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Faculty Members' Technological Integration Effectiveness and Students' Performance: An Overview of the Perceptions of University Students

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ABSTRACT

The objective of the study was to find out the Perceptions of Students regarding Faculty Members' Technological Integration Effectiveness and Students' Performance at the University Level.Students from all public and private universities in the Lahore district made up the population. The instruments of the study were questionnaires. The sample was collected through the multistage simple random sampling technique. Through Cronbach's Alpha, the instrument's reliability was evaluated. Expert opinion guaranteed the instrument's validity. A descriptive technique was used to analyze the data. While summing up the results of the findings, technology integration has a mean of 4.05 and a standard deviation of 0.468. Performance among students has a mean of 4.03 and a standard deviation of 0.554 which indicates that faculty members' perceptions reflected the level of agreement. It was finally encompassed that teachers' behaviour towards technological integration in higher education is necessary for students' performance i.e. class participation, class achievement self-confidence etc. This research recommended that sessions on technology integration should be considered vital and included as a clear framework throughout the entire syllabus.

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1. Introduction

Higher education environments have seen major changes as a result of the effects of contemporary technology and altered teaching techniques, as well as the need for expertise and understanding of the economy and the development of educational technologies (Nellis, 2017). The effectiveness of teaching must always be assessed in order to ensure that students are being adequately prepared for their future professional activities in higher education. Faculty members who were deemed to be "famously known resisters to innovation" contributed significantly to its adoption once it was recognised as an institutional process of change (Garrison & Vaughan, 2013). Faculty members may find it challenging to keep up with all the advances as higher education institutions employ a variety of renovation approaches in education.

In the present era, technology is all around us. Technology, which includes procedures and processes, defines how we use scientific knowledge for practical goals. It has a positive influence on pupils' learning, which is acknowledged in the field of education. Recent studies have shown that technology can significantly improve education. Applying broad concepts from real-world situations can help students gain a higher level of competency by helping them understand complex subjects. For personalized instruction, inspiring kids, and incorporating pupils of all skill levels, teachers can employ technology in the classroom. According to Edwards (2009), in the era of contemporary statistics, technology can be used to access the wealth of information found around the world. Technology that was formerly very expensive and only accessible to the wealthy has advanced and become much more accessible (James Francis, 2017). Since technology is now pervasive, both teachers and students must adjust to this new

way of life. Technology should be used in the classroom by teachers who are adjusting to a technological lifestyle. Its goal is to improve the availability of an educational environment, not merely to motivate students.

Students who are comfortable with technology and who are interested in it will be more motivated. It appears that the modern classroom should represent the introducing technology in the current expanding technological civilization. The intrinsic value in the educational process demonstrates the reality-based technical instruments, improving motivation and interest (Weber & Rohracher, 2012). The needs of the pupils should be met in these classrooms. By supporting a notion of an institution and a meaningful experience, technology encourages the desire for various learning methods (Badejo & Chakraborty, 2022). Liu (2016) asserts that by inspiring students in the classroom, good technology may enhance education across a wide range of topics, including maths, social studies, and language.(Sung, et, al., 2021). Learners with known learning disabilities can benefit from the efficient integration of technology by using adapted tools and hidden information while connecting with other learners in a typical class setting (Floyd & Judge, 2012). Students today have grown up with technology all around them (Badejo & Chakraborty, 2022). Their learning and nearly all of their daily practise involve technology (Li & Juma'h, 2022). IT has a significant effect on pupils' and instructors' learning and memory of material, according to Tinio, (2002). Every year, the range of technology resources available to instructors and students grows. Teachers and school officials are always working to enhance their skills in order to raise student achievement through the use of technology in the classroom. Computers with Internet access can connect students with subject matter experts located all over the world. To facilitate collaboration between students and professors, classrooms can be virtualized. Technology offers potential for educators, but unless used well, these tools won't significantly alter the way we teach and learn, according to Cuban (2001) (Juuti, Kervinen, & Loukomies, 2022).

