success and are therefore more motivated in this regard. The link between family SES and a child's academic achievement is well established (Meece, 2002). Children from lower socioeconomic backgrounds typically display lower academic achievement and are at greater risk of school failure and dropout (Borkowski & Thorpe, 1994); but low SES does not cause low achievement, rather it is associated with it.

In a study conducted by Kruse (1996), to determine then if students from low socioeconomic environments have lower academic achievement compared to the academic achievement of students from higher socioeconomic environments, research cited in the review of literature states that there is an achievement gap between low income and non-low income students (Yellin & Koetting, 1991). Kruse used a sample of 66 6th-grade science students at Travis Middle School in Texas. Students were divided into a low income group and a non-low income group. Midterm and final grade-

averages were determined from each group. The midterm and final mean scores for the non-low income students were 86.72 and 88.17. The mean scores for the low income students were 76.70 and 80.11. Kruse concluded that there was no significant difference in academic achievement between students from low income environments and those from non-low income environments. However, reasons for the differing conclusions between Kruse's and the psychologists cited in the literature review may be Kruse used a small sample of 66 students. A larger sample would be necessary to make generalizations to a larger population. Kruse limited academic achievement to science averages for two exams. Academic achievement could be measured by including all core subjects. Also, the evaluation time period should be increased from one academic year to several. Kruse and Yellin & Koetting clearly had opposing conclusions as to whether socioeconomic status influences academic achievement, providing an uncertain overall conclusion.

## **b) Peer networks**

An increasing amount of research has examined the role of peer networks. A peer network is a large group of peers with whom students associate. Students in peer networks tend to be highly similar to each other (Cairns, Cairns, & Neckerman, 1989), which enhances the likelihood of influence by modeling. Sage and Kindermann (1999) found that peer groups tended to support or disapprove of peers' behaviours depending on whether the behaviours were consistent with group norms. Students with higher academic motivation and achievement tended to be members of groups more motivated for academics and they received group approval for positive

academic behaviours. Students who were in academically motivated groups were extrinsically motivated because when academic success was achieved, the group's approval acted as a reward. Students with lower motivation and achievement were likely to be members of less motivated groups; their approval for positive behaviours mainly came from teachers. These students were less motivated to perform well because it could lead to expulsion from the group. They concluded that peer networks played a significant and direct role in affecting academic success.

A study supporting peer networks being an influence on academic success is that of Steinberg et al. (1996), who tracked students over 3 years, from 9th grade to the end of 11th grade. They determined whether students who entered high school equivalent academically (grades), but who joined different peer networks, remained stable academically. Results suggested that the peer network with which a student associates is very important in academic performance and delinquency. Children in higher academically orientated groups achieved higher grades during high school compared to those in lower academically orientated crowds.

It is clear from both studies that being in a highly motivated and academically orientated peer network can lead to greater academic success, and the contrary for a less motivated and academic peer network.

### **c) Parents**

There is a great deal of evidence supporting the hypothesis that the quality of a child's early learning in the home environment relates positively to the development of intelligence (Meece, 2002; Senechal & Lefevre, 2002), and

parental involvement in schooling also predicts academic achievement (Englund, Luckner, Whaley, & Egeland, 2004).

Gottfried, Fleming, and Gottfried (1998) conducted a longitudinal study examining the role of cognitive stimulation in the home environment on children's academic achievement. Home environment was measured by family discussions, attendance at cultural events, importance of reading, and family interest in art, music and literature. This was recorded using direct observation in the home as well as parental report. There were 107 children participating. Each participant's development was examined across a broad array of domains (e. g., cognitive, behavioural, academic). Home environment was assessed at age 8, and academic achievement at ages 9, 10 and 13. Results found that a cognitively stimulating home environment is a significant and positive predictor of academic achievement. Providing further support, even when SES was controlled, home environment continued to positively predict subsequent academic achievement.

The measurement of home environment through direct observation and parent reports provided ecologically valid data. The findings were also consistent with the body of literature, further enhancing its validity; however it is for future research to determine the generalisability of the findings for all populations.

Parenting styles can also make a difference in a child's academic motivation, which leads to academic success. Achievement is enhanced when parents allow children to have input in decisions, state expectations as suggestions, acknowledge children's feelings and needs, and provide children with



choices (Dornbusch, Ritter, Liederman, Roberts, & Fraleigh, 1987). In contrast, parenting styles that are too controlling or too permissive can undermine a child's motivation and achievement.

