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Final Term Paper

What are the external factors that impact a student's R-Score?

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Contents

Abstract

For many CEGEP students, R-Score results are at the source of the majority of the stress they experience within school. Countless students spend restless nights studying and revising course material, only to receive grades that they feel do not represent their true potential. That being said, what if R-Scores are more than just the mathematical calculation of our grades in relation to a variety of variables? What if one's R-Score is subject to a multitude of external factors, some of which the student cannot dissociate from, since it relates to matters that are out of their control? Thus, considering that R-Scores themselves can directly determine one's future career and, in consequence, the life one will later live, it is important to wonder whether R-Scores fairly represent students and offers equal opportunity to peers. Our research question: What are the external factors that impact R-Score results amongst Montreal CEGEP students? It is believed that the results of our conducted survey will demonstrate the abundance of external factors that can influence Montreal CÉGEP students' R-Score results. Specifically, familial situation, extracurricular activities/jobs, special needs/learning disabilities and self-perception will have an affect on the R-Score of the participants. This research was conducted with a survey format, where the population, being the whole of Collegial International Sainte-Anne (2019-2020) and a sample population being the 157 participants of our survey.

Keywords: Familial Situation, Scholar Background, Envisioning of Future Career, Self-Perception, Social Class, Current Employment, Relationship Status, Perception of School, Practicing of Leisure Sports, Learning Disabilities & R-Score results.

Introduction

"The future belongs to those who believe in the beauty of their dreams."

- Eleanor Roosevelt

This quote from Eleanor Roosevelt heavily inspired this research by asking ourselves, do our dreams and desires push us to succeed? Are brains the only factor to one's success? Can an individual's knowledge be defined by a number that only takes scholar abilities into consideration? Intelligence as defined by the Webster dictionary is: *"the ability to learn or understand or to deal with new or trying situations."* Thus, how can a number – the R-Score – correctly reflect one's intelligence? In other western countries, such as the United States, the majority of universities require that applicants submit an essay when submitting their academic applications. This permits the individual to share who they are beyond the numbers that define them, thus humanizing the educational system, as students are more than just test results. The research paper will be studying whether R-Scores can be perceived as a dependant variable in relation to the aforementioned external factors. Hence our research question: What are the external factors that impact R-Score results amongst Montreal CEGEP students? The research believes that the results of our conducted survey will demonstrate the abundance of external factors that can influence Montreal CÉGEP students' R-Score results. The primary ones may be one's familial situation, extracurricular activities/jobs, special needs/learning disabilities and self-perception. Familial situations play a great impact, because if living in a chaotic household with many siblings and/or fighting parents, concentration may come sparsely. Extracurricular activities and jobs can be very time-consuming in a student's life, yet are necessary for financial purposes or, in some cases, leisure. Learning disabilities play a role as well in how a student will perform in comparison to another who does not have any. The fact that self-esteem issues are ever more present in our generation creates a wave of doubt, overconfidence, or discouragement amongst students. This may be reinforced by the Dunning-Kruger effect, which consists of a cognitive bias in which people of lower intellect are more likely to see themselves as overly competent, whilst the opposite occurs amongst individuals of higher intellect that rather see themselves as inferior to the average.

Literature Review

Extracurricular Activity

In Stinebrickner & Stinebrickner (2003), the impact of extracurricular activity on academic performance is described as difficult to determine, as the source of one's decision to go to work, for example, is endogenous. This means that one's own motivation to participate in extracurricular activities stems from internal causes, as the amorphous state of such determination becomes difficult to quantify. Furthermore, Silliker & Quirk (1997) concur with the above-mentioned article, as they emphasize the difficulty of measuring Extracurricular Activity Participation (EAP) and its effects. Moreover, Silliker & Quirk (1997) further stress the lack of literature in matters pertaining to female EAP, as past research has only studied its effects on males. Both Stinebrickner & Stinebrickner (2003) and Silliker & Quirk (1997) agree that research pertaining to EAP is fundamental to the building of egalitarian educational systems worldwide, as it provides empirical evidence on what school districts can do to better the motivation of students. Stinebrickner & Stinebrickner (2003) even suggest that if a negative correlation is found between both variables, governments should consider regulating the number of hours the youth can work. The researchers also outline another key issue of the impact of extracurricular activities on education: wealth inequality. Once more, a student may be subject to a form of social determinism, as the reason for their partaking in work experience may be fueled by a need to support one's own family or even to pay for one's own tuition.

Moreover, EAP is considered to be a relatively vague term, as Mahoney, Cairns & Farmer (2003) remark that extracurricular activities can vary from athletics to academic-curriculum-related activities. Work may also be considered an extracurricular activity, as it consists of an activity performed outside of one's regular school curriculum. Larson (2000) also suggests that EAP promotes the development of initiative, which Mahoney, Cairns & Farmer (2003) define as the "setting of personal goals, [the] evaluating [of] what is needed to attain goals, and then actively acquiring the abilities and resources to fulfill [such] goals". However, the researcher claims that such initiative may only transpire if the act of participating in such activities is voluntary.

That being said, Carney, McNeish & McColl (2005) determined that working during the school semester does have a harmful impact on grade performance, as they also suggest that work has a detrimental effect on both the mental and physical health of students. Stinebrickner &

Stinebrickner (2003) corroborate the evidence provided by Carney, McNeish & McColl (2005), as they also specify that increasing the number of hours a student works per week lowers such student's semester grade point average by .162. Such effects are then amplified by one's race, as Black students were found to be more heavily impacted by the effects of work on academic performance. This links back to the earlier concept of endogeneity, as the internal factors that impact one's decisions to go to work can amplify or mitigate the effects of work on academic performance.

However, when rather studying the impacts of sports EAP, Silliker & Quirk (1997) determine that such extracurricular activities positively impact a student's academic performance, as such claims were supported by the improvement in the academic performance of male soccer players during the season. This also validates the evidence provided by Laughlin (1978), who found that high-school wrestlers also knew heightened academic performance during their sports season. That being said, when studying the impact of extracurricular activities, Stinebrickner & Stinebrickner (2003) notice that a variety of both internal and external factors can come into play. As such, when studying the impact of EAP on academic performance, other factors should be reined in to either confirm or infirm correlational results.

Social Class

Broomhall & Johnson (1994) remark that a new sense of educational achievement has developed amongst the US population, as communities that once depended on rural industries have seen a significantly reduced demand for rural labour and have had their economic bases eroded by the change spurred by technology. These individuals then value the opportunities offered to them through education, but often struggle to succeed academically due to their socio-economic status. Such evidence is corroborated by Broomhall (1995), as he suggests that academics performance in economically depressed areas may sometimes be far below the national average performance levels. Broomhall & Johnson (1994) then provide a graphic organizer to demonstrate all that may have an impact on the importance a student ascribes to Education.

Through **Figure 2**, Broomhall & Johnson (1994) suggest that a student's determination in terms of their academics is in part determined by the expectations and opportunities offered within their socio-economic context, and by extension, their community. Similarly, Cooper, Baron &

Lowe (1975) reinforced Broomhall & Johnson (1994) claims, as they found that racial stereotypes founded on socioeconomics impacted the academic performance of students. The researchers suggest that low-income people of colour were perceived to have an increased tendency towards failure, as people around them also reinforce such stereotypes and expect the black lower-class student to perform poorly. It is then hypothesized that students internalize such expectations, or lack thereof which then translates to a lack of motivation and a dip in academic performance.

Portes & Macleod (1996) also suggest that the integration a minority group receives within a community affects the grade performance of students from such minorities. In inner-city schools, immigrant students are seen to excel academically, as the opposite effect is observed in schools outside of the central city. The researchers suggest that "success… of the second-generation youths emerged as almost a self-fulfilling prophecy of their parent's collective attitudes and plans for the future". As one Cuban mother put it: "Cubans are not used to failure… [as they] have a sense of duty towards their children, [and] a work ethic". Values thus bestowed upon younger generation immigrants who have integrated into their communities begets academic excellence and encourages such students to perform. However, Portes & Macleod (1996) notice that poverty powerlessness within ethnic communities tends to thwart the values once so dearly cherished amongst the minority group.

However, Stephens, Hamedani & Destin (2014) suggest that first-generation students are still negatively affected by their socioeconomic status, as it was found that college students with parents that do not have 4-year degrees earn lower grades whilst facing more obstacles to success than students with at least one parent that has a 4-year degree. This impact will further be discussed below.

Familial Situation

Similarly to the previous chapter on social class, Okioga (2013) suggests that the socio-economic status of parents is narrowly linked to the academic performance of their children. The researcher notices an important difference in the methods parents use in child rearing of both middle-income and low-income families. Okioga (2013) explains that middle-class parents assume an active role in the early education of their children, thus spurring a sense of entitlement within such children. On the other hand, lower-income families do not have the necessary resources to encourage such development, thus creating a sense of constraint within their children. It is important to note however that Ajila & Olutola (2000) find evidence that contradicts that which is

provided by Okioga (2013), as the researchers notice "no significant relationship between parent's socioeconomic status and university students' academic performance."

