Innovation in Education: Teachers and Students Perception of Implementing ICT in Learning in Higher Secondary Schools of Gilgit Baltistan

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Abstract

This paper primarily intends to investigate the perception of ICT integration in teaching and learning in higher secondary schools of Gilgit-Baltistan (GB). A sample of 200 students and 100 teachers were randomly selected from various government, private, and NGO higher secondary schools in GB. A questionnaire was designed through the Likert scale, and distributed among teachers and students. A statistical analysis has been carried out. The average percentage of both teachers and students has been 40.29%, 37.27% strongly agreed, 42.5%, 38.07% agreed, 10.01%, and 13.8% not sure, 5.25%, 9.1% disagreed, and 2.26%, 6.2% strongly disagreed, respectively. The analysis shows that the willingness of teachers and students towards ICT integration has been considerably high in percentage.in contrast, the lowest percentage of teachers and students were not favored by ICT integration in teaching and learning. An attempt has also been made to find out the variances of teachers' subject-based and students in school types applying one-way ANOVA. The perceptions of teachers and students are important that determine the success behavior in higher secondary schools in Gilgit-Baltistan since its inception at the city level, now extending towards the remote areas. Targeted initiatives that tackle these perceptions can serve to greatly improve the learning experience and outcomes for education in the region.

Keywords: Innovation, Inclusive Learning, ICT Implementation.

Introduction

ICT integration refers to all services and applications that involve communication and transfer of information. ICT primarily focuses on communication technology. It also includes “teaching and learning with ICT”. Modern education system is based upon technology as technology provides education sector with ICT tools to enhance the process of learning. With the rapid advancements in science and technology, new paradigms for teaching are required which ensure quality ICT education.

Gilgit-Baltistan is an area of Pakistan which falls in its extreme of north. The higher secondary schools in GB have not been entertained from the facility of ICT integration yet due to certain factors. In the first place, the sole impetus for ICT integration is the availability of electricity which has not been up to the mark for years and years. Secondly, there is no any defined ICT policy which determines a successful integration and up gradation of ICT in higher schools of

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Gilgit-Baltistan. We are living in a fast changing world where the values of education and learning change within short span of time due to technological expansion. The defined ICT policy will be a great helping tool in integrating the new development of ICT which take place around the world in education system of GB. Infrastructure matters lot for proper integration of ICT policy which lacks in GB, for a better integration of ICT in higher secondary schools, an organized infrastructure may be established which not only ensures periodic teachers' training, workshop but also national and international seminars for true integration of ICT. Such activities can be highly motivational to teachers and students and have a far-reaching impact in the spread and integration of ICT education systems.

The interrogation of the prevalent perception of teachers and students about the integration of ICT in higher schools of GB can be a milestone for the experts in the time to come. The study also suggests that further plan may be outlined for the teachers whose perception is ambiguous about the integration of ICT in education systems, so they may understand the importance ICT education and apply their learning in academic institutions. For those who have a clear idea about the integration of ICT may be put into a procedure of assessment which ensures the utility of their learning in education system according to the growing demand of the time.

In the light of our study, it is recommended that the higher schools in Gilgit- Baltistan must be abreast with latest standard ICT policy for its integration in education system with resources. ICT experts should design such syllabus for students which may give an inspirational touch in their practical learning.

Literature Review

To improve the instructors' professional skills and the pupils' learning skill, integration of ICT has become a compulsion. Constant ICT integration would improve the standard of education by increasing the use of ICT based educational resources. Umar and Hassan (2015) believe that the education system of 21st century requires ICT skills. However, the dedication of teachers is must for the proper integration of ICT in learning and teaching.

ICT is the center which disseminates the knowledge around through its tools and ensures effective learning and better educational services. ICT provides the students with the "survival skills" to fulfill the demands of the 21st century. In addition, it enhances the environment for learning and contributes towards the learning outcomes.

Now, to incorporate the ICT tools successfully in the curriculum, the cooperation of both the teachers and the students is required. Teachers need to cast off their traditional modes of teaching and should perceive the technology as an essential component of the modern teaching system. Qaddumi et al. (2021) also agreed that a positive attitude of teachers is required for the successful integration of ICT into teaching. So, a positive attitude of both teacher and student is required for the successful integration of ICT. Without their consent ICT integration isn't possible.

