Ilkogretim Online - Elementary Education Online, 2021; Vol 20 (Issue 6): pp. 4747-4759
http://ilkogretim-online.org
doi: 10.17051/ilkonline.2021.06.461

A Comparative Study Of Information And Communication Technology In Secondary Education: A Case Study Of Pune And Aurangabad Districts

Gaikwad Sneha Vaibhav Research Scholar, Dept. of Education, Sri Satya Sai University of Technology & Medical Sciences, Sehore, Bhopal-Indore Road, Madhya Pradesh, India.

Dr.Neelam Khare Research Guide, Dept. of Education, Sri Satya Sai University of Technology & Medical Sciences, Sehore, Bhopal-Indore Road, Madhya Pradesh, India.

Abstract

Despite the substantial funding invested in and gifts of ICT equipment made to secondary schools by various international organizations, schools still face the challenge of how to alter the educational experience of students so that they are equipped with the skills necessary to succeed in this particular, information-rich, and constantly changing environment. Concern arises because, until this problem is resolved, interest in secondary ICT advancement will be lost, and improvements to teaching and learning methods will lag. The main objectives of the review were to ascertain the impact of ICT integration on how students are taught and learn in the classroom and to investigate the advantages of utilizing ICT to raise students' self-awareness, individual performance, critical thinking skills, reading comprehension, and writing abilities. Every study hall had a pretest before the knowledge was provided to the exploratory group via ICT-based education. A posttest was then finished for each review group. The material was also examined using expressive and inferential metrics. Regarding general intellectual arousal, the results of the review showed significant differences between experimental and control groups. Furthermore, ICT-based approaches have had a greater impact on students' motivation to pursue academic excellence than traditional approaches.

Keywords: Information, Communication Technology, Secondary Education, Pune, Aurangabad

1. Introduction

Information and communication technology (ICT) is widely used in the modern educational environment and includes electronic transmission systems such as computers, the Internet, radio, television and projectors among others. According to Kent and Facer (2004), school is a place where a child can engage in a variety of PC activities, in contrast to home, which serves as an equivalent place for regular attention to a narrower range of her PC activities

(A. Adinda, 2021). Serves as the primary place of engagement. ICT is being used more and more successfully for education, assessment and leadership. ICT is viewed as a resource that may be leveraged to transform and enhance education. ICT can be used to effectively increase educational quality and link learning to real-world circumstances, as demonstrated by a number of earlier researches. Weert and Tatnall (2005) assert that learning is an ongoing, deeply imprinted process in which pupils challenge their beliefs by looking for information and deviating from traditional teaching strategies. As time passes, they should prepare for this and search for fresh information sources. It will be crucial for these students to be able to use ICT properly.

Admissions to schools will normally rise as a result of ICT. Thanks to ICT, learning can happen anytime and anywhere. For example, online course materials may be available 24 hours a day, 7 days a week. Video chats in the classroom make it simple and pleasant for the teacher to engage with the students. Thanks to ICT, education and learning no longer solely rely on printed materials. Information can be found online through a variety of methods, including video clips, audio tracks, visual displays, and more. Ebb and flow research has proven that ICT helps change a displaying climate into one that is student-focused. Since they participate actively in the educational experiences in ICT homerooms, teachers allow students to make simple decisions, plans, etc. ICT therefore provides more educational options and possible outcomes for both students and teachers. Here is more evidence of the advantages of ICT in education.

Information and communication technology (ICT)-based counseling techniques are widely accepted to be one of the major teaching and learning cycles for L2 (English) learning because they bring urgency to classroom environments, including virtual environments. ICT has actually been viewed by specialists as a combination of hardware, software, delivery systems, sight, and sound rather than as a single technology (A. M. Antelm Lanzat, 2020). In today's educational frameworks, the term "ICT" is used to refer to a variety of rapidly evolving developments, including scratch pad, handheld, and workstations, the Web, advanced cameras, the Internet (WWW), distributed computing, instructional activities, calculation sheets, messages, recreations, Bluetooth, community (Chap), computerized adaptable plates (DVDs), and streaming, as well as applications like virtual worlds, word processors, computerized libraries, test systems, and others. ICT also leads to the development of computerized resources, including sophisticated libraries, where teachers and students may readily access the readings and course materials whenever they need to and under any circumstance.

According to connected writing, ICT improvements are one of the essential challenges that need to be resolved in order to address problems with educational frameworks. The use of ICT in educational settings has also been hailed as a means of promoting learning

opportunities and garnering commitments to creative solutions to issues that arise. As a result, ICT has a bright future in the English classroom, but its realization often depends on many factors, including: B. Attitudes of teachers and students to the role of ICT in teaching and learning English and their perceptions of ICT skills.

In light of the fact that ICT provides a number of tools for flexible, student-centered, portable displaying arrangements and online instruction, numerous publications have already examined the benefits of using it for educational goals. Additionally, by incorporating cutting-edge resources and unique tactics, integrating ICT into the displaying system can generally be improved.

English teachers' use of ICT reflects both their positive attitudes toward technology and their use of effective teaching methods for both inside and outside of study halls. Additionally, assignments are greatly rearranged, cooperative work is advanced, and students' learning is encouraged as a result of the wise use of the related innovations. The positive effects of ICT are also evident in students' academic performance (Asikhia, 2015). However, due to initial lack of interest and reluctance, as well as the lack of particular pedagogical approaches, certain concerns have been expressed about the proper use of ICT by instructors. Due to the current inability of traditional teaching methods to keep up with rising educational expectations, e-proficiency is a way of surviving the information era.