As for the relationship between parents, Cherian (1989) reported that "the academic achievement of children whose parents were divorced or separated was significantly lower than that of the children whose parents were neither divorced nor separated." Such evidence is corroborated by Bisnaire, Firestone & Rynard (1990), who also suggest the existence of a positive correlation between the time spent with both parents following separation and the academic performance of the child. However, Elliott & Richards (1991) note that the factors associated with divorce in previous studies may have already impacted children prior to the divorce. As such, children who live in dysfunctional households with married parents may also have their academic performance impacted negatively. Bernardi & Radl (2014) also suggest that the impact divorce's impact on the academic achievement of children can reverberate into the long term, as the probability of students with divorced parents to attend university is lower than that of peers from "intact families".

Peterson & Peterson (1978) also indicate that family size does not considerably impact the grades of students. Iarmosh (2013) corroborate the evidence provided by Peterson & Peterson (1978), as they argue that the widespread belief that the increase in family size is negatively correlated with a reduction in the time parents spend with their children is untrue. As such, the researchers notice no significant change in the time a parent spends with its offspring when family size increases, as they further suggest that having more siblings may also socially stimulate the child in question.

Overall Motivation

Hen & Goroshit (2014) suggest that learning disabilities (LD) have an indirect impact on a student's emotional intelligence. Deniz, Tras & Adygan (2009) narrowly link emotional intelligence to academic procrastination, as it affects a student's ability to cope with stress and lowers their general adaptability to situations. As such, Bair, Scott, Dearing & Hamill (2009) argue that, since students with LDs are "well acquainted with academic difficulty and failure", they develop maladaptive behaviours to factors such as stress, as they acquire "learned helplessness". Sparks & Lovett (2009) then enforce these claims, as they report that LD students often experience a lack of academic self-confidence and are exceptionally self-critical when compared to non-LD

students. Moreover, Hughes & McGrath (1990) note that although a multitude of factors that result from LD impact academic performance, LD is not linked with the intelligence of students. Actually, the researchers contradict evidence provided above, as they claim that students with LD generally score equal to or above class averages. It is important to note however that majority of research does seem to indicate that LD do in fact negatively impact academic performance, as Baird, Dearing, Hamill & Scott (2009) indicate that LD students are more likely to possess low academic self-efficacy, that LD students must generally put more efforts to generate similar results than that of non-LD students. All such topics often relate to the issue of self-perception in the academic field. Contrary to Sparks & Lovett's (2009) research on self-confidence, Stringer & Heath (2008) concludes that "self-perception of academic competence cannot play a simple, causal role in academic achievement." According to this research, self-perception cannot be directly linked to academic performance, although it may be an indirect influence.

In a study conducted by Eliasson, Eliasson, Eliasson & King (2002), research suggested that there was no significant correlation between sleep time and academic performance. Such research differs from that of Wolson & Carskadon (1998) which rather noticed that struggling high school students reported sleeping 25 minutes less than their better-performing peers. **Figure 3** demonstrates the non-correlation aspect of Eliasson, Eliasson, Eliasson & King's (2002) research on sleep and academic performance.

Operational Definitions

R-Score

The R-score, or CRC (Cote de rendement Collegial), is used by the admissions offices of Quebec universities to benchmark and rank CEGEP students. The R-score is premised on the notion that a grade of 80 given by one professor in a course is not the same as a grade given by another professor in another course or in a different section of the same course. The purpose of the R-Score is to create a level playing field, so to speak, so that it is able to distinguish between grades that a certain student has earned in all of his or her courses and other grades that such a student has earned in all of his or her courses. Any grade between 0 and 100 generates an R score. The R score is the sum of two values. The first index, known as the Z-score, reflects each student's

classification within a course or set of courses, with the highest performing students receiving a higher Z-score. The second component, known as the ISG, adjusts the Z-score by adding a fixed number based on the average achievement of all Quebec students in the division or group of divisions in their compulsory Secondary 4 and 5 courses. A positive ISG rate is applied to a course or group of courses in which these students performed well; an unfavourable ISG rate is applied to a course or group of courses in which these students performed poorly. Within a given course or group of courses, each student will receive the same ISG. A good R-score would differ from program to program, as a comparative measure, 26 R-Score is equivalent to approximately 75% average, thus anything above 26 is considered above average.

CEGEP

CEGEP stands for Collège d'enseignement général et professionnel. In Quebec, a CEGEP is the equivalent of a community college. CEGEPs provide two-year or more of general education programs that lead to a university degree, or three-year technical programs that provide preparation for the job market.

External Factors

External factors are influences, circumstances or situations that vary in the degree by which they can be controlled. This affects the results and decisions made by individuals. There are many external factors that can directly impact an individual's ability to succeed.

Methodology

Methods

While writing our questionnaire, our goal being to concretely determine the external factors that may result in diminishing ones R-Score. Therefore, the research had to establish what may differentiate one individual from another life for us to establish recurring themes in our survey, to highlight them. What do college kids do when they are not in school? Spend time at home with their families, work and do extra-curriculars. Like one's judgement under the influence of drugs or alcohol can differ depending on the circumstances; the effects of one's upbringing/current situation influences a person's grades. The research questions the R-Scores credibility, is it fair to compare a student who has 90's in all their classes in a Social Science program, obtains a 29 R-

Score, and has done so with: learning disabilities, a 20h part-time job, a teammate in a city soccer team, and a member of a 6-person immigrant household. On the other hand, a student in Health Sciences who comes from a wealthier family, obtains a 34 R-Score, yet dedicates most of their time to studying, because they do not need to work nor participate in a sports team. The R-Score does create a neutral view of the student but is it fair to discredit all the circumstance a student had to overcome to achieve what they have achieved. Would employers rate employees a number for future jobs instead of having future employers look at one's CV?

Categorical Data

The research will categorically divide its data into four separate categories and it's sub-categories to correctly analyse each external factor to its fullest potential.

1. Overall Motivation
    a. Learning Disabilities
    b. Self-Perceptions
    c. Average Hours of Sleep
    d. Appreciation of School
    e. Future Career
    f. Higher Education
2. Social Class
    a. Immigrant Background
    b. Schooling Background
    c. Working for Self-Sufficiency
3. Extracurricular activities
    a. Sports
    b. Work
    c. Endogeneity
    d. Romantic Relationship
4. Familial Situation
    a. People per Household
    b. Romantic Relationship of Parents

Data Collection

An online survey was conducted, through the online platform Typeform. Respondents were given access to the website where they were able to answer the questions. This online survey was distributed over our social media accounts on the platforms: Facebook, Instagram, and Snapchat. Our reasoning for said decision is that CEGEP students are young; therefore, the majority of them are in touch with technology. The research also wish to be inclusive in order to collect the most results possible.

Sample Population:

The research studied CEGEP students of the Greater Montreal metropolitan area. It hoped to collect the results of a minimum of 60 students in total, of which half will be private school students, and half will be public school students. The survey resulted with a total of 161 participants, 157 of which were reliable participants. It aspired for the results to be proportional: there cannot be more private school students than public school students (or vice-versa), as it can warp the results and create misleading data. The research hoped to find a diverse sample of students representing different CEGEPs, ethnicities, social classes, and familial situations, to name a few. The region of Greater Montreal is a very diverse and heterogeneous territory, and wish for our results to reflect that.

The survey consisted of 30 qualitative questions under different formats like: multiple choice, fill in the blank, a ranking, and yes or no questions. The questions of the survey can be found in the Appendix under **Figure 1**. The average response time of the survey took 4:08 minutes.

Population

With the gratuity of the Collegial International Sainte-Anne school board, the research was able to obtain the R-Scores of the current 2020-2021 cohort and the previous 2019-2020 cohorts. Since the research has the R-Scores of every student at the College, the study is considering the entirety as a population to compare the sample population's reliability and its accuracy.

Limitations

Some limitations of our method of gathering data are that it does not take students who do not use social media into account and will possibly be limited to our inner circles. Because of this, there is the possibility of ignoring a portion of students who can prove to be useful in diversifying our results. The study also did not include 2 popular CEGEPS within our options, thus students from the following known colleges: CEGEP de Terrebonne and Lionel-Groulx. Consequently, our survey results for question 1 found in **Figure 1**, demonstrate 13% (21 individuals) of our respondents are from "Other" colleges. It may also influence the number of participants answers, not seeing your own college does not entice to complete a survey. The research is also limited in time and resources, being that this was done in a short time period in a collegial level class. It is also important to emphasize that the results shown in this study were conducted in the midst of a global pandemic, thus results may vary of differ greatly from previous years, considering that teachers and colleges have alleviated evaluation structure.

