

Use of Correlation Analysis in Educational Research

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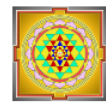
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Abstract: *The objective of the present paper was to present a comprehensive critique of the use of correlation coefficients. Several analysis and interpretation are discussed, beginning with the assumption that correlational statistics can be used to establish cause. Implementation of this statistical tool in the field of educational research in the last decade are discussed thoroughly. We hope that our work will inspire others to pay closer attention to our most often used this inferential statistic in the field of educational research.*

Key Words: *Correlation, Correlation Coefficient, Educational Research.*



Introduction

The systematic gathering and examination of information pertaining to the topic of education is referred to as educational research. Numerous techniques and facets of education, such as student learning, interaction, instructional strategies, teacher preparation, and classroom dynamics, may be studied. Applied research is the pursuit of knowledge that can be immediately applied to practise. The goal of this field's researchers is to address current issues in education. The methodology is far more pragmatic and utilitarian as it looks for data that will immediately impact practise.

Statistical Techniques in Educational Research

Data collection, analysis, interpretation, and presentation are all considered parts of the mathematical discipline known as statistics. Statistical analysis is utilised extensively in educational research by academic institutions, departments of natural and social sciences, governments, and educational organisations since it is crucial for decision-making. To analyse unknowable facts, researchers can use inferential statistics. Inferential statistics allows researchers to draw conclusions or make claims about a large population from which samples of known data have been taken. A statistical technique called correlation is used to evaluate a possible linear link between two continuous variables and both the calculation and interpretation are easy (Mukaka, 2012).

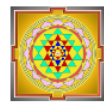
Co-relation

A statistical technique used to ascertain whether a relationship between variables exists is called a correlation. This method examines indirect links to identify the variables most closely related to a given piece of information or mindset. It involves using the data to determine how well the line matches them. The statistical technique used to describe how closely one variable is related to another is known as correlation analysis. Implementation of this statistical tool in the field of educational research upto the last decade are the following.

Review of Related Literature

Shamama-tus-Sabah and Gillani (2011) have discovered an important correlation between children's behavioural issues at home and those reported by their parents and teachers.

Saha (2012) studied on 100 secondary students, selected randomly from Birbhum District in West Bengal and found that creativity is positively correlated with socio-economic status.



Saha (2013) have selected randomly 300 secondary students of Birbhum District in West Bengal and explored that creativity is positively co-related with environmental awareness.

Afshinpour(2014)has discovered a favourable association between each of the five leadership styles and employee happiness, indicating that the situational leadership style may be the best suitable approach for leaders in specific organisations.

Kundu, Saha and Mondal (2015) have found significant relationship between social intelligence and adjustment of U.G. level students of different colleges under the Sidho-Kanho-Birsha University, Purulia.

Naik, Dutta and Sutradhar (2015) have found negative relationship between mental health and Facebook addiction of 1st year engineering students.

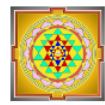
Karmakar et al. (2016) have studied on randomly selected 97 female and 112 male students from five secondary schools in Purulia district and revealed significant relationship between IQ and height; and low significant relationship between IQ and weight; and also, no significant relationship between IQ and BMI.

Kar, Saha and Mondal (2016) have investigated randomly selected 302 samples in Purulia, WB, India and found that Emotional Intelligence affects home, school and peer adjustment through Pearson coefficient correlation.

Ch et al. (2017) have studied on randomly selected two hundred teachers (100 female & 100 male) from Public Secondary Schools of Lahore and found significant relationship between job satisfaction of teachers and democratic leadership style of Principal.

Gorain et al. (2018) have found that while there is no discernible difference in internet usage between humanities and science graduate students, high internet users are more socially isolated than ordinary and low internet users. Internet use and social isolation are found to be positively correlated, with a Pearson coefficient of correlation of 0.326.

Mondal et al. (2018) found that neuroticism is highly correlated with internet affinity, whereas the other four personality factors are either negatively correlated with internet affinity or are not correlated at all, and that males have a higher internet affinity than their female counterparts.



Bylieva et al. (2019) have studied “*Correlation between the Practical Aspect of the Course and the E-Learning Progress*” and found the predominance of the online component in blended learning is appropriate for practical courses.

Lindahl, Colliander and Danell (2020) have conducted study on Swedish doctoral students employed at a Swedish university's faculties of science and technology and medicine and discovered that research performance during doctoral education has a favourable link with achieving greatness in the early career.

Kar and Saha (2021) have revealed significant relationship by Pearson's method between Emotional Intelligence and Leadership style of undergraduate students of West Bengal.

Gayen and Sen (2021) have found the relationship between anxiety and depression for the female students, stress and depression for the female students, anxiety and depression for the students of depression, anxiety and education department for the students of other department, anxiety and depression for the students of 2nd semester and depression and anxiety for the students of 4th semester are significant. Other than these, no other aspects exhibit any other notable links.

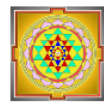
Kar and Saha (2021) found significant relationship between Adjustment Ability and Leadership style of undergraduate students of West Bengal.

Sutradhar and Sen (2022) have conducted a study on B.Ed. trainees of Birbhum district of West Bengal and found significant relationship between emotional maturity and study habits. The significance relationship also found for the same variables between male and female, private and govt. trainees and rural. But, for urban trainees no significant relationship was found.

Gorain et al. (2022) have investigated correlations among Internet Dependency, Social Isolation and five factors of Personality on science and arts streams and found positive relationship between Internet Dependency and Social Isolation.

Sutradhar and Sen (2022) have not found a significant relationship between emotional maturity and academic achievement of B.Ed. trainees in their study on B.Ed. trainees.

Mahato and Sen (2023) investigated the relationship among three variables Contexts Knowledge (CK1), Technological Pedagogical Content Knowledge (TPCK) and Attitude



towards Creative Teaching (ACT) considering two variables at a time and found significant relationship in most of the cases.

Mahato, Gayen and Mahato (2023a) have indicated that there is no correlation between undergraduate students in the Purulia area of West Bengal's self-efficacy and m-learning. It also showed that self-efficacy and mobile learning are unaffected by gender or place of residence.

Mahato, Gayen and Mahato (2023b) have found significant relationship of internet addiction between boys and girls, but no difference has been found in academic resilience. Locality has no discernible influence on either academic toughness or internet addiction.

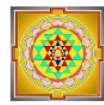
Mahato, Gayen and Mahato (2023c) have discovered a substantial association between cognitive failure and internet addiction among pupils in West Bengal's higher secondary Purulia area. However, no substantial differences in cognitive failure and internet addiction have been reported in terms of gender, region, or stream.

Conclusion

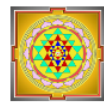
The debatable assumption that correlational statistics may be helpful in determining cause is discussed along with a number of other analytical and interpretational mistakes. The purpose of the current research was to provide an in-depth review of the application of correlation coefficients in the field of educational research. As a result, we believe that this work will be useful to both beginners and experienced academics. Additionally, we hope that by sharing our work, others will be motivated to pay more attention to the inference statistics that we use the most commonly.

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