Comparison of Traditional and Contemporary Teaching Philosophies using Regression Modelling and Parametric Tests

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Abstract— The most effective tool for humankind's victory is education. Technology has been driving the world's sporadic changes, making it a better place in all spheres. This study provides a detailed analysis of university students' preferences for educational methods and a comparison of traditional and contemporary ones. Modernization is undoubtedly important in our rapidly changing environment, but we should keep the traditional approach in mind because it has a more enduring impact than digitalized research. Compared to traditional instruction, digital learning is far worse. Students must use technology, at least to some extent. But occasionally, books may be preferable. A well-defined questionnaire was developed for this study, and data were gathered from 100 randomly chosen students from different universities. The most recent version of SPSS is used to analyse this acquired data, and statistical methods are used to interpret the data and draw conclusions.

Keywords: Modern Education, Ancient Education, Conventional Methods of Education, Impact of Technology on Education.

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I. INTRODUCTION

Technology has been driving the world's intermittent changes for the better in all spheres. In order to achieve an objective or goal in terms of products and services, technology is the culmination of art, skills, techniques, methods, and processes. From using dried leaves for writing to gene transplants, from walking kilometers away to space flight, from the Earth being flat (a fallacy) to variable time, technology brings about revolutionary transformation for mankind. This enormous shift has concentrated chiefly on modernising the educational system, as education serves as the cornerstone for the growth and advancement of every city. The most powerful tool for humankind's victory is education. Therefore, utilising technology to modernise education is essential. Most of today's young people, who are students, spend their entire day using technology and gadgets. Thanks to how far technology has advanced, a two-year-old child can now use electronic devices and is aware of them. From earlier age groups, the current generation has significantly improved in intelligence. They are aware of their surroundings. We have entered a new era where employment is only possible with technology and new general devices; thus, it becomes imperative to educate youngsters appropriately. So, the foundation of any community is education. If not employed appropriately, it can either build or destroy a society's future. This then leads to a comparison of old and current educational approaches. When students employ non-visualising and non-digitalization approaches, such as pen and paper, for memorization, they are more likely to focus on memorising and recitation techniques rather than decision-making and problem-solving skills. This is known as the conventional way of education. On the other hand, a student can improve their moral skills, which are necessary in real life, as well as their science and technology skills, which also include visualising, imagining, thinking, and decision-making skills, with the use of digitalized classrooms for better comprehension. Today, there is a clear trend towards segmenting subjects and structuring learning units around contemporary issues or kid-centred interests. This technique will cover more subject matter, and skills, abilities, understandings, and appreciations will be developed much more efficiently since students are motivated to work towards their own objectives. Traditional education is linked to much more severe forms of pressure than most societies consider acceptable. The use of corporal punishment to maintain classroom discipline or penalise mistakes, the indoctrination of the prevailing religion and language, and the division of students based on gender, colour, and socio-economic class have all occasionally been included. Traditional academic knowledge has received and still receives considerable prominence in the curriculum. While it now varies greatly from culture to culture, it nonetheless frequently exhibits a considerably higher degree of coercion than alternative forms of education.

II. OBJECTIVE OF THE STUDY

1. To investigate how much technology use negatively impacts academic performance.
2. Research and contrast the advantages and disadvantages of teaching strategies using conventional methods and modern technology.
3. To evaluate the role that technology should play in the educational system.
4. To examine how technology contributes to ineffective struggles and dissatisfaction.
5. Is there still room for improvement in traditional education?

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III. HYPOTHESIS TESTING

1. To test whether there is any appreciable difference between conventional instruction and instruction using technology.

2. To investigate whether technology affects academic achievement in any way.

3. To determine whether traditional education has to be improved.

4. To test the potential effects of teaching strategies based on digital technology.

IV. RESEARCH METHODOLOGY

The researcher created a well-defined questionnaire and gathered information from 100 randomly chosen university students. The most recent version of IBM SPSS Statistics is used to analyse the data, and statistical methods are employed to analyse the data and draw conclusions.