Results

Presentation of Statistics

The results that were extracted from the survey were plentiful and diverse – the questionnaire received answers from 162 individuals, of which 157 were used in the calculations regarding the R-Score itself. These five variables were excluded from the study, as they were perceived to skew the results because of their outlying or doubtful nature. For example, one participant had claimed to have an R-Score of 44, other participants' answers were improbable to the point of being unrealistic, and other participants did not even submit an R-Score. In the end, an average R-Score of 31.05 was calculated alongside a standard deviation of 3.48, a median of 31.29, and a mode of 28.90. Subsequently, the R-Scores were divided under the four categories as previously mentioned, with the intent of finding causalities and proving the hypothesis.

Overall Motivation

Learning Disabilities

From the collected data, it was apparent that learning disabilities had a negative impact on the R-Score. As seen in **Figure 6**, the average R-Score of students with a learning disability

compared to the average R-Score of those without one is much lower. The 30 individuals with a learning disability had an average R-Score of 29.82 alongside a standard deviation of 3.45, compared to 31.33 exhibited by the 127 respondents without a diagnosed learning disability with a standard deviation of 3.38. This marks a 1.51-point difference between the R-Score averages.

Self-perception

A positive correlation was found from the results of self-perception on the R-Score. Respondents were tasked to rate their own perception of their academic performance in comparison to the average student, on a scale of 0 to 10. Afterwards, the answers were divided into three separate groups: Negative Self-Perception (0-5), Positive Self-Perception (6-8) and Super Positive Self-Perception (9-10). 12 respondents were placed in the first group, 102 were placed in the second group, and 43 were placed in the third group. The positive correlation can be observed in **Figure 7**, where the first group has an average R-Score of 27.67, the second group has an average R-Score of 31.32, and the third group has an average R-Score of 33.30. The standard deviations the three groups were 2.79, 3.18, and 3.07 respectively.

Average hours of sleep

Inconclusive results were found from the correlation between the amount of hours of sleep and its subsequent impact on the R-Score. 49 respondents reported sleeping fewer hours than the average, being 7 hours every night, whereas 111 reported sleeping for 7 hours every night. Judging from **Figure 8**, a positive correlation could be deduced at a quick glance, but the 0.14-point difference between the averages of 30.94 and 31.08 was too minuscule to be further considered, thus leading to inconclusive impact. The standard deviations were 3.54 and 3.51 respectively.

Appreciation of school & future plans

Students' appreciation of school, their desire to continue their studies in higher education and their decisiveness on their future careers were proved to have a heavily positive impact on the R-Score. Respondents who were more sure of themselves resulted in having better R-Scores.

For appreciation of school, respondents were tasked to rate it on a scale of 0 to 10. Afterwards, the answers were divided in three separate groups: Below Appreciation (0-5), Above Appreciation (6-8), and Super Appreciation (9-10). 33 were placed in the first group, 96 were

placed in the second group, and 26 were placed in the third group. As seen in **Figure 9**, those in the first group had an average R-Score of 29.64 with a standard deviation of 3.40, those in the second group had an average R-Score of 31.40 with a standard deviation of 3.41, and those in the third group had an average R-Score of 33.24 with a standard deviation of 2.83.

For their life projects, participants were asked to answer two yes/no questions on whether or not they wanted to continue their higher education studies and if they had an idea of what occupation they would like to hold in the future. In **Figure 10**, the impact of wanting to continue one's studies in higher education is apparent: the four respondents who voted "No" had an average R-Score of 29.16 with a standard deviation of 5.41, whereas the 152 respondents who voted "Yes" had an average R-Score of 31.08 with a standard deviation of 3.43. As seen in **Figure 11**, the group who had already envisioned a future career, comprising of 92 participants, had an average R-Score of 31.26 with a standard deviation of 3.11, whereas the group who did not, comprising of 65 participants, had an average R-Score of 30.72 with a standard deviation of 3.94.

Familial Situation

Household size

Respondents were asked to state how many people, including themselves, lived in their household. 11 participants lived in a household of 2, 46 participants lived in a household of 3, 64 participants lived in a household of 4, 20 participants lived in a household of 5, 6 participants lived in a household of 6, and 9 lived in a household of 7.

As seen in **Figure 12**, the average R-Score was: 31.54 with a standard deviation of 4.00 for households of 2, 31.25 with a standard deviation of 3.74 for households of 3, 30.89 with a standard deviation of 3.40 for households of 4, 31.06 with a standard deviation of 3.08 for households of 5, 31.53 with a standard deviation of 2.91 for households of 6, and 29.56 with a standard deviation of 3.98 for households of 7. The data does not seem to contain enough information for a positive correlation to be made. Thus, the results are inconclusive.

Romantic relationship of parents

Participants were told to describe the state of their parents' romantic relationship from a set of answers. As shown in **Figure 13**, 106 participants stated that their parents were still together, whether cohabitating or married, 39 stated that their parents were divorced, and 11 stated that they

lived with a single parent. As a result, the average R-Score for individuals with married parents was 31.11 with a standard deviation of 3.35, 31.00 with a standard deviation of 3.75 for individuals with divorced parents, and 30.46 with a standard deviation of 4.06 for individuals with a single parent.

Social Class

Immigrant Background

When participants were asked if their parents or grandparents immigrated to Canada, 77 of the 156 answers to the question answered "yes." The average R-Score out of these 77 individuals was 31.27 with a standard deviation of 3.57, whereas the average R-Score of non-immigrants was 30.81 with standard deviation of 3.34 – see **Table 14**. A positive correlation was deduced from an immigrant background's effect on the R-Score.

Schooling Background

123 participants went to a private school for their secondary education, whereas 22 went to public school, and 12 went to an international school. The R-Score average for private school students was 30.89 with a standard deviation of 3.58, whereas public school students had an average R-Score of 31.20 with a standard deviation of 2.89 and international students had an average R-Score of 32.06 with a standard deviation of 3.57.

Working for Self-Sufficiency

80 respondents out of 157 said that they have a job. Of those 80 individuals who work, 61 said that they work but not for themselves, whereas 19 stated that they work for self-sufficiency. Furthermore, people who work for non-personal reasons have an average R-Score of 30.81 with a standard deviation of 3.51, whereas people who work for self-sufficiency have an average R-Score of 30.45 with a standard deviation of 3.32.

Extracurricular activities

Sports

91 participants stated that they practice sports, whereas 56 stated that they do not. As a result, a positive impact on the R-Score is observed: people who practice sports have an average

R-Score of 31.39 with a standard deviation of 3.46, whereas people who do not practice sports have an average R-Score of 30.53 with a standard deviation of 3.47 – see **Figure 17**.

Work

80 respondents said that they have a job, and 77 said that they do not have a job. As seen in **Figure 15**, working has a negative impact on one's R-Score: the average R-Score of a person who does not work is 31.35 with a standard deviation of 3.52, whereas it lowers to 30.73 with a standard deviation of 3.44 for someone who does.

Romantic Relationship

59 participants stated that they were currently in a romantic relationship, whereas 97 stated that they were not. As shown in **Figure 18**, romantic relationships have a positive impact on the R-Score: people in a relationship have an average R-Score of 31.58 with a standard deviation of 3.65 compared to the average R-Score of 30.70 with a standard deviation of 3.35 of those not in a relationship.

Analysis & interpretation

Overall Motivation

Difficulty and perception

Learning disabilities inherently increase students' difficulties in the field of academics. As such, a more difficult challenge requires more emotional intelligence in order to cope with the stress that stems from said challenge, being academic studies. Consequently, Deniz, Tras & Adygan's (2009) link between emotional intelligence and academic procrastination further give context to this. Because of their heightened difficulty with task, students with learning disabilities must put in more effort in order to obtain the same results as a person without a learning disability. As a result of that, they become accustomed to their failures and develop a sense of "learned helplessness" (Bair, Scott, Dearing & Hamill, 2009). That "learned helplessness" leads to a lack of self-confidence, which in turn leads to lower academic performance, as a link between negative self-perception and lower academic marks has also been revealed in this research.

It is also worth noting that the category of self-perception may suffer from cognitive bias, more specifically illusory superiority, where a person overestimates their performance in relation to the same performance of other people. As a result, around 92% of the study's participants rated themselves over the average, being five on a scale of 0 to 10. Nonetheless, positive self-perception

cannot be the only direct factor for academic performance – it may only be an indirect influence towards it (Stringer & Heath, 2008).

Average hours of sleep

It was hypothesized that sleep would have had a significant impact on student's R-Scores. Surprisingly enough, the correlation graph presented in **Figure 4** infirms this. Sleep does not seem to impact academic performance, as every individual holds a varying degree of sleep deprivation, similarly to alcohol tolerance. Furthermore, the results from this research are very similar to the ones from Eliasson, Eliasson, Eliasson & King's (2002) research (as seen in **Figure 3**), further confirming the invalidation of the hypothesis in this aspect.