Researchers tried to reveal the relationship between the perceptions and ICT integration. Research studies have established that, keeping positive attitudes towards ICT influences computer usage. According to Alkaromah et al. (2020), pupils' optimistic approaches toward computer technology have a direct positive influence on their innovative use of ICT. He also found that instructors have a more optimistic attitude towards the use of computer than their observations about usefulness of it.

Pérez et al. (2024) points out that in the development of technology-based curricula, an awareness of attitudes of the learners is important. So, the successful integration of ICT depends

upon the perceptions of the teachers and the students. Shukri et al. (2020) discusses about the role of a leader in the process of implementing technology, which must stimulate the teachers to integrate ICT in their lessons. So, the implementation and integration of ICT requires proper supervision to build up the motivation of students and the teachers.

Pardede (2020) found that, students will have positive attitudes towards ICT, if their experience with computer is increased. However, the students would show negative attitudes towards ICTs if they are used in traditional ways. Therefore, it is necessary to consider students' opinions of ICT and the way they use ICT in schools, since they are key stockholders in the educative process too. Investigating the perceptions of the learners to know what turns them on and off can help the teacher to understand them and provide them with suitable methodologies. Katemba (2020) further investigated the students' perceptions towards ICT integration. They also established that students' attitudes design the teachers' practices which ensures a more "collaborative educative process."

Rasmitadila et al. (2020) stated that the attitudes of teachers affect their acceptance of the usefulness of ICT and its integration into teaching. Kozlova and Pikhart (2021) believe that the interaction of teachers with computers improves their attitudes towards ICT. Nashruddin et al. (2020) said that this positive attitude of teachers will lead to successful ICT integration into classrooms. Woyo et al. (2020) promoted the same idea by stating that, the educational practice will be enhanced if the users bear positive perceptions about the technology. Simonson (2004) conducted research and established that teachers' perceptions were related to their use of technology. These researches proved that the positive perceptions of the teachers have a direct relationship with the innovative use of ICT by the instructor.

Abel et al. (2022), Pokhrel and Poudel 2024) Stressing the need for professional development programs for teachers to improve their ICT skills and knowledge, he also proposed some courses in ICTs to be included in the training programs for teachers. He stated that this practice will enhance the confidence level of instructors, along with their perceptions towards the use of ICT. ElSayary (2024) believes that the effectiveness of ICT depends upon the learning activities of students. So, it is important to explore their perceptions to motivate them and guide them on the right route to maximize the benefits of ICT integration. Minga and Ghosh (2024) conducted research on children suffering from Autism Spectrum Disorder and found that they can have a better understanding of emotions. He recognized the influential role of ICT in this regard.

From these researches, it is clear that the use of ICT has become a must in modern teaching methodologies. To attain the purposes of learning, ICT can play a vital role provided that, it should be used in constructive ways. To improve the integration of ICT in the learning process, it is important to know and analyze the perceptions of both, the students and the teachers.

Research Questions

1. What is the perception of teachers and students about the integration of ICT in teaching-learning?
2. What are the variances in teachers' perception towards integration of ICT based on subject basis and students based on the school sector?

Methodology

Data was collected by distributing the questionnaires among the teachers and the students of both the districts, Hunza and Gilgit from three sectors (private, NGO, and government).

There are 1935 public sector institutions in Gilgit Baltistan (GB) out of which 312 high and 43 higher secondary institutions, whereas the private sector shares 612 institutions including 148 high and 30 higher secondary institutions (P.E Statistics, 2017). In districts Gilgit and Hunza (study area) there are 26 and 15 higher secondary schools respectively in the public sector. There are only a few institutions with ICT facilities so these institutions are selected as purposive sampling; however, 10 students and 5 core subject teachers were randomly selected under simple random sampling from already selected public and private institutions. This yielded a population of 140 individuals (70 students and 70 teachers) for study. The statistics were then analyzed to interpret the results to come up with suitable recommendations. Furthermore, the Analyses of Variance (ANOVA) test was used to study the differences in perceptions of teachers and students belonging to different sectors (private, NGO based, and governmental) about the integration of ICT. Teachers' perceptions were also recorded in association with diverse subjects (Maths, Biology, Chemistry, Physics, Computer, and English).