In this fast changing climate with a tight budget, it might be challenging for instructors to properly use technology. There are many obstacles to overcome, including the need for instructors to have training in integrating technology, for students to have access to equipment and the understanding necessary to use it for learning, and for administrators to support teachers and students who use technology to improve learning. One would contend that since educational institutions spend millions on technology, it must be a useful tool for advancing learning. To find out how kids feel about the technology integration taking place in schools, however, very few studies have been done. Understanding the perspectives and technological practises of teachers, Administrators can use student evaluations of this learning opportunity and staff development to make informed decisions about staffing and equipment purchases in their schools (Irby, 2017). Technology always has a positive impact on pupils' learning, according to Costley (2014). Therefore, it is impossible to ignore the importance of technology in educational institutions. Technology has made it simpler for teachers to impart knowledge (Juma, Monem, & Shaalan, 2020). Faculty members in our educational institutions today place more emphasis on material than on instructional strategies. The faculty members will have access to cutting-edge teaching techniques thanks to the availability of technology for learning in educational establishments. Teachers will have access to cutting-edge teaching techniques thanks to the availability of educational technology in educational institutions. Technology has changed the way we play, perform, and think. When technology is used successfully, learning processes are changed.

Emerging technologies, which are seen as the main factor behind institutional change, have significantly influenced how instruction is renovated in higher education (Ma et al., 2014). Examples of this transformation in distance education include online learning programmes, Virtual studies, the consequences of hybrid learning, a large-scale online education, tools for collaboration and cooperation, handling classrooms techniques, and others. Faculty members use technology for educational purposes at a rate of 10 every semester, notwithstanding the widespread implications of technology integration for faculty members (Britten & Craig, 2006). There is little doubt that the faculty members' failure to practise technological integration led to the late implementation of this refurbishment. Teachers who view computers as problem-solving tools will make an effort to alter the way they instruct. They can be reluctant to think about instructional strategies. Students do superior work when teachers effectively integrate technology into the classroom. Using technology to improve both the teaching and learning

processes is known as integrated technology in education. Technology and learning environments backed by technology will aid in greater student engagement and motivation. Concerns have been raised about the success of teaching and meeting expectations of stakeholders in higher education institutions due to the poor performance of technology assimilation in contrast to an upsurge in spending in technology adoption at the managerial level (Reid, 2014). Institutes focus on raising faculty affiliates' awareness of technology integration and enhancing their support for it as a result. The incorporation of technology provides avenues for individualized learning to address each student's particular needs within a larger classroom environment. The impact of technology integration on the instructional process, according to Oblinger and Hawkins (2006), is that technology products are undeniably necessary in having to learn-teaching processes, and their function in knowledge transmission is tremendously influential (Sharma et al., 2020).

To provide educational events, professional meetings, workshops, and conversations that will help learners and educators successfully integrate technology into their classrooms, the majority of universities have established face-to-face, virtual learning programmes. Classes, seminars, and peer mentorship are the most well-liked PDs (Desimone & Garet, 2015). This study will show the link between faculty members' successful technological integration and the success of their pupils in higher education, despite the fact that many faculty members struggle to adopt effective technology in their classrooms. A modern perspective on how to employ technologies to enhance integrated knowledge must be developed by educators as advances in technology becomes more prevalent in everyday activities. Technology gives students in today's culture the flexibility and ability to respond to a wide range of events and academic areas. Technology can be employed in a number of teaching methods. Though incorporating technology can be challenging for modern educators, those who embrace change will find that doing so opens up a number of doors for students that would otherwise be closed by fear of technology (Park, 2000).

In order to use technology in the classroom, higher education institutions should admittance the instruction methodologies in a more efficient and complete way. As we turn our attention to classrooms with enhanced technology, it becomes clear that it needs to be maintained at all levels of appositeness. It is crucial to understand how faculty members acknowledge the use of classroom technology resources for instruction. Technology in the classroom will allow teachers to motivate and include all students. A typical objective today is to improve student performance while incorporating technology as a tool. The funds are being used by policymakers and educators to fund initiatives and educational resources that will have the biggest positive effects on learning and student outcomes. Technology integration into the teaching process is crucial if we want to improve student learning.Technology integration in the classroom will become much more crucial (Costley, 2014). According to many instructors, using technology into the classroom is useful, important, and necessary for school succession. However, many educators are reluctant to make the change, and many students lack the desire to try. "Chicago Public Schools" conducted a poll in 2013. According to the report, only a relatively small percentage of pupils utilise technology for academic purposes, even though 92% of pupils have some access to technology and the internet at home (Jessica Francis, Ball, Kadylak, & Cotten, 2019). The Objective of the study is to check the perceptions of faculty members' technological integration effectiveness and students' performance at the university level.

