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*Abstract* — <For ~~~~ later>

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# Introduction

In this paper we developed a qualitative research model to investigate the factors affecting the academic performance of university students. For the development of our model, we took into consideration the independent dominant factors which affect the academic performance such as study habits, mental health, social media influence and home environment. Our cluster was strictly restricted to students of NUST (National University of Science and Technology) and to remove biasness from our results we considered students from all years and from different fields. Our sample size consisted of 148 students. <umer>

Aside from theoretical importance of academic performance, being able to predict academic performance using statistics holds a significant practical value. In Pakistan, government’s expenditure on educational activities amounted to 2.508% of the total GDP in 2019 [1]. Granted that it is significantly lower than the developed countries in western parts of the world, that, on average, reserve 6.78% of their total GDP on educational activities, whereas the average young person will stay in education until the age of 21. Academic performance of students, henceforth, is highly valued among these advanced economies, such that any increments in understanding of academic performance have substantial implications.

The dominant measures of academic performance in relevant papers surrounding academic performance, are grades and deriving from these grades, the Grade Point Average (GPA) [2]. The internal reliability of using GPA to keep track of academic performance is relatively higher than other lesser used measures, specifically because they essentially converge to grade inflation when dealing with large sample sizes.

For the objective of this paper, we develop relations of academic performance with independent factors that influence it. The factor which influences the most is home environment. Home is a massive influence on student’s induvial progress and directly controls the psychological and emotional behavior of an individual. The second factor that takes part in determining the academic performance is the study habits of the students. The well-established relation was poor study habits may lead to lower grades than those with better study habits. The third factor was the learning skills of the individual. Anne Virtanen et al. [3] explained the generic learning skills of university students. It explained that the teaching practice involving academic interactions lead to better learning skills development. ~~Hattie, et al (1996) showed that to develop learning skills we need to focus on strategies that lead to inventions.~~ Ilkay Askin Tekkol et al. [4] published their literature revealing that self-directed learning skills made difference in their desire to perse their degree further.

Academic Interaction also plays a vital role in determining the students’ academic performance. Arif Altun et al. [5] described the academic performance based on the academic interaction in a learning-based environment. According to the paper the ease of learning and the user-friendly characteristics of the results are important to integrating these algorithms into learning environments. ~~Astin (1984), indicates that the frequent meaningful contacts and meeting with the faculty members especially focused on intellectual or career – related issues increased the student’s involvement and motivation.~~

# Related Work

Many recent works have been conducted on academic performance of students in universities and the factors which influence them. Hanson (2000) reported the factors influencing the academic performance of students and developed its relationship with certain factors upon which it is dependent. Hassan Afzal et al. [6] concluded the significance of motivation behinds student’s educational success. The study delineates that students’ motivations dimensions extrinsic motivation and intrinsic motivation has positive impact on academic performance of students.

Kathleen Lynne Lane et al. [7] carried out a research-based analysis on the behavior of academic performance with emotional behavioral disorders. Findings also suggested that behavioral variables (e.g., school adjustment, externalizing, and internalizing) were predictive of broad reading and broad written expression scores, with school adjustment (a protective factor) accounting for the most variance in the three-variable model. McKenzie and Schweitzer [8] conducted prospective research and explored into the psychological and demographic predictors on first year students at Australian Universities. Moreover, Waleed Muaghed Al-Rahmi and Mohd Shahizan Othman studied [9] studied the impact of use of social media on the academic performance of university students.

# Methodology

## Population

This study aims to assess the general academic performance of undergraduate students residing within Pakistan. For this purpose, our study was directed towards all the undergrad students currently studying in NUST. The size of this target population is 7197 students.

## Sampling Technique

From common observation, students of different fields display different behavioral patterns and hence, varying academic performance. Cluster sampling was used where different institutions served as an individual cluster and random samples were selected from among these clusters.

Keeping in mind the time constraints, sample size was obtained using Cochran’s [10] formula:

Where N represents the population size and keeping e, the margin of error, a value of 0.08, the confidence level z at 0.95, and the standard deviation at 0.5, we calculate the ideal sample size for the present case to be 148 students.

## Research Tool

The collection of data was accomplished through conduction of a digital survey, created on Google Forms. The questionnaire was designed in such a way to assess all the hypothesized dimensions with and having a substantial effect on the academic performance of students. These dimensions can be coined under five distinctive terms, namely, Structed Academic Approach, Environs & Environment, Mental Stability, Academic Interactivity, and Academic Achievements. The respondents were asked to indicate their degree of agreement with statements pertaining to these dimensions, scored on a five-point Likert-type scale [11].

## Analyzing Data

After the collection of necessary data, appropriate analysis techniques should be utilized to get the best estimate of academic performance of a sample student, based on the factors discussed above. Since the dataset consists of both qualitative and quantitative, each dimension hypothesized can be treated as an independent variable and the respondent’s academic performance as a direct dependent variable, allowing for coefficient correlation analysis and Guildford’s [12] Rule of Thumb to be applicable.

### Coefficient Correlation

<SOMETHING>

### Guildford’s Rule of Thumb

Guildford’s rule of thumb is able to denote the relational associativity given by Pearson’s correlation coefficient r, between two variables, one independent and the other dependent, a degree and magnitude of strength. [13]

Table 1: Rule of Thumb for Interpreting the Size of a Correlation Coefficient

|  |  |
| --- | --- |
| **Correlation Coefficient r** | **Strength** |
| r < 0.20 | Very weak |
| 0.20 ≤ r ≤ 0.40 | Weak |
| 0.40 ≤ r ≤ 0.70 | Medium |
| 0.70 ≤ r ≤ 0.90 | Strong |
| 0.90 < r | Very Strong |

Table 1 shows the scalability table defined by Guildford’s Rule of Thumb and serves as the basis for deducing inferences in the following section, that is Results & Discussions. It is to be noted that a value of zero for correlation coefficient implies that there is no relation between the two chosen variables.

# Results & Discussions

## Sample Heading

Sample text.

# Conclusions

Sample text.

# References

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