Decisiveness and appreciation

It comes off as no surprise that individuals who are sure of what they want will succeed in life. It is even stated by Eleanor Roosevelt: "The future belongs to those who believe in the beauty of their dreams." If such a statement is true, then it is also worth mentioning that clarity of those dreams are just as important, if not more important. Von Stumm, Hell & Chamorro-Premuzic (2011) argue that intellectual curiosity is very important towards academic performance, and that general intelligence is the bare minimum – natural talent can only take someone so far.

Familial Situation

Romantic relationship of parents

Children of a divorced or separated couple inherently suffer more than those of a married or cohabitating couple – why? Bisnaire, Firestone & Rynard (1990) argue the existence of a positive correlation between the time that a parent spends with their child and that child's academic performance. Nieuwenhuis & Maldonando's (2018) findings further develop this link by stating that a stable parent-child relationship leads to more parental resources bestowed upon the child, such as financial, cultural, and social resources. As such, a child with the odds in their favour are more opportune to higher academic performance.

Household size

The size of a household does not considerably impact the grades of students (Peterson & Peterson, 1978). A common assumption is to believe that a household with more inhabitants leads to more distractions and less attention from parental figures, thus a negative correlation, but that is false. Iarmosh (2013) argues that a large family does not inherently lead to their children's lower academic performance. Rather, they state that, from their research, parents do not necessarily spend less time with their children as family size grows. Furthermore, a child with more siblings may be more stimulated from the interactions.

Social Class

Immigrant Background

The key findings relating towards participants who answered yes to question 20 of the survey, found as Figure 1 in the appendix, were not surprising and supported the original hypothesis of the research. The results from the data found in **Figure 14** support the findings from the Journal *The Future of Children*, disclosing that children of first, second, third generation immigrants obtain higher grades of postsecondary education. The research from Baum & Flores highlights the fact that the external factors such as race and socioeconomic status plays a huge role on the results in higher education. (Baum, S., & Flores, S., 2011) Considering the factor that the majority of the participants who responded to the survey come from a higher socioeconomic background, the results may vary from past literature. Nonetheless, the factor that those from immigrant backgrounds still demonstrate higher R-Score results than those who are not. What was surprising is the diversity of ethnic groups demonstrated within the gathered participants. Montreal, according to Statistics Canada, immigrants consist of 23.4% of the population. (*This presentation on Ethnocultural Diversity and Inclusion in Canada shows an overview of the evolution of ethnic, cultural, religious and linguistic diversity and its measurement in Canada, with a focus on one of the country's largest metropolitan areas: Montréal*, 2019) The research results show the double of the statistic present by Statistics Canada at 48.4%, 78 out of our 157 participants. The sample did not demonstrate any specific ethnic group who performs better than another. As stated previously, a limitation to the study that could hinder the result would be the lack of socioeconomic diversity in the sample group, in comparison to the reality of college students throughout Montreal.

Schooling Background

While conducting the research, the results show that International Schooling has the highest R-Score within the three types of schooling offered in a high school context in Quebec. Second highest being Public Schooling and lastly Private School. Which came to a great surprise considering the hypothesis of Private Schooling being the ones with higher R-Scores. It is important to acknowledge that the sample size for International (12) and Public (23) are significantly lower than the Private School Education (123) – refer to **Figure 16**. Hence the results may be disproportionate, explain the drastic differences in R-Scores between schooling backgrounds. Thus, the results have been deemed inconclusive for the sake of accuracy and reliability. As stated in Considine & Zappala (2002) research, the type of school a student attends have a direct impact on their educational outcome. The authors state "Students from independent private schools are also more likely to achieve higher end of school scores." (Considine & Zappala, 2002) Thus, the results obtain contradict this study, but still remain inconclusive considering the sample sizes are not proportionate to one another.

Working for Self-Sufficiency

As previously stated throughout the research, those at a socioeconomic disadvantage are less likely to obtain high results in a educational setting. Thus, out of the 157 participants, 18 of which work out of self-sufficient purposes had approximately 0.4 R-Score difference from others who either worked for other reasons and those who do not work at all, as seen in **Figure 15**. Considine & Zappala (2002) mention in their research, the factors that may put a student at a disadvantage in a educational context because of their socioeconomic tendency. They claim that these individuals have lower retention rates, because of the likelihood of skipping classes or dedicated study hours to work. Which impacts one's grade whether they like it or not. (Considine & Zappala, 2002) It came no surprise seeing said results in the research, but it was suspected of the R-Score difference to be slightly higher between the two samples. Again, considering our participants come from fairly high socioeconomic groups, this may hay limited to what the true R-Score difference would be if looking at more diverse socioeconomic groups.

Extracurricular activities

Sports

The evidence provided through the conducted research corroborates with Silliker & Quirk's (1997) research as data suggests that sports positively impact R-Scores. This may relate to the concept of initiative developed in the review of literature, as sports may spur a sense of ambition and encourages a certain work ethic within the individual. Moreover, as collaborative learning has increased in the educational field in recent years according to Laal & Laal (2012), enrolling children in team sports may also encourage educational growth, as the student is, at an early age, learning to collaborate with others towards reaching a common goal. Considering past literature's position on sport's positive correlation to academic performance, such data was to be expected and further confirms the reliability of results. The fact that participants who did practice sports were reported to have a higher R-Score (31.4) than non-sport practicing participants (30.5) is thus heavily supported by past literature. These conclusions were drawn from data found in **Figure 17** of the appendix.

Work

Whilst interpreting the results provided by the conducted research, it is clear that Stinebrickner & Stinebrickner's (2003) endogenous approach to the impacts of work were correct. Participants who claimed to work for reasons of self-sufficiency scored the lowest R-Scores of the given sample (30.5). Moreover, participants that did not work scored higher (31.4) than participants that did work (30.4), even when the endogenous motivation of self-sufficiency was removed from the working sample. As such, the data indicates that work has a negative impact on R-Scores, especially when the reasons for work pertain to self-providing, thus alluding to the issue of social class' impact on academic performance. Results were not surprising, as past literature supports such results and were then to be expected. However, it is important to note that the social desirability bias issue may have influenced the given results, as participants may have been reluctant to share information on their socioeconomic situation and may have tweaked their answers to conform with the standards of wealth imposed by western societies. These conclusions were drawn from data found in **Figure 15** of the appendix.

Relationships

When conducting a review of literature, no conclusive research was conducted as to the effects of romantic relationships on the academic performance of students. That being said, data provided through the present research has indicated that relationships positively impact R-Scores, as participants who reported being in a relationship scored higher (31.6) than participants who were not in a relationship (30.7). Such data then infirms the original hypothesis of the paper, as the time-consuming nature of relationships were predicted to negatively impact academic performance. It may be that romantic relationships provide a support system similar to that offered by family, as the student can rely on their significant other emotionally. Such inferences are then reinforced by research conducted by Kawamichi (2016), as the researcher suggests that relationships are linked to a heightening of emotional well-being. Moreover, romantic relationships may also spur initiative within the student, as the individual envisions not only a future career, but also a future life. However, relationships are ever so complicated, and one universalized truth about the impacts of relationships on academic performance would not justifiably represent reality. Also, the lack of past literature in terms of such impact also creates caution as to the reliability of such results. These conclusions were drawn from data found in **Figure 18** of the appendix.

Conclusion

Conclusively, when asking the question "what are the external factors that impact a student's R- Score?" a multitude of factors appeared. Whether it be overall motivation, social class, familial situation or extracurricular activities, it is clear that students are subject to a variety of external influences as to the excellency of their academic performance. Most of the data that arose from the conducted research corroborated evidence provided from past-literature, as certain results were also unexpected and thus in contradiction of certain parts of the paper's original hypothesis. Relationship's impact on academic performance was at first bewildering, but, as further research was conducted as to why this may be, the results seemed to be correct.

That being said, the educational system can be perceived as advantageous to some, as it can also be detrimental to others in ways that are both unfair and out of the student's control. Schools must learn how to adapt to the determinisms that students face in education and must further cater to those who are disfavoured as way of making the school system more egalitarian. As such, research such as this paper is fundamental to the creation of a better educational system, as it outlines the main factors that may disfavour a student; factors that schools can take into

account and counter. Rousseau would argue that the only way to free oneself from society's deterministic nature is by knowing what determines them. In Quebec, no such research has been conducted in a way that is sufficiently extensive to determine what exactly impacts the Quebec student. This paper then aids in identifying these determinisms, in hopes of bettering Quebec's catering to disadvantaged students.

As for future research, it would be interesting to dive deeper into the impacts of romantic relationships on academic performance as no such research seems to have been conducted. Moreover, a more regional approach of the external factors that may impact academic performance is recommended, as current literature is largely based in the United-States. Being that Quebec's culture is undeniably different from that of its southern neighbour, a more in-depth approach as to the determinisms that impact the education of Quebecers should be conducted.