2. Methodology

In the district of Lahore, the population was made up of students from all public and private universities. There are 34 universities in Lahore overall, of which 21 are private and 13 are public (HEC, 2022). A significant student sample should be part of the investigation. The sample was acquired using a multistage basic random sampling technique. Through simple random sampling, the researcher chose three public and four private universities in Lahore. There were three faculty chosen from each university. Social sciences, behavioural sciences, and languages made up the three divisions of the faculty. Simple random selection was used to choose one department from each faculty. Students were consulted for data. Simple random sampling was used to select the sample size. The sample was taken with a multi-stage basic random sampling technique (N=500).

Questionnaires served as the research's primary tool. To gather the primary data, the researcher modified two questionnaires, one for technology integration and the other for student performance (Obonyo, 2018). The instrument was validated by expert opinion. A survey about the language, applicability, and structure of the instrument was given to two specialists. In order to assess the reliability of the instrument, Cronbach's Alpha was determined. When compared to student performance, the overall value of technology integration was 0.856, and the minimum Cronbach's Alpha reliability standard is 0.75. This demonstrated the instrument's dependability.

3. Analysis of the Data

Statistical analysis was performed using the Statistical Package for the Social Sciences (SPSS), version 27. Mean, standard deviation and Pearson correlation technique are used to analyze the data.

3.1. Overall sample description

The total sample description of mean and standard deviation is shown in the above table. Technology integration has M=4.05 and a S.D 0.468. Performance among students has a M= 4.03 and a S.D=0.554. The consensus among faculty members was reflected in their responses.

Table 1

Variables	N	Mean	Std. Deviation
Technology Integration	500	4.0523	.46830
Student Performance	500	4.0381	.55489

3.2. Data analysis at factor level

3.2.1. Technology Integration Effectiveness Factors

Regarding four aspects of technology integration, the above table provides examples. The mean scores for Technological aids (M=4.21; SD=0.517),Appropriate Evaluation (M=4.06; SD=0.576),Instructional Facilities (M=3.96; SD=0.590), and an understanding of relevant technologies (M=3.93; SD=0.594) were determined by the participants' responses. The general consensus among faculty members was one of strong agreement.

Table 2

Factors	N	Mean	Std. Deviation
Technological aids	450	4.2167	.51771
Appropriate Evaluation	450	4.0674	.57608
Instructional Facilities	450	3.9693	.59005
An understanding of relevant technologies	450	3.9389	.59463

3.2.2. Students' Performance Factors

The table 3 provides an illustration of how students performed in relation to four factors: participation in the classroom, homework completion, class achievement, and self-confidence. The mean for participation in the classroom (M=4.09; SD=0.587), Tasks at Home (M=3.85; SD=0.775), Classroom Excellence (M=4.11; SD=0.611), and self-confidence (M=4.14; SD=0.582) was determined by the participants' responses. The consensus among faculty members was reflected in their responses.

Table 3

Factors	N	Mean	Std. Deviation
participation in the classroom	450	4.0988	.58731
Tasks at Home	450	3.8568	.77505
Classroom Excellence	450	4.1144	.61134
Self-confidence	450	4.1448	.58230

3.3. Data analysis at items level

Analyzing information about teachers' perceptions of the link between university students' performance and faculty members' use of technology. The data were examined independently at the item level.

3.3.1. Technological Aids

This table 4 indicates how well technology integration at the university level satisfies a moderate level of technological aids criteria/factor. According to responses from respondents,

technology will assist me in obtaining better results (M=4.34; SD=0.662), will help me understand the subject matter (M=4.32; SD=0.632), will make my subject work easier (M=4.24; SD=0.641), will encourage me to research previously unexplored topics (M=4.23; SD=0.719), and will make it easier for me to associate with people on or off the run (M=4.21; SD=0.743). Technology use will assist me in honing my technical abilities, which will greatly benefit my profession (M=4.18; SD=0.751); it will also improve my general managerial skills (M=4.14; SD=0.799); and I will be more inclined to enroll in courses with a focus on information technology (M=4.16; SD=0.728). The responses of the respondents as a whole were indicative of the degree of agreement.