To objectively examine this goal, a questionnaire was created to gather information from students on their access to and preferences for modern and traditional educational systems and their study habits. The survey included 21 optional questions, demographic data (gender, educational background, etc.), and recommendations. The information was gathered from a sample of 100 students representing a range of academic programmes, including undergraduate, graduate, B.Tech., MBA, etc.

Table 1: Demographic variables preference of study

Variables	Options	Frequency	Percent
Gender of the student	Male	50	50.0
	Female	50	50.0
	Total	100	100.0
Current course taken by the student	UG	33	33.0
	PG	23	23.0
	B. Tech	21	21.0
	Professional courses	22	22.0
	Others	1	1.0
	Total	100	100.0
Degradation of academic performance due to involvement in technology	Strongly Agree	7	7.0
	Agree	28	28.0
	Disagree	40	40.0
	Strongly disagree	20	20.0
	No opinion	5	5.0
	Total	100	100.0
Reason for preferring traditional education	More theoretical	12	12.0
	Brain exercise to find answers	36	36.0
	Doesn't affect health (eyes)	15	15.0
	No external distractions	13	13.0

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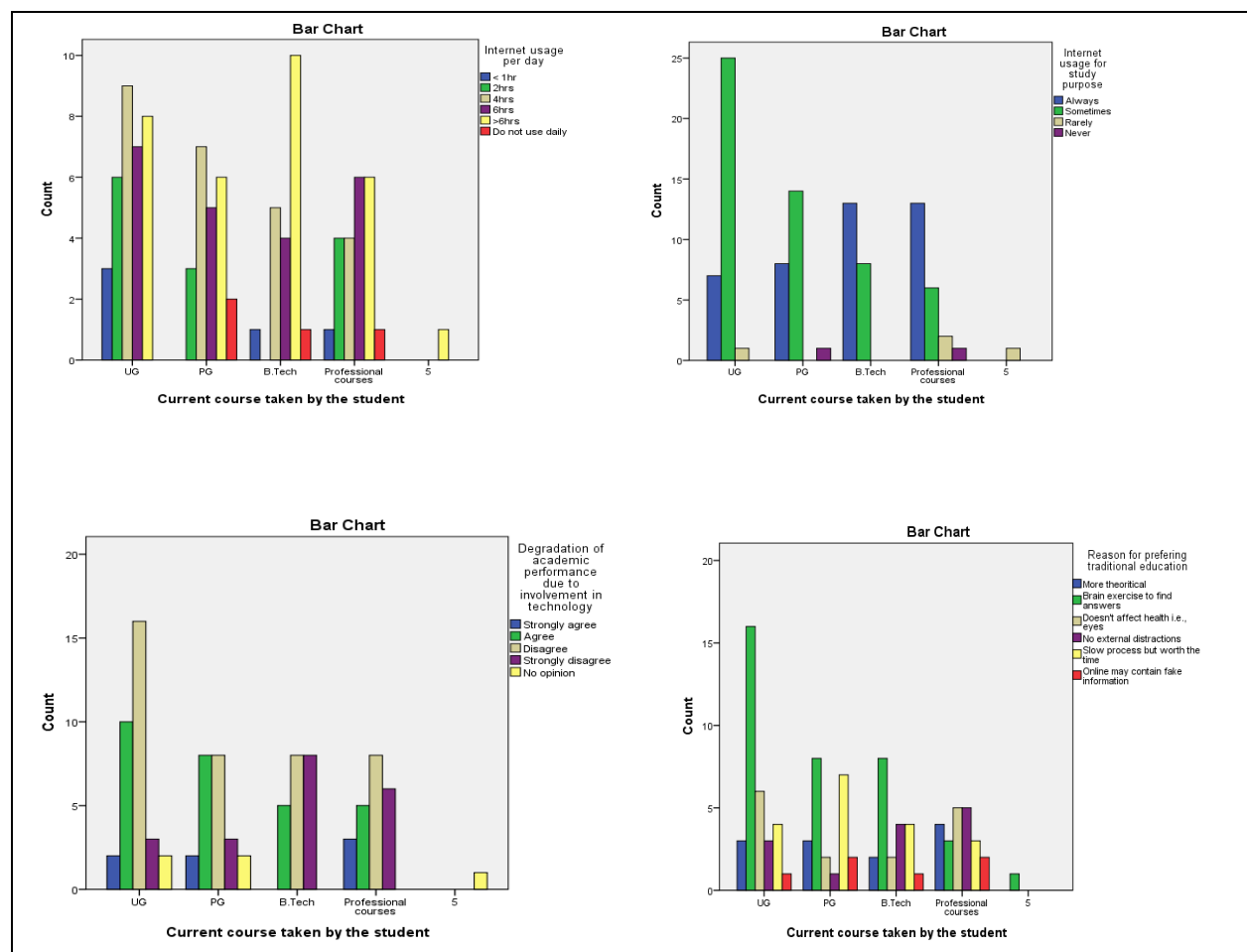|	Slow process but worth the time	18	18.0
	Online may contain fake information	6	6.0
	Total	100	100.0