Overall, the research supports the theory that parental involvement and home environment can directly affect academic success, and indirectly through increasing motivation thus success.

### **d) Teachers**

There have been many investigations into how teaching practices affect student motivation. One such investigation was carried out by Veldman and Brophy (1974). The aim of the study was to determine whether teachers influence pupil achievement. The participants included 275 female teachers for second- and third-grade participated. The teacher effectiveness, classroom behaviour, and personal characteristics of the participants were measured. The students' predicted performance on a post-test was based on a) pretest, b) pupil sex, c) year of testing, and d) teacher. Teacher effectiveness was measured by the grade averages their students achieved. In each comparison, one of these influences was omitted to determine its contribution to the student's success on the post-test. Results found that pupil sex made no significant difference. There were systematic differences among the three years of testing; however this was to be expected. The teacher variable caused a significant increase in predictive efficiency. Therefore, teachers did make a difference. Methodologically, the study was sound as the teacher selection procedure eliminated new teachers and teachers who had recently switched grades.

Velman and Brophy's (1974) study contradicted the results from statements based on the Coleman Report (Coleman, et al., 1966), which shared that schools don't make a difference, rather the students do. However, they used the term schools rather than teachers. Schools are an inappropriate unit for analysis as the teachers vary in ability and mask the true quality of schooling.

The classroom climate refers to the atmosphere of the classroom- it's social, psychological, and emotional characteristics (Dunkin & Biddle, 1974). The classroom climate is of great importance as it relates to student achievement. Lewin, Lippitt, and White (1939) argue that different forms of leadership affect achievement and behaviour. They conducted a study to support their hypothesis; adult leaders supervised 10-year-old boys as they worked on a group task. The boys were exposed to three different types of leadership; Autocratic-cold and harsh, took control and told the boys what to do, assumed full responsibility, and did not allow the boys to contribute; Democratic- worked with the boys co-operatively, stimulated them about how to complete the task, posed questions, encouraged suggestions; Permissive- hands-off approach, minimal supervision, did not provide structure, suggestions or assistance. Productivity was greatest with the authoritarian and democratic styles. However, under the authoritarian leader the boys were anxious, tense and submissive. The boys preferred the democratic leadership. The atmosphere was group-orientated, cooperative and friendly. Although the study was not conducted in a school; the results have clear classroom implications: permissive leadership creates chaos and an unproductive environment. Authoritarian leadership leads to high

productivity but also frustration and negative group atmosphere. Democratic leadership leads to productivity and a positive atmosphere.

Davis has suggested that one critical variable to this study is the degree of emotional support or warmth provided by the leader (2003). Teachers who provide strong emotional support facilitate teacher-student relationships and student achievement. This concludes that teachers do influence academic success, and is maximized with the use of a democratic leadership style combined with warmth and support.

## **Biological Influences**

While the environment clearly influences academic success, there is also much research investigating how by-products of genetics, such as intelligence can affect success.

The following definition of intelligence comes from “ Mainstream Science on Intelligence”, which was signed by 52 intelligence researchers:

A very general mental capability that, among other things, involves the ability to reason, plan, solve problems, think abstractly, comprehend complex ideas, learn quickly and learn from experience. It is not merely book learning, a narrow academic skill, or test-taking smarts. Rather, it reflects a broader capability for comprehending our surroundings-“ catching on”, “ making sense” of things, or “ figuring out” what to do. (Gottfredson, 1997)

Abisamra (2000) conducted a study, which aimed to determine the relationship between intelligence, both emotional and academic intelligence, and academic achievement. The sample consisted of 500 11th graders from

public and private schools in Alabama. Emotional intelligence was measured using the EQ-i test, academic intelligence was measured using an IQ test, and academic achievement was measured by calculating a mean of all the grades of each student. The quantitative data was analyzed and a relationship was established, being that both emotional and academic intelligence were closely proportional to academic success. One major flaw in this study is the use of an IQ test to measure academic intelligence; IQ tests pose many problems, such as the cultural biases. Therefore, the results may be slightly inaccurate.

From Abisamra's experiment, it can be argued that intelligence, which is from a biological perspective genetically predisposed, plays a substantial role in affecting academic success.

## **Cognitive Influences**

Asides from biological influences based on the medical model, there is research into how cognition plays a role on academic success, in particular, how motivation influences it.