Table 4

Items	Mean	SD
It will assist me in achieving better grades in my subjects.	4.34	.662
It aids in my comprehension of the material.	4.32	.632
It makes it easier for me to complete assignments in my subjects.	4.24	.641
It inspires me to investigate a variety of subjects I may not have previously considered.	4.23	.719
Collaboration with others is made simple for me, both on and off campus.	4.21	.743
In the long term, it might enhance my possibilities for a profession or employment.	4.18	.751
My overall IT and information management skills have improved as a result.	4.14	.799
In classes where technology is employed, I become more engaged.	4.16	.728

3.3.2. Appropriate Evaluation

The effectiveness of technological integration at the university level is seen in table 5. At a moderate level, Appropriate Evaluation criteria or factors. According to responses from respondents, I miss those lectures that are delivered online (M=3.50; SD=1.220), I have adequate knowledge of the technology used in my subject before the start of the class (M=3.90; SD=0.872), technical knowledge helps me stay informed about the institution (M=4.21; SD=0.736), high technical knowledge helps me connect with other students (M=4.27; SD=0.731), and high technical a knowledge helps me connect with instructors (M=4.31; SD=0.6 The responses of the respondents as a whole were indicative of the degree of agreement.

Table 5

Items	Mean	SD
If lecture materials are available online, I'm more inclined to miss class.	3.50	1.220
I was sufficiently equipped to use the technology required in my classes when I started college.	3.90	.872
I feel more connected to what's going on at the college or institution because of technology.	4.21	.736
I feel a connection to my fellow pupils because to technology.	4.27	.731
I feel more connected to teachers because to technology.	4.31	.668
Technology helps me focus and think critically about topics that are important to me.	4.24	.765

3.3.3. Instructional Facilities

The table 6 demonstrates how successfully upper level Instructional Facilities criteria/factors are satisfied by technology integration at the university level.

Table 6

Items	Mean	SD
I worry that as technology advances, my privacy may be further invaded.	4.05	.877
Cyber security (password security and hacking) is something that worries me.	4.05	.904
Mobile device use during class is distracting, in my opinion.	3.94	.999
My involvement with the material and the lesson is improved by the use of tablets and computers in class.	3.80	1.073
Using my technological devices to multitask occasionally stops me from focusing on or completing the work that is most important.	4.04	.807
I prefer to keep my social life and academic life distinct when it comes to social media (such as Facebook, Twitter, and LinkedIn).	4.02	.856

Based on opinions from participants, my privacy is no longer safe with the development of technology (M=4.05; SD=0.877), I am concerned about cyber security (M=4.05; SD=0.904), mobile phones keep me from paying attention during lectures (M=3.94; SD=0.999), the use of

tablets and laptops in the classroom increases participation and interest (M=3.80; SD=1.073), and while performing various tasks through technology, It diverts my attention to be focused for most of the time.

3.3.4. An understanding of relevant technologies

The table 7 shows how well technology integration at the university level satisfies the higher level an understanding of relevant technologies criteria/factor. Web design should be taught in classes, according to the replies received (M=4.04; SD=0.872). Making power point slides and using multimedia should be part of the course requirements (M=4.19; SD=0.811), I have access to university software through the use of technology (e.g., enrolling in classes and paying fees) (M=4.15; SD=0.802), I maintain my own blog as part of my course requirements (M=3.70; SD=1.023), I receive feedback from the instructor via text at my cell phone (M=3.58; SD1.120), and I am interested in the advanced use of technology by my instructors during lectures (M=4.21; SD=0.847), and I receive notifications for upcoming alerts about the subject via messages (M=4.03; SD=0.867). The responses of all respondents were indicative of the degree of agreement.