Figure 1

Students of both genders participated in the survey in equal numbers. 33% of students are from undergraduate courses, 23% from post-graduate courses, 21% from B.Tech courses, 22% from professional courses such as MBA, biotechnology, and biochemistry, and 1% from other courses. Around 66% of the students have access to the institution's Wi-Fi. Despite the small number of students, about 24% need access to the institution's Wi-Fi.

Most undergraduates use the internet for 4 hours a day, but others use it for up to 6 hours. Most postgraduate students use the internet for 4 hours a day; some use it for up to 6 hours, but comparatively less than undergraduates. Most B.Tech. students spend over 6 hours every day online. Most students enrolled in professional programmes spend at least 6 hours a day online.

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Most UG and PG students 'sometimes' use the internet for study purposes. Most B. Tech students and students pursuing professional courses 'always' use the internet for study purposes.

While some UG students agree, most deny that using technology negatively affects academic performance. PG students equally agree and disagree that involvement in technology leads to the degradation of academic performance. B.Tech students equally and strongly disagree that involvement in technology leads to the degradation of academic performance. Most students pursuing professional courses disagree, and some strongly disagree, that involvement in technology leads to a degradation of academic performance.

Most UG students like traditional education since it promotes brain exercise for problem-solving and doesn't negatively affect health. Most PG students prefer this since it helps exercise the brain while seeking solutions and because it is worthwhile despite the slow process. Most B.Tech students prefer this since it promotes brain activity, prevents distractions, and is worthwhile despite the slow procedure. Most professional students prefer this because it causes no distractions and doesn't affect their health, and some prefer it because it's more theoretical.

Table 2: Various factors affecting teaching methods

		Frequency	Percent
Preferable method of education	Traditional	11	11.0
	Completely online	14	14.0
	Blended (some works done online)	75	75.0
	Total	100	100.0
Need of technology in educational system	Strongly agree	50	50.0
	Agree	45	45.0
	Disagree	2	2.0
	Strongly disagree	1	1.0
	No opinion	2	2.0
	Total	100	100.0
Preferable teaching method	Blackboard and chalk	9	9.0
	Whiteboard and pen	48	48.0
	Ppt presentation	20	20.0
	Completely digitalized classroom	23	23.0
	Total	100	100.0
If modern education still needs to be enhanced	Strongly agree	36	36.0
	Agree	53	53.0
	Disagree	5	5.0
	Maybe	6	6.0
	Total	100	100.0