Figure 1: Research procedure

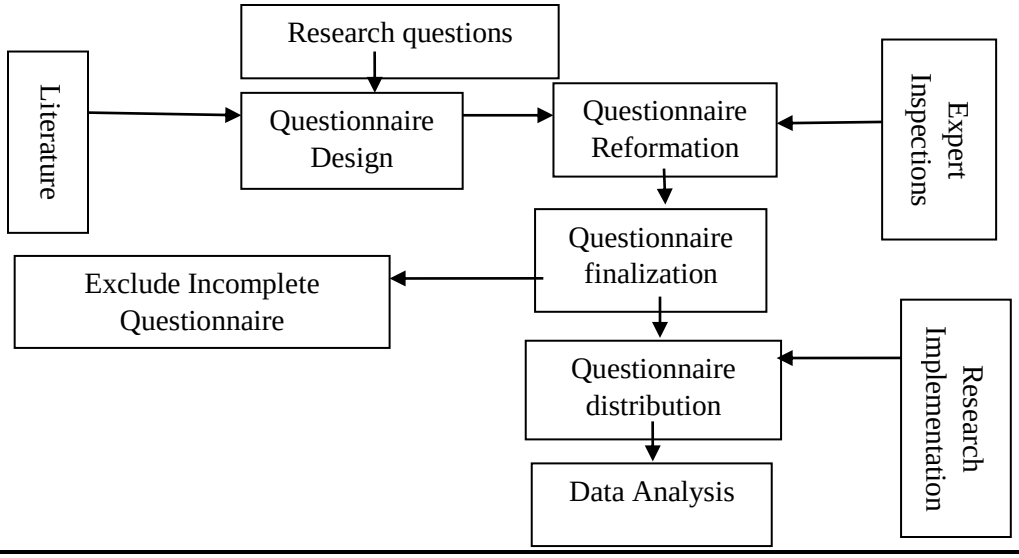
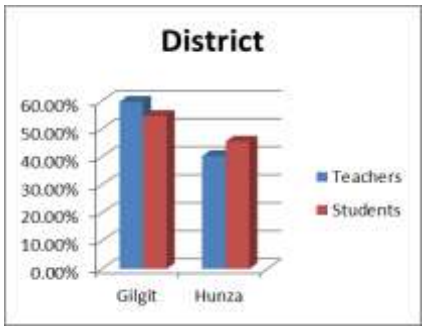


Figure 1 details the research procedure, from questionnaire development to distribution and analysis. This begins with research questions and literature being the basis to guide questionnaire design. The experts check the questionnaire; it is finalized and sent to the field. The incomplete responses they exclude all of it and analyze the valid data, thus contributing to implementation on an overall basis in research.

Research Findings

The purpose of this research is to investigate the perception towards integration of ICT in teaching and learning from two districts of Gilgit Baltistan, Gilgit and Hunza. The total sample of students consisted of 196 out of 200 students and total sample of teachers consisted of 77 out of 100 teachers.

Figure 2: The number of participants on the basis of district, sector and gender



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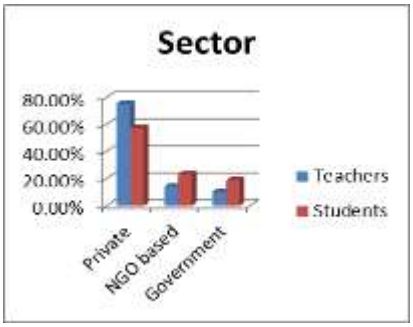

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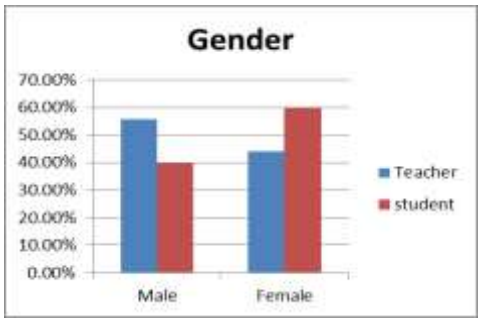

(c)

The graphs explain the participants on the basis of gender, sector and district. The research was conducted basically, in the two main districts of Gilgit Baltistan and the major respondents were the teachers and the students. Approximately 60% of the teachers belonged to Gilgit and the remaining were the residents of Hunza. More than half of the students belonged to Gilgit and 45% of them belonged to Hunza. Majority of the respondents belonged to the private sector i.e. 75.3% teachers and 57.7% students and a very few percentage of participants belonged to the government sector i.e. 10.4% teachers and 18.9% students. Rest of the teachers and the students belonged to NGO based institutions. Moving on to the discussion of gender, it can be seen that majority of the teachers were male but majority of the students were female. So, to ensure an authentic research, a variety of sectors was included and two districts were chosen for this purpose.