Table 7

Items	Mean	SD
Web page design and development should be covered in class.	4.04	.872
Use of multimedia and the creation of PowerPoint slides should be part of the course requirements.	4.19	.811
I access web-based university services or information via my mobile device, such as enrollment and fee payment.	4.15	.802
As part of the prerequisites for my courses, I maintain my own blog.	3.70	1.023
My teacher texts me on my cell phone with my grades and marks.	3.58	1.120
I receive pre-class discussion questions through text message from the professor on my phone.	3.75	1.059
I get text message alerts on my phone when there are changes to the course schedule, for example.	4.03	.867
I would like to see greater technological integration and application among my university instructors.	4.21	.847

3.4. Data Analysis at Items levels of students' performance

3.4.1. Participation in the classroom

The table 8 shows how well university-level students perform in terms of meeting the higher-level criteria/factor for participation in the classroom. I prepared myself for my entire subject, as indicated by the comments that respondents generally agree with (M=4.28; SD=0.641),I do well in all of my classes (M=3.97; SD=0.825), I actively participate in all class discussions (M=4.10; SD=0.889), I frequently solve problems in class (M=3.95; SD=0.951), and I study and take part in class discussions (M=4.19; SD=0.733). The responses of the respondents as a whole were indicative of the degree of agreement.

Table 8

Items	Mean	SD
I readied myself in every area of study.	4.28	.641
I achieve high marks in every subject.	3.97	.825
I participate enthusiastically in each class discussion.	4.10	.889
My typical hobby is finding solutions to difficulties in the classroom.	3.95	.951
I do my homework and take part in class discussions.	4.19	.733

3.4.2. Tasks at Home

The table 9 shows that student performance at the university level satisfies the upper level requirements for the Tasks at Home. According to responses given, respondents concur that I am consistently well prepared for my classes (M=3.96; SD=0.937), complete my assignments through class discussion (M=3.95; SD=1.002), attempt my homework before class begins (M=3.97; SD=1.008), and read relevant literature before class begins (M=3.66; SD=1.075). I also spend a significant amount of time each week reading, computing, and working on my classwork (M=3.75; SD=1.058). The responses of the respondents as a whole were indicative of the degree of agreement.

Table 9

Items	Mean	SD
I always came to class prepared.	3.96	.937
I complete my homework in class using the discussion method.	3.95	1.002
I always try to complete my assignments before class.	3.97	1.008
Before class, I always study some relevant literature.	3.66	1.075
I put in a lot of time each week reading, using the computer, and doing my coursework.	3.75	1.058

3.4.3. Classroom Excellence

The table 10 shows how the university-level performance of the students satisfies the higher-level Classroom Excellence standards. According to responses from respondents, I always participate in class discussions (M=4.17; SD=0.844), I prepare questions on the ambiguity material (M=3.86; SD=0.931), I have a strong desire to take the class (M=4.11; SD=0.856), and my assignments make sense to me (M=4.19; SD=0.791). The responses of the respondents as a whole were indicative of the degree of agreement.

Table 10

Items	Mean	SD
I understand the assignments I'm given.	4.19	.791
I create ambiguity-related test questions.	3.86	.931
I'm quite eager to enroll in the course.	4.11	.856
I'm constantly inspired by my efforts.	4.25	.690
I participate in class discussions every time.	4.17	.844

3.4.4. Self-Confidence

The table 11 illustrates how university-level student performance meets higher-level criteria for self-confidence. Respondents generally concur that I will participate in class discussions without feeling embarrassed (M=4.11; SD=0.877), that I enjoy doing my homework because I believe it will help me learn more and improve my skills (M=4.14; SD=0.881), that I receive assistance from my teachers when I need it (M=4.32; SD=0.747), that I work harder when I have to complete challenging assignments (M=4.21; SD=0.783), and that I used to participate in extracurricular activities at school like The responses of the respondents as a whole were indicative of the degree of agreement.

Table 11

Items	Mean	SD
I won't be embarrassed to participate in class discussions.	4.11	.877
I like doing my schoolwork and participating in events because they help me get better at everything.	4.14	.881
When I need assistance, my teachers provide it.	4.32	.747
I work harder when I have a challenging assignment.	4.21	.783
I used to take part in extracurricular activities including athletics, games, and debates at school.	3.96	1.039

