**Executive Summary**

This report aims to analyze and predict the performance of High school graduate students (pre-dominantly Grade-12) and associative socio-economic factors that impact their accomplishments.

The technology revolution and digitization of 21st century has brought in new challenges for the teachers, parents and mentors to understand and quantify multiple factors that influence a student’s conduct in various subjects which becomes a deciding factor for their grades/marks in the final year of graduation. Creating data models to follow students throughout their high school to unlock key issues that lead to success or failure of post-middle school education have the potential to not only help the national discussion regarding post-middle school success, but in this age of spiraling college tuition costs, this may assist families in making more thoughtful decisions about how best to prepare their children for productive and successful educational experiences after high school graduation.

Now this literature highlights 3 specific statistical models which helps to forecast future result values i.e. performance, considering different set of variables. Upon analyzing a student performance dataset extensively, it has been predicted that the performance depends on multi-various factors spanning through gender, parental qualification, test preparation coursework and attendance.

Based on the data analysis, it is quite imperative that teen ager female students remain more focused on studies compared to male counterparts who get easily distracted on a wide array of things ranging from sports, outdoor activities, gaming, music and other extra-curricular activities. The thread which ties together the attention in students easily loosens up in male student compared to female and hence we see a drop in their performance during graduation.

Similarly, parents who are highly educated and earned higher degrees have the natural tendency to pass on the value of education to their off springs. Additionally, highly qualified parents tend to provide their kids with an atmosphere to learn and grow and they set it all by example which makes it easy for kids to interpret.

Also, the test preparatory courses provide an edge in the success of the students through giving them a look and feel of the actual exam pattern and environment. Students who complete those get equipped with the techniques required to set themselves apart from rest of the students in high school graduation exam

Last but not the least, attending class sessions helps students to stay on track, understand expectations, foster important peer social interactions, and generally promote a sense of connectedness. Increasingly, attendance is being understood as a precursor and leading indicator for student success. Attendance improves performance.

So, the dataset determined the validity of relationships between the Student Performance and its various deciding factors (using Multiple Linear Regression Analysis). But we could experience that it is social desirability biased (SDB) as respondents often hide their true attitudes to impress the researcher or interviewer or to preserve one’s self-esteem. Due to this, the statistical analysis model could explain the total variance of student’s performance to a lower extent in this dataset.

With the use of this dataset and sophisticated statistical methods controlling student attributes and behaviors, the likely factors on which the performance relied did not include aspects as student merit, in-born hereditary talent, other economic factors etc. that could have significantly impacted in estimating the student achievements.

As part of future research, I would like to examine potential influence of SDB in other type of student self-report data and performance levels associated with it.