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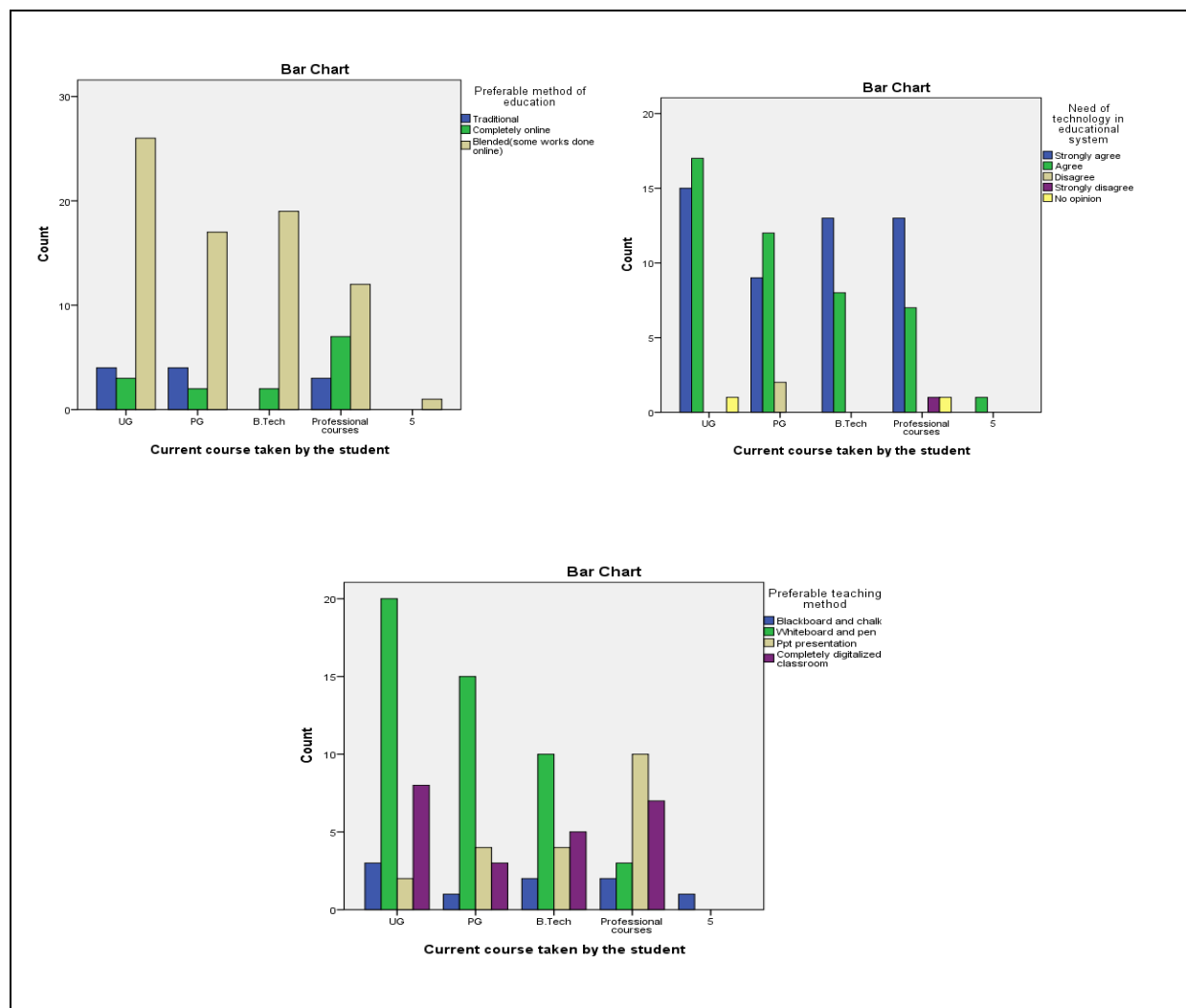*Eur. Chem. Bull. 2023,12(10), 4626-4633*

Figure 2

While only 4% of UG students choose traditional schooling, 26% of them prefer blended learning, which allows for some online work. Only 4% of PG students prefer traditional education, compared to 17% of PG students who prefer blended learning. While only 2% of B. Tech. students prefer an all-online education, 19% prefer blended method. 12% of students taking professional courses choose blended learning, whereas only 7% prefer an all-online education.

15% of UG students, 9% of PG students, 13% of B. Tech students, and 13% of students pursuing professional courses strongly agree that there is a need for technology in the education system. 17% of UG students, 12% of PG students, 8% of B. Tech students, and 7% of students pursuing professional courses agree that there is a need for technology in the education system. 2% of PG students disagree with this, while very few students pursuing professional courses strongly disagree.