Students' Perception towards Integration of ICT

Participants showed their keen interest towards ICT and expressed a positive response towards the integration of ICT by favoring the use of ICT and agreeing with the positive features of the integration of ICT as it enhances the innovative skills of the learners.

Table 1: Students' perception towards the integration of ICT (N= 196)

				Percentage				
Items	Mean	Standard Deviation	Mode	Strongly disagree	Disagree	Not sure	Agree	Strongly Agree
				1	2	3	4	5
ICT increases student's critical thinking, creativity, problem solving abilities as well as interpersonal skills	4.0102	0.93364	4	3.1%	5.1%	9.2%	53.1%	29.6%
ICT increases students' motivation to get more involved in learning activities	4.1888	0.8771	4	2%	3.1%	9.2%	45.4%	40.3%
ICT provides a learner centered environment.	3.8929	0.98904	4	1.5%	9.2%	17.9%	41.3%	30.1%

ICT supports students to personalize their learning	4.0816	0.96262	4	2.6%	4.1%	14.8%	39.8%	38.8%
It increases students' interest as independent learner	4.2143	1	5	3.6%	3.1%	10.7%	33.7%	49%
I feel comfortable working with computers	4.2245	0.99775	5	2.6%	6.1%	7.1%	34.7%	49.5%
I have better information sources than ICT	3.1888	1.22373	3	11.2%	17.3%	28.6%	27%	15.8%
ICT is very helpful in learning process	4.0969	0.88044	4	1.5%	5.1%	9.7%	49.5%	34.2%
I find ICT time consuming	3.1735	1.23226	4	12.2%	17.9%	24%	32.1%	13.8%
I know how to use ICT but i am not interested in learning it	2.602	1.32231	2	26%	27%	17.3%	19.9%	9.7%
I enjoy lessons with a computer	4.3418	0.84761	5	2%	3.1%	3.1%	42.3%	49.5%
Total	3.5012	1.02422	-	-	-	-	-	-

From above table 1, it is revealed that the perception of students towards integration of ICT is quite positive. A huge percentage of students strongly agree with the efficiencies of ICT and promote the idea of integrating ICT in the learning process.

Respondents were asked to indicate, on a five-point scale ranging from strongly disagree (1) to strongly agree (5), their views on the transformative role of ICT in their teaching and learning situation. As shown in table 2, the majority of the respondents perceived that ICT can enhance student's learning abilities and students support in learning, with an overall arithmetic mean 3.5012 and standard deviation of 1.02422. The standard deviation is relatively low therefore lesser deviation among the study samples was recorded; where the mode was 4 indicating that the overall response rate was "agree". The results also show that the highest percentage of agreements was recorded about the statement " I enjoy lessons with a computer" where the mean was 4.3418 and the standard deviation 0.84761. The mode was 5, indicating that the highest response rate that was "strongly agree", with a percentage response rate of 49.5%. This hints towards the affirmative attitudes of students towards the integration of ICT.

The statement which received the second highest affirmative response was, "I feel comfortable working with computers", and where mean were 4.2245 with a standard deviation of 0.8804 which shows lesser deviation among students at this level. The mode was 4, which shows that the highest response was "agree", with a percentage response rate of 49.5%. It indicates that students are willing to integrate ICT based applications in their learning process.

The lowest level was among student's perception toward ICT integration in "I know how to use ICT but I am not interested it to learn" where the mean was 2.602 with standard deviation of 1.32231, showing a greater deviation among students at this level. The mode was 1, which means the highest response was "not confident all", with a percentage response rate of 27%. It hints towards the fact that students are not reluctant towards acquiring the awareness of ICT but they are deprived of the resources.

More than 80% of the respondents said that they enjoy lessons with computer they feel comfortable while using computers and also that ICT can increase the interest of student. Similar percentage of participants believed that ICT allows the mind of children to develop in a healthy environment promising more creativity, critical thinking and motivation. Negligible number of

them stated that they aren't interested in learning about ICT. Only 1.5% people disagreed that ICT is helpful in learning process. People were confused about better resources than ICT. So, an overview of the analysis of the above table reveals that the students of Gilgit Baltistan are strongly favoring the integration of ICT in the education sector.