The technology integration mean and standard deviation are 4.06 and 0.46, respectively. The average student performance standard deviation is 4.05 and equals 0.55. The majority of respondents (M=4.22; SD=0.511) indicated a higher level of agreement when asked about the technological aids integration component. The majority of respondents (M=4.07; SD=0.570) agreed more strongly with the evaluation of the effectiveness of the technological integration aspect. A higher level of agreement was indicated by the majority of respondents' responses regarding how technology integration affects instructional facilities (M=3.98; SD=0.582). The majority of respondents' opinions on the importance of technological integration Higher level of agreement was indicated by an understanding of relevant technologies (M=3.95; SD=0.587). The majority of respondents' opinions on the influence of student performance Participation in class (M=4.09; SD=0.587) indicated a higher level of agreement. The majority of respondents (M=3.85; SD=0.775) expressed a higher level of agreement when asked about the Home Task student performance component. The majority of respondents' opinions on the influence of student performance Higher levels of agreement were indicated by classroom excellence (M=4.11; SD=0.611). Self-confidence as a factor in student success received a majority of respondents' responses, which indicated a higher level of agreement (M=4.14; SD=0.582).

4. Discussion

The potential use of several digital technologies was found to facilitate, expand, and even increase learning achievement, which consequently improves students' general academic performance. Henderson et al. looked into university students' involvement with virtual breakthroughs and their actual occurrences of using digital technology in order to emphasize students' academic successes and impressions of crucial aspects of digital technology throughout their educational experience (Al-Abdullatif & Gameil, 2021). Technology integration within a classroom has the potential to be a fantastic learning tool when used to increase students' participation in pertinent and theoretically authentic courses. Technology is very similar to a tool. When it is the most effective way to teach students, it should be used. For children, technology may be a really useful tool that increases their participation. The use of common digital tools by university students should start as part of their academic programme.

In order to teach kids how to use technology effectively and expose them to more sophisticated applications that they may use independently as they get older, technology must be integrated into the classroom (Murphy & Rodriguez-Manzanares, 2008). There was a strong correlation between student performance (classroom participation, homework completion, class achievement, and self-confidence) and the integration of technology. It should go without saying that having some familiarity with technology enables teachers to stay current on how to implement cutting-edge instructional technologies in the classroom. It has recently grown to be such a crucial component of daily life for people all over the world, and without it, no surface can function properly. The use of technology can improve teachers' performance. Technology affects how assignments are delivered, how they are assessed and evaluated, and how effective teachers are at their jobs (Ahmed, Arshad, & Tayyab, 2019).

In addition to the teachers' ideas and recommendations, technology brings up new paths for issues like student-centered learning, learning capacities, and deeper intellectual stages. However, it might make it difficult for educators to fully integrate technology into their routines. Due to ignorance, new mentoring forms and techniques are not accepted, and technology is seen as a replacement for other clothing in traditional training. The student is encouraged to use technology more regularly for worthwhile endeavours and significant engagement. The above-described computer-based classroom setup is a suitable learning environment that encourages student accountability. Giving children access to tools like the World Wide Web and email, in the opinion of professors, encourages them to take care of their schooling and practising (Drayton, Falk, Stroud, Hobbs, & Hammerman, 2010). where it is most advantageous and appropriate when instructors participate, the advantages of technology in the classroom gradually become apparent. Instead of waiting until after classes are over to assess homework assignments, teachers can utilise the virtual function to design, assess, and deliver immediate results by trying to make one more engagement with their students.

5. Conclusion

It was concluded that by saving the instructors' time from having to differentiate between lectures for students, technology can assist teachers retain pupils. Whether in support of or opposition to this supposition, educators can spend a little less time and effort teaching individuals how to create their ideas using internet technologies. Learning improves when kids are free to experiment on their own with technology. The performance of students at the tertiary level was significantly impacted by faculty members' use of technology. The use of technology in the classroom can improve participation, human interactions, outcomes, and learning.

All pupils may have new learning opportunities thanks to technology. It was determined that there was a significantly significant association between the use of technology by faculty members and the academic performance of pupils. The ordinary student uses technology on a daily basis and is completely integrated into it, giving them access to a wealth of knowledge (Egbert, Huff, McNeil, Preuss, & Sellen, 2009). Academic attainment among students and teachers of all skill levels can be increased by the effective use of this technology in the classroom (Courville, 2011). Even though technology integration is necessary, many schools have not embraced this crucial component. The distance among the student and instructor will only grow given the existing level of technological integration and perceptions of its efficacy. A paradigm shift in the efficient use of technology in education is needed to ensure that a classroom is ready for the twenty-first century.

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