Appendix

Figure 1

Survey Questions

1. What CEGEP are you currently attending?
2. What CEGEP program are you currently enrolled in?
3. What type of education did you receive for the majority of High-School?
4. In general, how would you rate your appreciation for school?
5. Have you ever been professionally diagnosed with a learning disability?
6. Which learning disability have you been professionally diagnosed with?
7. What language are you most comfortable with when writing and speaking?
8. What language are the majority of your classes offered in?
9. How many hours per week do you dedicate to homework?
10. How do you rate your academic abilities?
11. Do you work during the school semester?
12. How many hours do you work per week on average?
13. What is the main reason for your current employment status?
14. Do you practice any sports?
15. On average, how many hours per week do you dedicate to your sport?
16. On average, how many hours do you sleep per night during a school week?
17. Including yourself, how many people currently live in your household?
18. What is the relationship between your parents?
19. Do you feel that your parents pressure you into performing well academically?
20. Did your parents or grandparents immigrate to Canada ?
21. From what country or countries has your family immigrated from?
22. Are you currently in a romantic relationship?
23. For what period of time have you been in this relationship for?
24. Were you in this relationship before you started the fall 2020 semester of CEGEP?
25. Does your significant other attend the same CEGEP as you?

26. Is your significant other in the same program as you?
27. Do you plan on continuing your studies once you have completed CEGEP?
28. Do you have a good idea of what career you want to later practice?
29. What external factors do you think have an impact on your R-Score?
30. What is your current R-Score, including decimals?