Figure 3: Cumulative analysis of students perception towards integration of ICT (N= 196)

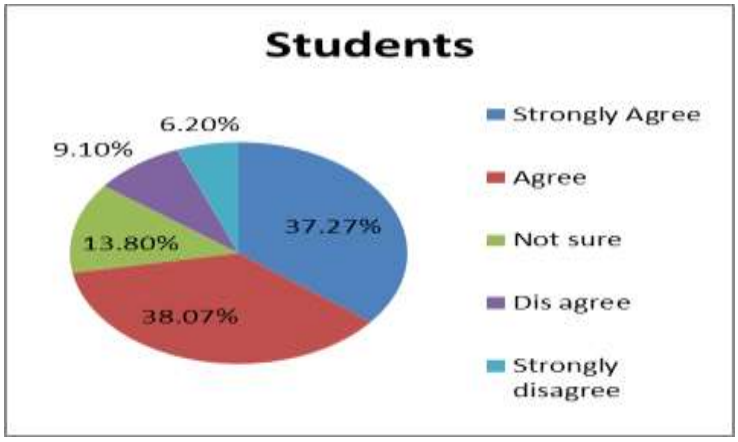

Figure 3 represents the cumulative analysis of teacher perception towards the integration of ICT in the teaching and learning process, The majority of students strongly agreed (37.27%), and agreed (38.07%) indicating a positive and clear perception towards the integration of ICT in teaching and learning process, and a few teachers are not sure(13.80%) about ICT integration. However, minority teachers strongly disagree (6.20%), and disagree (9.10%) which indicates they are still unclear about the benefits of ICT integration in the learning process.

Teachers' perception towards Integration of ICT

The overall analysis of Table 3 proves that the teachers agree with the fact that the center of learning is a student and not the teacher. They also favor the ICT integration in studies to make the learning more effective. They all agree that the integration of ICT within the learning and teaching process would bear positive results.

Table 2: Teachers' perception towards integration of ICT (N= 77)

				Percentage				
Please tick one box only that indicates the appropriate choice in each row	Mean	Standard Deviation	Mode	Strongly disagree	Disagree	Not sure	Agree	Strongly Agree
				1	2	3	4	5
ICT increases students' motivation to get more involved in learning activities	4.2987	0.77908	4	1.3%	2.6%	3.9%	49.4%	42.9%
ICT provides an environment more conducive for students than the teachers	4.0519	0.91617	4	1.3%	6.5%	11.7%	46.8%	33.8%
ICT supports students to	4.039	0.802	4	1.3%	2.6%	14.3%	54.5%	27.3%

personalize their learning								
ICT increases students interest as independent learner	4.1039	0.9812	4	2.6%	5.2%	11.7%	40.3%	40.3%
ICT provides an environment to develop communication skills e.g writing and presentation	3.8831	1.06344	4	3.9%	9.1%	11.7%	45.5%	29.9%
I have better information source than ICT	3.1711	1.27946	2	9.1%	26%	22.1%	22.1%	19.5%
ICT provides a valuable instructional tool	4.1558	0.97421	5	2.6%	5.2%	9.1%	40.3%	42.9%
Teachers need more hard work to provide effective knowledge to students	4.039	0.99262	4	2.6%	6.5%	11.7%	42.9%	36.4%
ICT lessens the pressure for teachers in teaching	4.2597	0.86454	4	1.3%	5.2%	3.9%	45.5%	44.2%
ICT makes lessons more interesting and administration more efficient	4.3506	0.80731	5	1.3%	2.6%	5.2%	41.6%	49.4%
My technical knowledge is enough to use ICT in classroom	3.8961	1.13072	5	3.9%	10.4%	14.3%	35.1%	36.4%
Promote collaborative learning among teachers and students	4.2338	0.80942	4	1.3%	1.3%	11.7%	44.2%	41.6%
ICT provides learner centered environment for both teachers and students	4.2597	0.81761	5	1.3%	1%	15.6%	37.7%	45.5%
ICT provides environment to enhance confidence and career prospects	4.2727	0.83723	5	1.3%	2.6%	9.1%	41.6%	45.5%
ICT integration into classroom will make teaching easy	4.3377	0.73646	4	1.3%	2.3%	7.8%	45.5%	45.5%
Hardware and software skills training require integrating ICT in classroom	4.2727	0.77181	4	1.3%	2.6%	3.9%	51.9%	40.3%
Integration is only possible when extensive computer resources are available	3.974	1.02565	4	2.6%	7.8%	14.3%	40.3%	35.1%
ICT must be integrated in curriculum as teaching tool	4.2727	0.8979	5	2.6%	1.3%	10.4%	37.7%	48.1%
Tools and learning resources must be added in relevant subjects(eg maths tools and resources)	4.3636	0.70541	5	2%	2.6%	5.2%	45.5%	46.8%
ICT based activities must be included in national curriculum	4.4935	0.62034	5	0.3%	1.3%	2.6%	41.6%	54.5%
Cumulative	4.0534	0.8976	-	-	-	-	-	-