20% of UG students prefer teaching with a whiteboard and pen, while 8% of them prefer completely digitalized classrooms, and very few prefer blackboard and chalk or PowerPoint. 15% of PG students prefer teaching with a whiteboard and pen, while 4% prefer PowerPoint presentations, and very few prefer other methods. 10% of B.Tech students prefer teaching with a whiteboard and pen, 5% prefer

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completely digitalized classrooms, and 4% prefer PowerPoint presentations. 10% of students pursuing professional courses prefer teaching in PowerPoint presentations, and 7% prefer completely digitalized classrooms, while very few, 3%, prefer whiteboards and pens.53% of students agreed that modern education still needs to be enhanced, 36% strongly agreed, while the other 5% disagreed.

V. DATA ANALYSIS AND INTERPRETATION OF THE STUDY

For this study, a well-defined questionnaire was created, and information was obtained from 100 randomly selected students from various universities. This collected data was analysed using the most recent versions of SPSS and Excel, and statistical techniques were employed to interpret the data. To test whether there is any appreciable difference between conventional instruction and instruction using technology.

H_0: The null hypothesis is to test that there is no significant difference between conventional instruction and instruction using technology. We used chi-square test of independence of Attributes The calculated value of $\chi^2 = 1.14$ since the p-value greater than .01, we reject the null hypothesis and conclude that there is a significant difference between conventional instruction and instruction using technology.

H_0: The null hypothesis is to test that technology has no effects on academic achievement. Here used a t-test, and the test value calculated is 2.13, and the p-value less than 0.01, so, we reject the null hypothesis and conclude that technology affects academic achievement. As per the discussion among the teachers and students, we observed that traditional education must be improved. Setting the initial reactants and evaluation

Table 3: Test on Multiple data-Summary

Model-R	R-Square	Adjusted R square	Standard error of the estimate
0.19	.26	.13	1.423

The data points' scatter around the fitted regression line is measured using R-squared. For the coefficient of multiple determination, only 26% of the lower R-squared values for the same data set indicate a large discrepancy between the fitted values and the observed data.

Table 4: Analysis of variance in Regression modelling

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5.853	3	1.951	11.409	.245[b]
	Residual	132.897	96	1.384		
	Total	138.750	99			

From the above table, it is obvious that the derived F value of 11.409 is statistically significant at 1%, indicating the significance of the relationship between the impact of technology on pupils and the need for technology in the educational system.

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Table 5: Summary of the data using Unstandardized Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	T
		B	Std. Error	Beta	
1	(Constant)	4.78	.312		8.040
	Impact of Technology on the education	.0.275	.030	.019	2.071
	Promoting Creativity and Critical thinking skills	.021	.034	.009	.211

As seen in the above table, using current technology in education and its effects on education, as well as encouraging creativity and critical thinking, 1% level of significance and is significant. The regression equation $Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \epsilon$.

$$Y = 4.78 + 0.275 X_1 + 0.021 X_2 + .009.$$

That modern teaching style in education= 4.78 +(Impact of current technology on education)0.275 + (Promoting Creativity and Critical Thinking Skills)0.021. Technology can encourage high-level thinking and meaningful involvement, enabling students to explore, analyse, and integrate information thoroughly. Students can experiment, acquire data, and model complex processes. High levels of social media use cause students to lose concentration when studying, negatively affecting their results.

VI. CONCLUSION

Modernization is absolutely vital in our fast-evolving world, but we should remember the conventional approach in the process because it leaves a longer-lasting impression than digitalized research. Digital learning is substantially worse than the traditional form of instruction. Technology is a must for students, at least to some level. However, books can occasionally be preferred. Traditional methods and methods utilising current technology both have advantages and disadvantages. Both should be utilised, but only to a certain extent. Both the traditional educational model and responsible technology use must be followed. The need to understand the recipe for success, which involves the student, the teacher, the context in which technology is used, and the material, is greater than ever with the development of technology.

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