Figure 2

The Socio-Economic Implications of Educational Performance

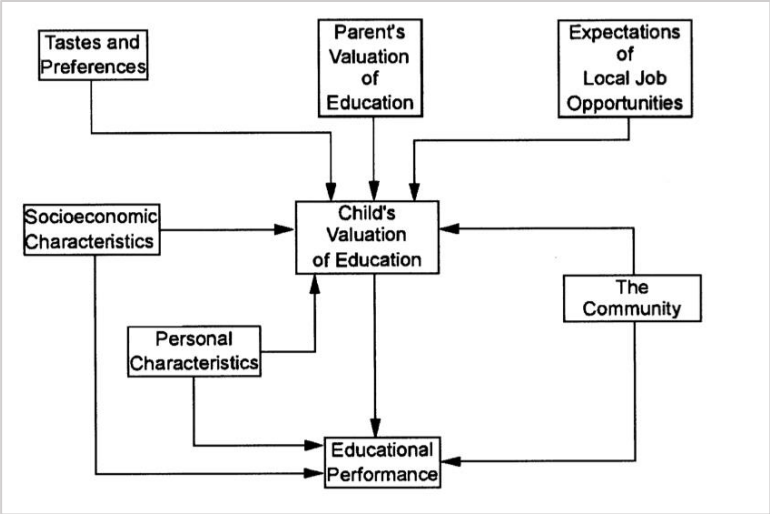


Figure 3

Sleep's Impact on Grade Point Averages

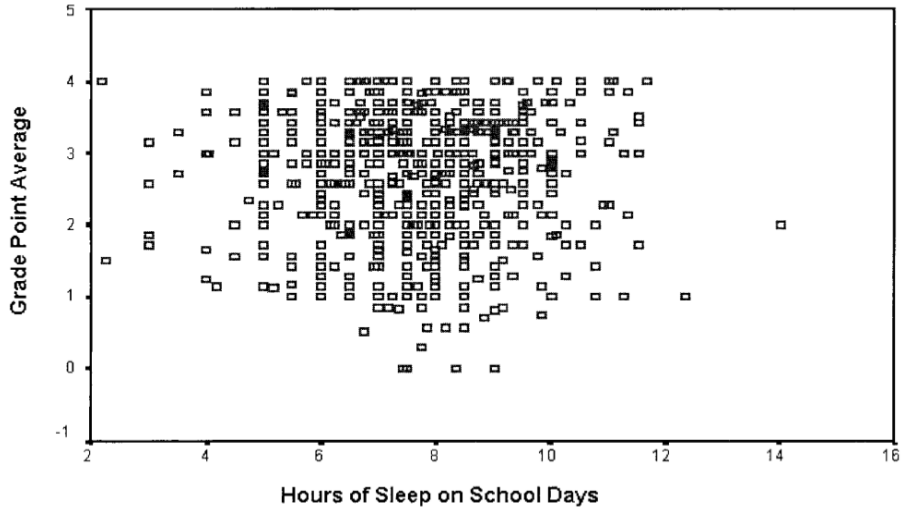


Figure 4

Scatterplot displaying the relation between Hours of Sleep & R-Score

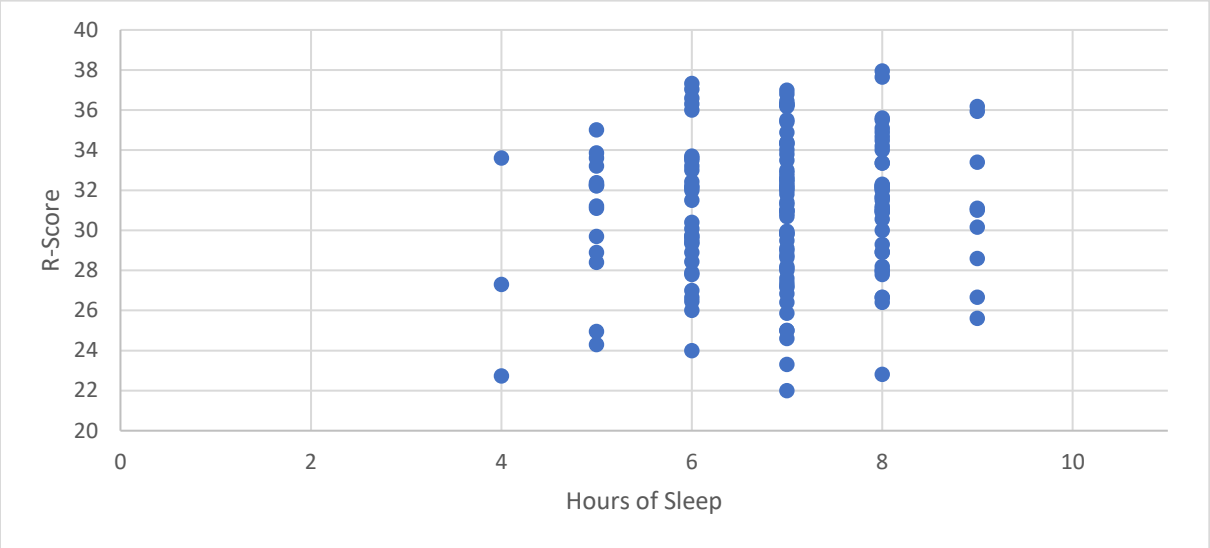


Figure 5

Distribution of CiSA R-Scores, All Programs, Autumn 2020

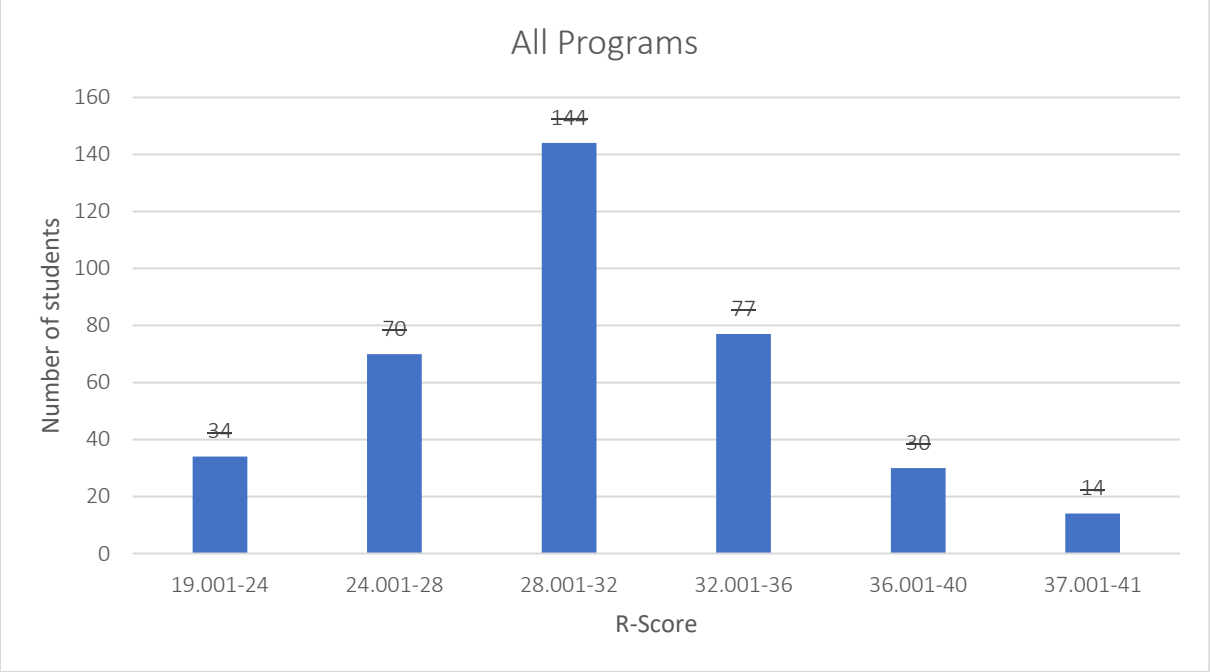


Figure 6

Impact of learning disabilities on R-Score

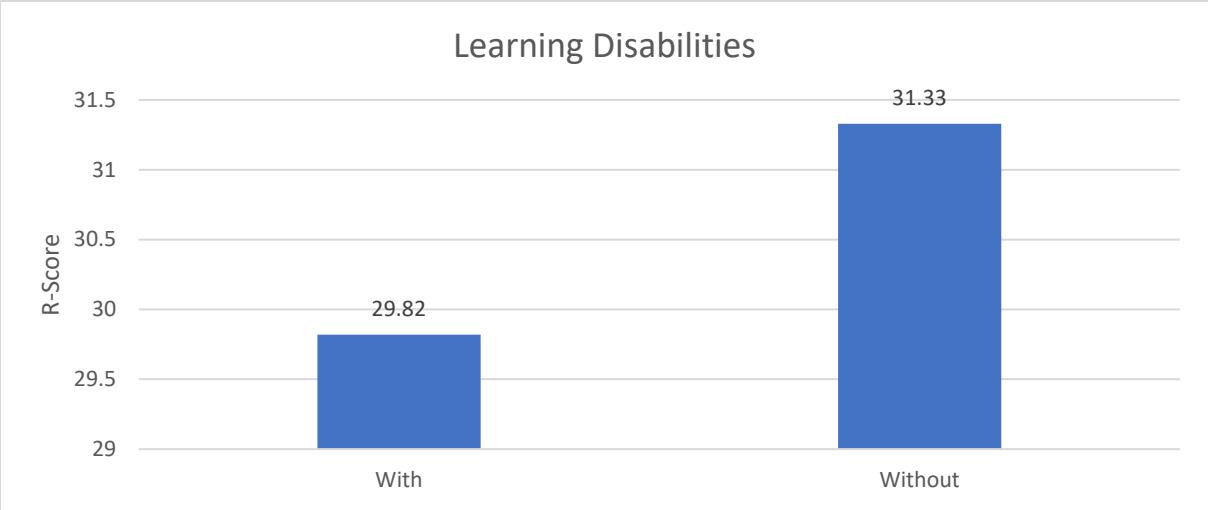


Figure 7

Impact of self-perception on R-Score