The above table 2 shows the response of teachers towards the integration of ICT. The empirical data suggests that teachers belonging to all domains prefer the integration of ICT in teaching but they are bound due to the lack of resources and awareness.

ICT teacher learning abilities and ICT teachers support in learning, teaching and learning environment, use of ICT and ICT integration in curriculum is high in the classroom with an arithmetic mean 4.0534 and standard deviation of 0.8976. So the standard deviation is comparatively lesser than 1, it means lower deviations among teacher's study sample. The results also show the highest ICT integration positive perception in the teachers is about the statement " ICT based activities must be included in national curriculum" where the mean was 4.4935 and standard deviation 0.62034. The mode 5, showing the highest response rate was "strongly agree", with a percentage response of 54.5%. The second highest percentage of agreements was about the statement "Tools and learning resources must be added in relevant subjects (eg maths tools and resources)", where the mean was 4.3636 and standard deviation of 0.70541– meaning a lower deviation among teachers at this level. The mode was 5, which means that the maximum response was "strongly agree", with a percentage response of 46.5%.

The lowest level of agreements was recorded among teacher's perception towards ICT integration about the "better information source than ICT" with mean 3.1711 and standard deviation of 1.27946, showing higher deviation among teachers in this regard. The mode was 2, which shows the maximum response was "somewhat confident", with a percentage response of 26%. So, it can be said that teachers do not have better resources than ICT.

Figure 4: Cumulative analysis of teachers perception towards integration of ICT (N= 77)

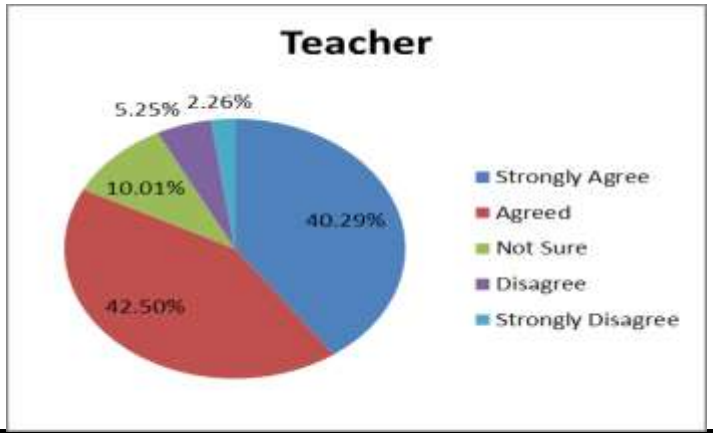

Figure 4 represents the cumulative analysis of teacher perception towards the integration of ICT in the teaching and learning process, The majority of teachers strongly agreed (40.29%), and agreed (43.50%) indicating a positive and clear perception towards the integration of ICT in teaching and learning process, and a few teachers are not sure(10.01%) about ICT integration. However, minority teachers strongly disagree (2.26%), and disagree (5.25%) which indicates they are still unclear about the benefits of ICT integration in the teaching process.

Variances in students towards Integration of ICT with regards to sector

It is envisaged to identify the main differences among perception towards integration of ICT by sector. The results of the student's questionnaires were distributed among different sectors like Government, NGO based and private higher secondary schools in Gilgit Baltistan. Here, we applied an ANOVA -test to examine the significance. If P value is less than .05 values then we consider the test significant. We had results of ten items with p value less than .05 values in most of the responses; it means our test is significant. E.g. the mean of "using easily find web sites" is 4.5435, with p = 0.004 (less than 0.05 and therefore significant

Table 3: Perceptions of students towards integration of ICT (N= 196)