There is much debate over the absolute definition of the term motivation; however for the purpose of this essay one that captures the key elements of motivation will be used:

' Motivation is the process whereby goal-directed activity is instigated and sustained' (Pintrich, Schunk, Meece, 2007 p. 4)

There are two types of motivation; intrinsic and extrinsic. Intrinsic motivation refers to the motivation to engage in an action for its own sake, without

obvious external incentives. Intrinsically motivated students perform tasks because they genuinely enjoy them; they don't rely on explicit or tangible rewards because participating in the task is in itself a reward. They may think that what they are learning is significant or they think that what they are doing is important. Lepper and Hodell (1989) identify four main sources of intrinsic motivation: challenge, curiosity, control, and fantasy. Activities that test the students' skills may be intrinsically motivating (Deci, 1975; Harter, 1978; White, 1959). When goals are of intermediate difficulty and success is not certain, attainment of challenging goals shows learners that they are becoming more competent, which raises self-efficacy and perceived control over outcomes. In turn, learners are eager to set new, challenging goals, maintaining the intrinsic motivation. Intrinsic motivation may also arise from students who are piqued by activities that are surprising or incongruous with existing ideas. Such incongruities motivate students to seek information and resolve the discrepancy. Curious learners who believe that the gap is attainable feel efficacious and motivated to manage the gap and learn (Berlyne, 1960). Students who feel a sense of control over their learning and task participation also may be intrinsically motivated (de Charms, 1968; Deci, 1980). Allowing students choices in activities and a role in establishing rules and procedures promotes perceptions of control. Perceived control can stimulate a sense of self-efficacy for performing well (Schunk, 1995). Finally, intrinsic motivation can be promoted with activities that involve learners in fantasy and make-believe through simulations and games that present them with situations that are not actually present (Lepper & Hodell, 1989). As shown in Figure 1, game like elements can add meaning to what might otherwise be a boring activity.

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Question for the bottom format: Player 1 dribbles ball from end to mid-court and passes ball to Player 2. Player 2 dribbles ball to where Player 3 is and passes it to Player 3, who shoots basket. Down what fraction of the court did the players dribble?

Figure : Fractions are presented in traditional format (top) and game like format (bottom).

Research shows that intrinsic motivation for creative performance suffers when rewards are offered (Eisenberger & Armeli, 1997; Eisenberger, Armeli & Pretz, 1998; Eisenberger & Rhoades, 2001), however Cameron and Pierce (1994) reviewed 96 experimental studies on this topic and found that rewards did not diminish intrinsic motivation. The only negative effect on intrinsic motivation was found when rewards were given simply for working on a task. The differing conclusions may have been due to the criticized conceptual and methodological grounds on Cameron and Pierce's (1994) part (Deci et al., 1999). There are disagreements about how to use procedures to summarize across diverse studies and conceptual concerns such as the definition and measurement of intrinsic and extrinsic motivation (Sansone & Harackiewicz, 2000).

Extrinsic motivation refers to the motivation to engage in an activity in order to attain results such as rewards or teacher praise. Extrinsically motivated students perform tasks only because they believe that participating will result in explicit rewards (money or good grades) or avoidance of punishment.

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In terms of education, Condry & Chamber (1978) criticize those who use rewards (e. g. more free time, stars) to motivate students because such payoffs are typically unrelated to the act of learning itself, and are likely to draw attention away from the benefits of learning. Consequently, many fear that learning will become a way to get rewards, and when these rewards are no longer present, the motivation to learn decreases.

It should also be noted that intrinsic and extrinsic motivation are not on one continuum, intrinsic being the highest and extrinsic the lowest. They should be thought of on separate continuums, for example someone can be both highly intrinsically and extrinsically motivated on a task, and it seems that this would be the most desirable combination (Lepper, Corpus, & Iyengar, 2005).

## **Motivation in Education**

Hence, it is clear that motivation plays a very crucial role in education; it can influence what, when and how we learn (Schunk, 1995).

Dennis, Phinney and Chuateco (2005) conducted a longitudinal study aimed at investigating the ways in which motivational characteristics and environmental social supported contribute to the academic outcomes of college students. The study consisted of 100 college students varying in ethnic backgrounds, SES and motivation. Data concerning student motivation was collected from the participants using surveys taken in the fall and spring of their sophomore year. The surveys were piloted with freshmen. GPAs and data regarding the participants SES were collected from the university records.