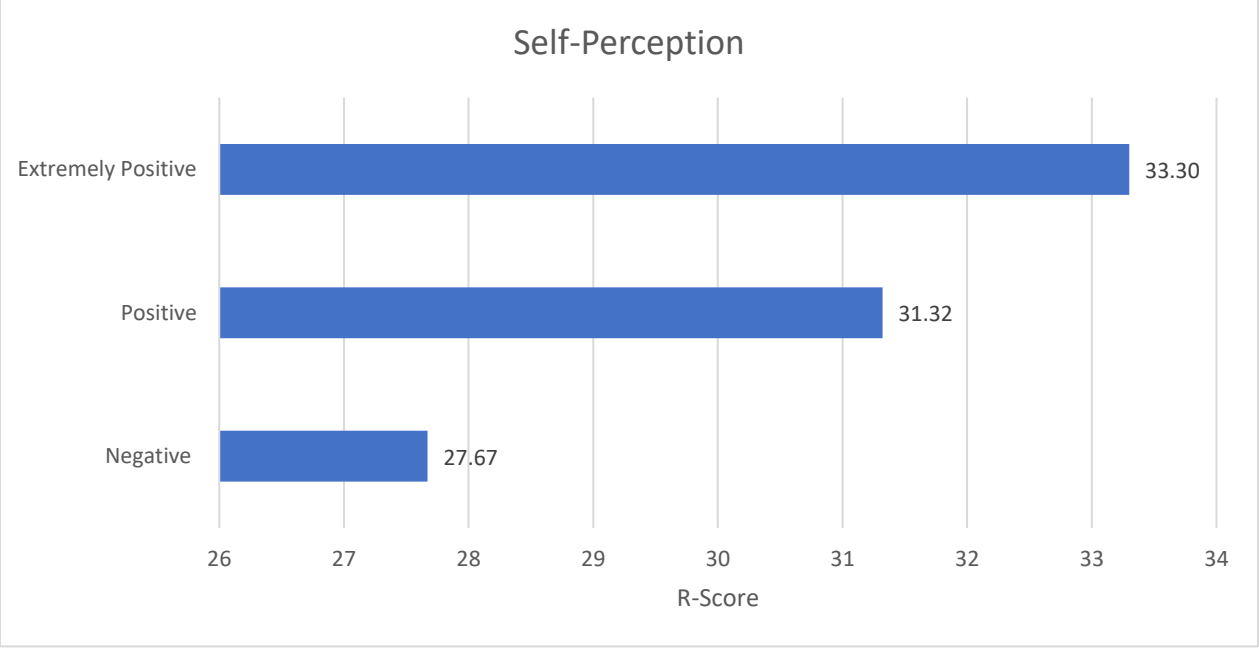


Figure 8

Impact of amount of hours of sleep on R-Score

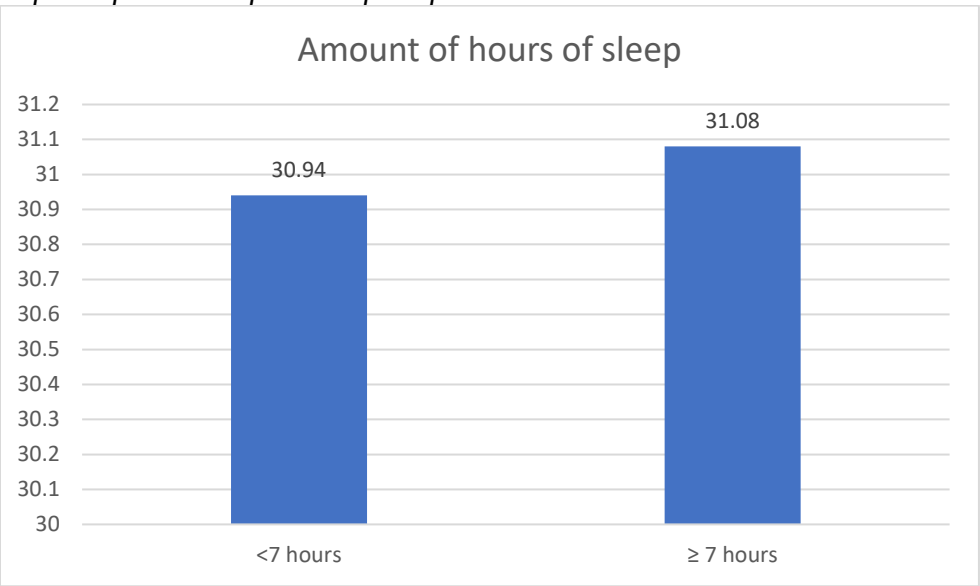


Figure 9

Impact of appreciation of school on R-Score

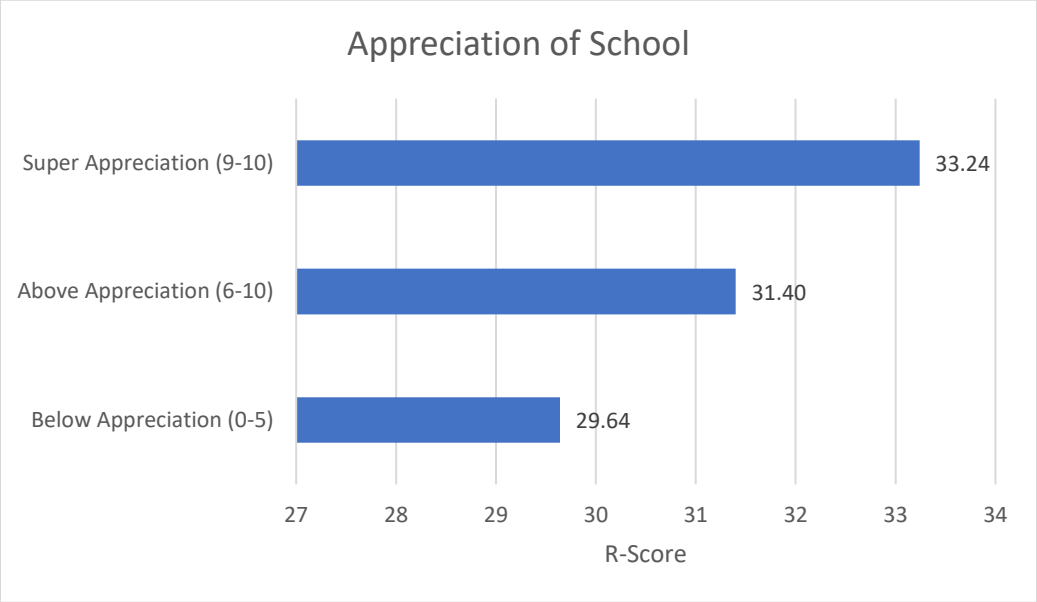


Figure 10

Impact of desire to continue studies in higher education on R-Score

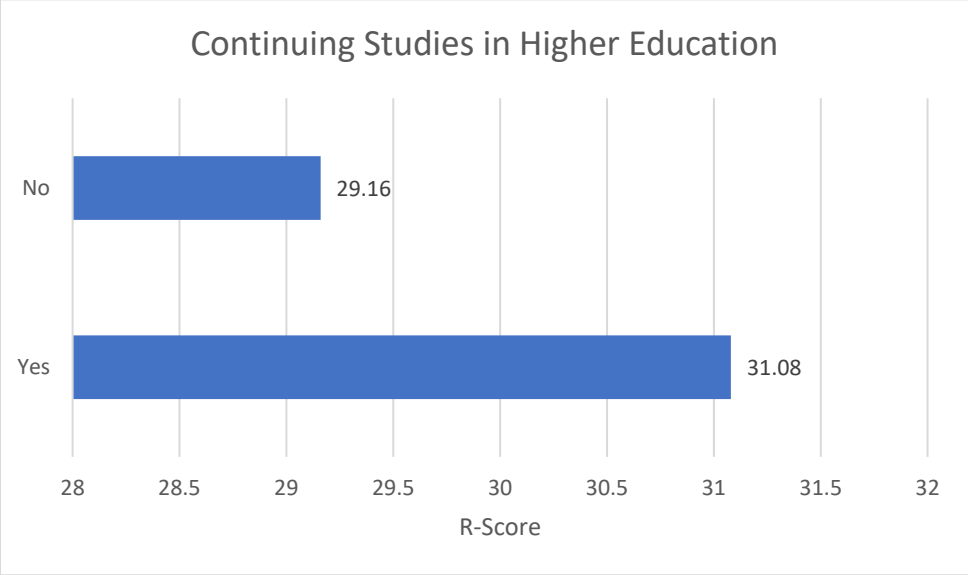


Figure 11

Impact of decisiveness on future career on R-Score

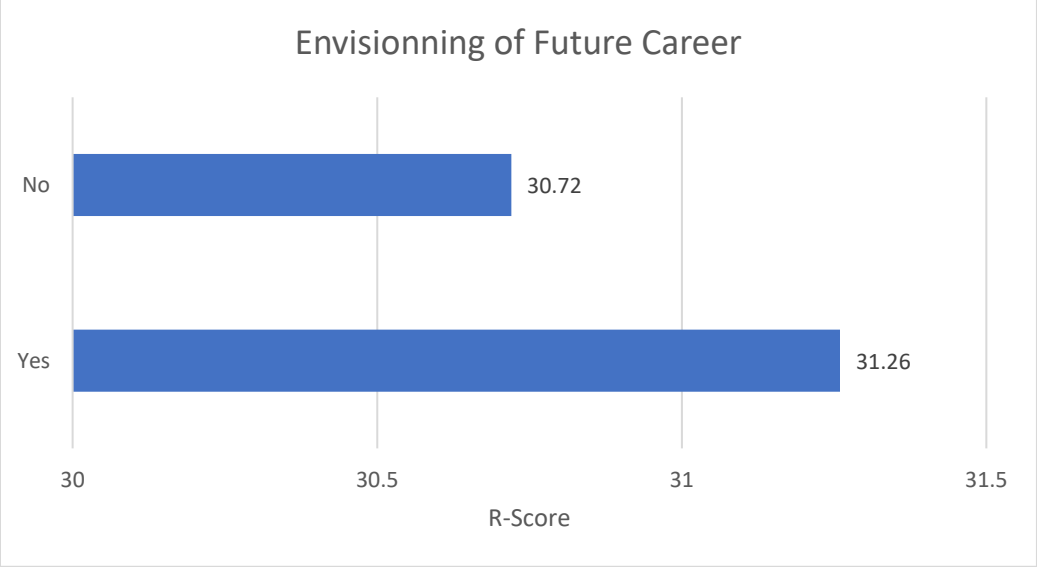


Figure 12

Impact of household size on R-Score

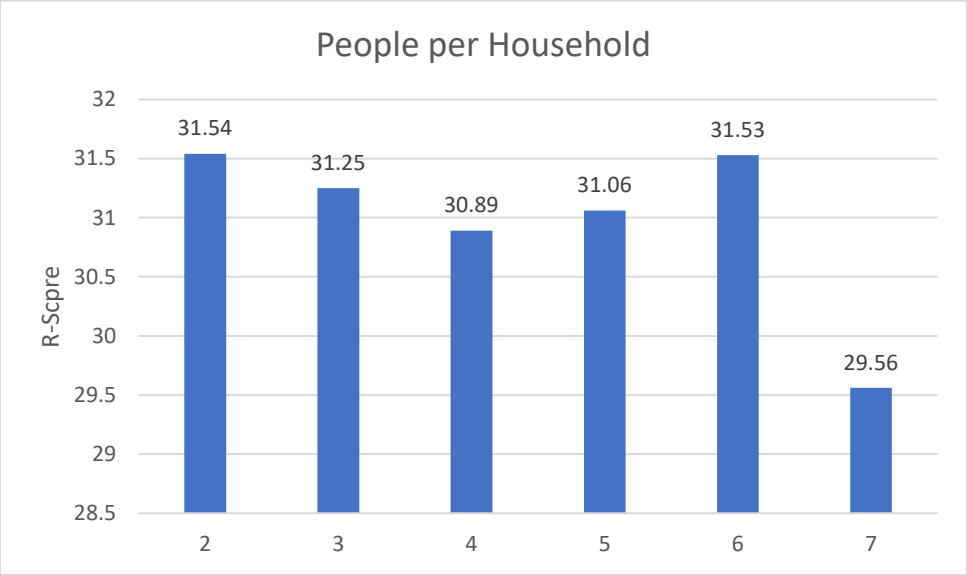


Figure 13