Items	Private		Government		NGO based		Total	
	Mean	N	Mean	N	Mean	N	Mean	N
ICT increases students critical thinking, creativity, problem solving abilities as well as interpersonal skills	4.0531	113	3.9459	37	3.9565	46	4.0102	196
ICT increase students motivation to get more involved in learning activities	4.1858	113	4.0811	37	4.2826	46	4.1888	196
ICT provides an environment more conducive for the students instead of teachers	3.8407	113	3.9189	37	4	46	3.8929	196
ICT supports students to personalize their learning	4.0531	113	4	37	4.2174	46	4.0816	196
It increase students interest as independent learner	4.2301	113	4.027	37	4.3261	46	4.2143	196
I feel comfortable working with computers	4.1504	113	4.2973	37	4.3478	46	4.2245	196
I have better information sources than ICT	3.177	113	3.7568	37	2.7609	46	3.1888	196
ICT is very helpful in my learning process	4.0354	113	4.1892	37	4.1739	46	4.0969	196
I find it time consuming using ICT in learning	3.3186	113	3.7297	37	2.3696	46	3.1735	196
I know how to use ICT but am not interested it to learn	2.6814	113	3.4324	37	1.7391	46	2.602	196
I enjoy lessons with a computer	4.2832	113	4.3784	37	4.4565	46	4.3418	196

To this point, the analysis has focused on examining the distinct elements of the student's "survey". Now it is possible to inspect the results distributed among sector. We tried to examine the significance of comparison among different sectors by applying ANOVA test. Apart from that we attempted to find differences and similarities by using mean method. We also tried our best to identify the essence of perception towards integration of ICT among students through ANOVA test.

Table 3 above shows the overall results, with N number of cases for each instance of different sector. The results show that there seems no variation in all sectors. But the perception towards integration of ICT of "i know how to use ICT but am not interested it to learn" is poor in each sector. In the following questionnaires about "i enjoy lessons with a computer" the mean of NGO based colleges showed much higher results than in private and government sector's result shown medium in the table.

Variances in teacher's perception towards Integration of ICT with regards to subjects. It is envisaged to identify the main differences among perception towards integration ICT by subjects. The results of the teacher's questionnaires were distributed among different subjects like Math's, Physics, Biology, Chemistry, Computer and English in Higher secondary schools in Gilgit Baltistan. Here, we applied an ANOVA -test to examine the significance,

We found out the significance of the test. If our results are less than .05 then we will consider that test significant, we had result of ten items with .05 values in most of the responses; it means that our test is significant. For example, in using scanner, the mean for computer teachers is 4.54,

whilst the mean for mathematics teachers is 4.79, with a p value = 0.017 (less than 0.05 and therefore significant).

Table 4: Perception towards integration of ICT teachers with regards to subjects (N= 77)

	Maths		Physics		Biology		Chemistry		Computer		English	
Item	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N
ICT increase students motivation to get more involved in learning activities	4.5	14	4.3333	12	4.5	12	3.8571	7	4.4444	9	4.1304	23
ICT provides an environment of students learned center instead of teacher learned centered	4.4286	14	4.3333	12	4.1667	12	3.5714	7	3.8889	9	3.8261	23
ICT supports students to personalize their learning	4.1429	14	4.25	12	4.4167	12	3.8571	7	3.7778	9	3.8261	23
ICT increases students interest as independent learner	4.4286	14	4.5	12	4	12	4	7	4	9	3.8261	23
ICT provides an environment to develop communication skills e.g. writing and presentation	3.9286	14	4	12	4.3333	12	3.5714	7	3.5556	9	3.7826	23
I have better information source than ICT	3.3846	14	2.75	12	3.4167	12	3	7	3.3333	9	3.1304	23
ICT provides a valuable instructional tools	4.2857	14	4.25	12	4.75	12	4	7	3.6667	9	3.9565	23
Teachers need more hard work to provide effective knowledge to students	4.0714	14	4.1667	12	3.8333	12	4	7	4	9	4.087	23
ICT shares the burden of teachers in teaching	4.1429	14	4.75	12	4.0833	12	4	7	4.3333	9	4.2174	23
ICT makes lessons more interesting and administration more efficient	4.2143	14	4.6667	12	4.6667	12	4.1429	7	4.5556	9	4.087	23
My technical knowledge is enough to use ICT in the classroom	4.0714	14	3.75	12	4	12	3.5714	7	4.8889	9	3.5217	23
ICT promotes collaborative learning among teachers and students	4.3571	14	4.4167	12	4.3333	12	4	7	4.6667	9	3.913	23
ICT provides learner centered environment for both teachers and students	4.4286	14	4.4167	12	4.25	12	4	7	4.8889	9	3.913	23
ICT provides environment to enhance confidence and career prospects	4.4286	14	4.5	12	4.25	12	3.8571	7	4.8889	9	3.9565	23
ICT integration into classroom will make teaching easy	4.3571	14	4.3333	12	4.4167	12	4.1429	7	4.8889	9	4.1304	23