Results found that motivation to attend college based on personal interest, intellectual curiosity and the desire to attain a successful career were predictive of college adjustment and commitment. Family expectation motivation, however, was not significantly related to college outcomes.

There are limitations to this study. Most of the data was based on self report measures, which can lead to inaccuracies due to participant dishonesty. The sample was comprised of ethnic minorities; therefore, as is true with any study, the findings can only be interpreted to a certain extent. Generalisations to other ethnic minority colleges or other ethnic groups must be made with caution.

This study suggested that although intrinsic motivation is a reliable predictor of academic success, extrinsic motivation is not a reliable predictor.

Another study suggesting the influence motivation has on academic achievement is that of Busato et al. (1999). The aim of the study was to investigate how intellectual ability, learning style, personality and achievement motivation relate to academic success. Learning style was measured using a questionnaire. The Big Five personality factors test measured personality. The "Prestatie-Motivatie-Test" measured achievement motivation. A series of ability tests measured intellectual ability. Points are allocated to psychology students according to how much work they have completed, so academic success was measured by the amount of points gained at the end of each academic year. In total, 409 students participated and data was gathered in the first week of freshman year through psychological tests. According to the correlational analyses,



achievement motivation and intellectual ability were associated positively with academic success. This study was ecologically valid due to its large sample size and clear measurement of variables.

The two preceding studies have made it clear that while motivation is a key factor in achieving academic success, it must be noted that intrinsic motivation plays a much greater role than extrinsic.

## **Evaluation**

After having completed the research, it has become apparent that there is a variety of influences on academic success ranging from environmental factors to cognitive and biological. The environmental factors were comprised of SES, peer networks, teachers and parenting. Steinberg et al. (1996) suggested that peer networks significantly influence academic achievement. Gottfried, Fleming, and Gottfried (1998) found that a stimulating home environment leads to greater success too. On the other hand, Kruse (1996) concluded that SES had no significant affect on academic success; however his study offered several vital flaws. Kruse cited Yellin & Koetting (1991), who found that SES did, in fact, have an effect on academic success, leaving this factor still questionable. Teacher influences were then investigated. Veldman and Brophy (1974) found that teachers had a strong influence on student success, despite research showing otherwise. This contradictory research was discarded by Veldman and Brophy as weak because of its attempt to analyse the effect of the quality of schools rather than individual teachers on academic success. Overall, environmental factors appeared to have a great effect on academic success.

To moderate the argument intelligence was explored and it was found that both emotional and academic intelligence play an important role in causing academic success (Abisamra, 2000). Unfortunately, the study had flaws concerning the method of measurement for the variables, offering possibly inaccurate results. Nevertheless, it could be concluded that intelligence did have an effect on academic success.

Finally, I went into depth when exploring motivation as a factor. Dennis, Phinney and Chuateco (2005) suggested that although intrinsic motivation is a reliable predictor of academic success, extrinsic motivation is not a reliable predictor. This was supported by Busato et al. (1999), who illustrated that motivation increases success.

Generally, it appeared that environmental factors played the biggest role in affecting success mainly due to the number of categories within the section. However, at a closer glance, it has become apparent that motivation intertwines with many of the discussed factors. For example, concerning peer networks, Sage and Kindermann (1999) claimed that students with higher academic motivation and achievement tended to be members of groups more motivated for academics. High academic motivation and achievement appear hand-in-hand. Furthermore, Dornbusch, Ritter, Liederman, Roberts, & Fraleigh (1987) suggested that parenting affects a child's motivation, leading to academic success. It seems well established amongst psychologists that motivation can lead to academic success.

Not only does motivation intertwine amongst the other factors but it is also a factor itself and the support for it is convincing. For this reason, I think that motivation is the most dominant factor influencing academic success.

It could also be argued that SES influences academic success to a great extent, largely due to the fact that it contains sub-topics within it, such as parenting and peer networks, all of which offer supporting evidence.

## **Conclusion**

It has become clear that environmental factors influence academic success to a large extent, however it is not the most dominant factor; motivation is. The remaining factors must not be discarded though, as they all provide research illustrating them as factors affecting academic success. It is also important to note that the factors can be combined and are not on separate continuums. Someone can have high intelligence but ineffective teachers and can still achieve academically.

Possible further research could explore the possibility to generalize the evidence cross culturally or would the conclusion be different for different cultures.