Impact of inter-parental relationships on R-Score

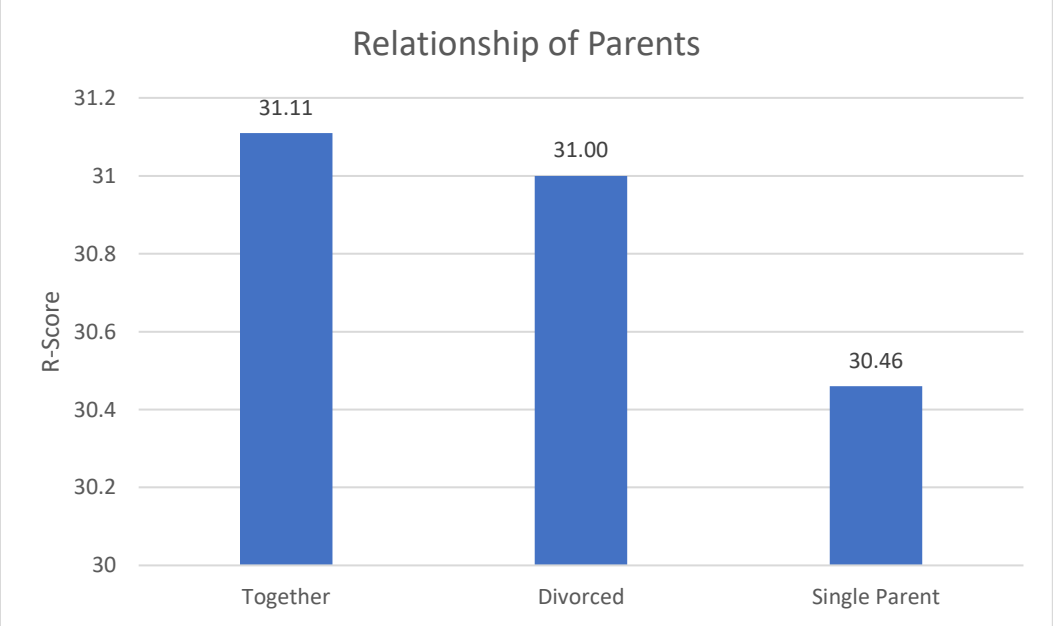


Figure 14

Impact of immigrant background on R-Score

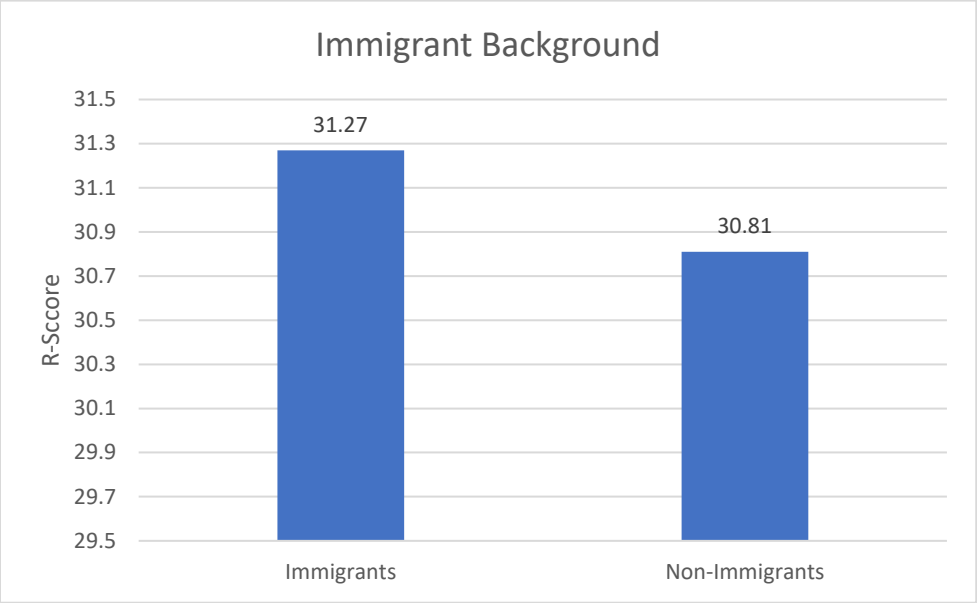


Figure 15

Impact of work on the R-Score

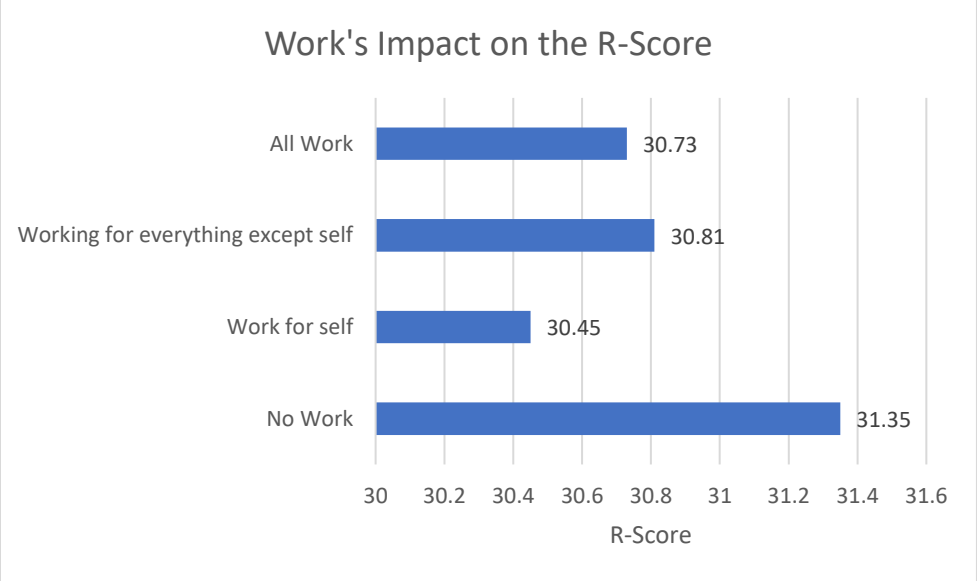


Figure 16

Impact of schooling on R-Score

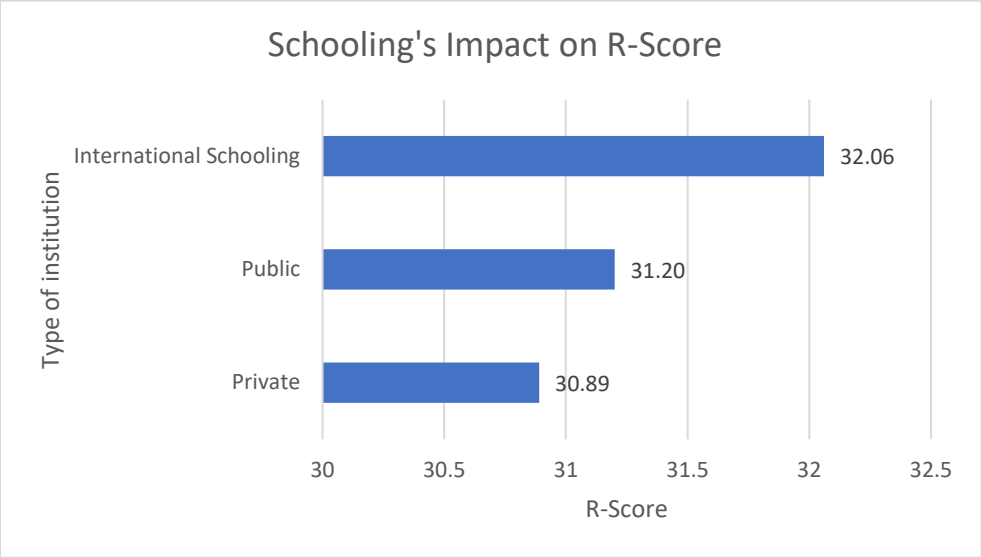


Figure 17

Impact of practicing sports on R-Score

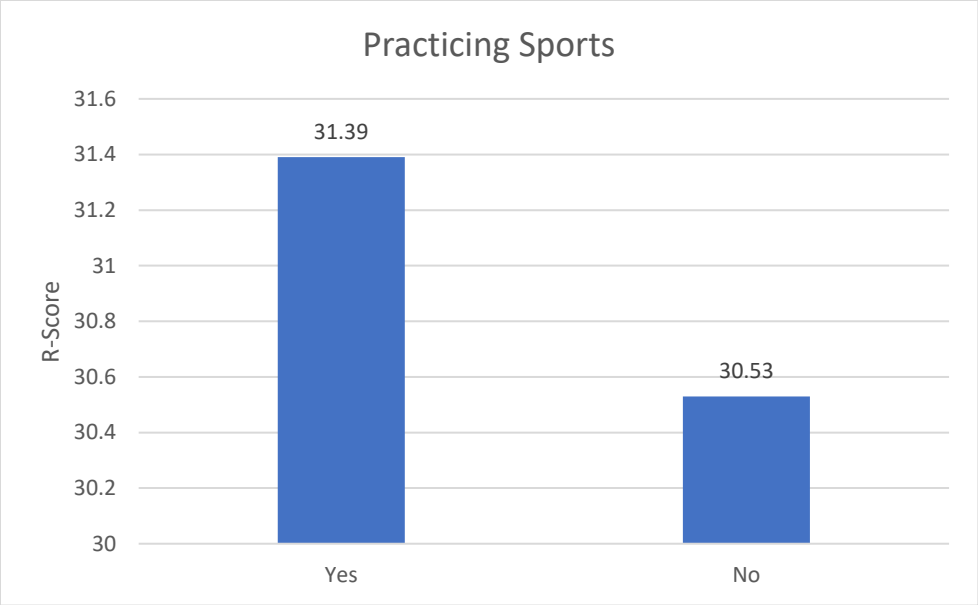
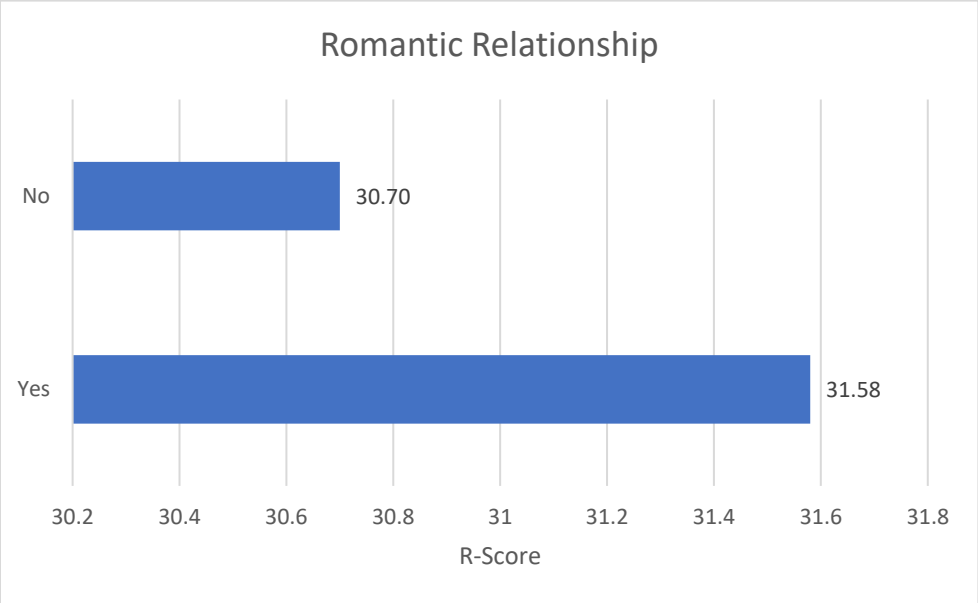


Figure 18

Impact of romantic relationships on R-Score



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