Hardware and software skills training require integrating ICT in classroom	4.4286	14	4.25	12	4.1667	12	4.2857	7	4.5556	9	4.1304	23
Integration is only possible when extensive computer resources are available	4.3571	14	4.0833	12	4	12	3.1429	7	4.3333	9	3.7826	23
ICT must be integrated in curriculum as teaching tool	4.3571	14	4.25	12	4.3333	12	3.7143	7	4.8889	9	4.1304	23
Tools and learning resources must be added in relevant subjects(eg maths tools and resources)	4.4286	14	4.4167	12	4.6667	12	4.1429	7	4.5556	9	4.1304	23
ICT based activities must be included in national curriculum	4.5714	14	4.5833	12	4.75	12	4.1429	7	5	9	4.1739	23

An analysis of the responses shown by the teachers of different subjects portrays a vivid picture of the perceptions of the instructors towards the integration of ICT. Teachers belonging to all the domains of study agreed that ICT enhances the motivation of students.

The statements regarding the productivities of ICT were all positively responded. Instructors belonging to all the fields of study agreed strongly with the statements, "ICT shares the burden of teachers", it "promotes collaborative learning", "makes lessons more interesting and administration more efficient", "provides environment to enhance confidence and career prospects", "increases students interest", "makes teaching easy", "valuable instructional tools". So, it is quite clear that ICT can revolutionize the whole process of learning by assisting the teachers in accomplishment of their job and hence, it improves the education environment.

The statement about the need of hard work for teachers was strongly agreed by all the teachers. The recorded responses about the "technical knowledge" of ICT reveal that most of the teachers do not possess a good knowledge to deal with ICT however, the teachers of Physics and Chemistry were somewhat confident. The question about the need of "hardware and software training skills" was positively responded by all the members who show that the instructors are ready to get trained in ICT skills. Majority of the teachers favored the extensive computer resources for ICT integration and all the participants suggested the integration of ICT as a teaching tool however, the chemistry teachers showed a bit divergent behavior.

All the respondents strongly promoted the idea of ICT integration in the National curriculum and also voted in favor of subject-based ICT tools although some of them disagreed with the suggestion. Overall a positive attitude was recorded towards ICT integration. People of Gilgit Baltistan were ready to welcome the innovations of ICT to improve their system of education.

Conclusion

ICT has revolutionized the education system throughout the world but some of the regions have adopted a different path. To improve the integration of ICT, the perceptions of teachers and the students need to be highlighted. It has posed a new challenge to the teachers, who are used to the traditional modes of teaching. To fulfill the demands of 21st century education, there is a dire need to integrate the ICTs at all levels in the education sector. The research shows that, teachers are ready to adopt the new modes of teaching by integrating ICT but they are deprived of the resources. The perceptions of students also reveal that they want an ICT based learning

environment to improve the learning environment. Both the teachers and the students expressed a desire to use ICT as a permanent means of learning. So, the relevant authorities should take initiatives to enhance the level of ICT integration in education sector in Gilgit Baltistan. Positive attitudes must be promoted towards ICT so that it can be utilized in a better way to strengthen and develop the students' concepts. Its effective use must be planned and implemented. Teachers may commit to the innovation if they bear a positive attitude towards it. The teachers have positive perceptions towards ICT. It means they are ready to experiment with ICT tools. To involve the teachers in the process of ICT integration, the barriers perceived by both the teachers and the students need to be addressed.

Recommendations

Following recommendations are prepared on the basis of above discussion.

- Teachers' training of ICT skills should be promoted and relevant courses should be included in the training.
- Both the teachers and the students should be made aware of the modern trends so that they would show a positive attitude towards ICT integration.
- Relevant authorities should take initiatives to provide the educational institutions with resources for successful integration of ICT.
- Professional development programs should be incorporated into the teacher training to update their knowledge and skills regarding ICT.
- ICT should be integrated in the National Curriculum and subject based tools should be developed.

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