Since it promotes students' commitment to educational goals and engagement in pertinent tasks, academic zeal also significantly influences academic performance, student education, and the reduction of unsafe school behavior. The amount of effort students put into their academic work, as well as the viability and competency acquired, are all examples of academic excitement. Thus, academic zeal can lead to productive participation in class and homeroom activities, a shift in the school's culture, and fantastic connections with instructors and other students.

2. Literature Review

"Difficulties and Potential open doors in Saddling PC Technology for Educating and Learning" was a topic that Matswetu and Mhishi (2013) considered. The review was conducted in Zimbabwe's Makoni East region. Five schools were the subject of a contextual research, and data were acquired through meetings and surveys (Ile, 2014). The respondents were the principals and teachers of the schools. The findings indicated that while PCs were used in schools for administrative purposes, they were seldom ever used for instructional purposes in the institutions under study. PCs were typically only used in PC Studies examples and not in other fields of study.

Ifeoma and Nkem (2013) used an evaluative expressive study to survey the use of ICT and mindfulness by home financial matters educators. The study was conducted in secondary public schools in Nigeria's Anambra area. Information was acquired via a poll and a sample of 234 randomly selected home financial matters educators. The findings indicated that home financial concerns educators used ICT seldom and were unaware of its potential for effective delivery. The instructors were unaware of the existence of educational projects, practical activities, and computer-generated replicas that were relevant to demonstrating home financial issues. They were also unaware that they might use email to communicate ideas and teaching resources with instructors in other countries (Eze, 2018). The educators realized that by setting up an ICT foundation, using ICT in educator preparation programs, making ICT proficiency a 36 requirement for the enrollment of Home Financial matters instructors, and allowing educators to have paid focus on passes to use for ICT skills training, their use of ICT could be improved.

Singh and Muniandi (2012) examined the elements influencing school administrators' choices on ICT adoption. The selection procedures for ICT systems judged suitable for schools were also reviewed, and obstacles to ICT integration were noted. The review employed a technique of subjective evaluation. The study into the surroundings of a school in the Kulim region of Malaysia is now complete. This school was chosen because of the expectation that its earlier ICT plan and solid ICT base would give rich information. The institution had a professional work environment as well. The information was gathered through both internal and external interviews, report investigation, and perception of PC usage (G. W. R. Fernandes, 2018). The findings demonstrated how teachers' excitement for working together on technology projects and exchanging ideas among themselves affected the use of ICT in classrooms. The ICT knowledge and expertise of the teachers, the upkeep of the ICT infrastructure, and the accessibility of professional assistance have all been found to have an impact on ICT participation. Heavy teaching loads, a lack of a framework, and instructors' aversion to changing their teaching approaches were found to be the key obstacles to integrating technology in the classroom.

Oye, Iahad, Madar, and Rahim (2012) focused on how ICT integration in education affected students' performance. In Malaysia, a tertiary foundation oversaw the review. 300 students from the staff of Software engineering and Information Frameworks completed surveys to collect the information (Chao, 2015). The results demonstrated that integrating ICT into teaching had a significant impact on how well students performed. The students who used ICT most frequently performed better academically. It was discovered that discernment, temperament, and anticipation have a major impact on how ICT is used in education.

"E-Learning Impacts on Instructing at Secondary School (Pune)" were examined by Heshmatpanah and Neyestanak in 2011. The purpose of this study was to identify a reliable

way for using e-learning to deliver courses that complies with Pune's current delivery regulations. The results of this investigation revealed a few benefits of adopting e-realizing, including the opportunity to learn whenever and wherever you want, the capacity to provide students a variety of teaching methods, and the potential to make them independent and free students. Similar actions to coordinating ICT in education were taken (J. A. Fredricks, 2004). The researchers discovered that the time allotted to a subject was too short to consider using the internet, and that 38 of the students were too eager to browse unrelated sites to focus on the topic at hand. Due to unfortunate English language proficiency, students failed to thoroughly explore the locations.

3. Advantages of ICT in Education

The letter praised the benefits of ICT in education. We have learned that ICT can be used:

3.1. Help pupils rapidly and effectively access digital information

According to Brush, Glazewski, and Slash (2008), ICT is used as a tool for students to find learning points, face challenges, and provide solutions to problems in their educational experience (Das, 2019). ICT improves access to information security and understands learning domain concepts while interacting with students through ICT.

3.2. Encourage student-centered and independent learning

Today's students routinely grapple with the significant and growing use of personal computers. New information is generated by searching, selecting, organizing, and analyzing existing information. Students learning through ICT are better able to use knowledge and information from different sources and assess the quality of learning materials.

3.3. Create a stimulating environment for learning

ICT encourages students to discover new things in their academic fields. ICT provides more shrewd solutions for diverse learning needs. Digital books, for instance, are frequently used in understanding classes for reading comprehension activities. Students can easily access a broad variety of materials on PCs, PCs, personal digital assistants (PDAs), or iPads, ranging in difficulty from beginner to cutting edge (M. A. Abdalqader, 2018). More specifically, these digital books might be used in conjunction with comprehension software that offers a point of engagement for reading aloud, in-depth jargon-building exercises, games that support comprehension abilities and jargon acquisition, and that's just the beginning.

3.4. Encourage group learning in a distance learning setting.

Koc (2005) argues that ICT enables students to participate, contribute and share information whenever and wherever they want. Students from all over the world may, for instance, be

invited to a remotely controlled homeroom that would convene at the same time for a topic debate. They might have the chance to investigate issues, consider thoughts, and cultivate ideas. They might assess ICT-based learning environments as well. Together, students learn new things, but they also share a range of development opportunities that motivate them to take chances and think critically about what they are learning.

3.5. Give students more chances to practice critical (higher-order) thinking skills

Due to a successful learning method, ICT helps students concentrate on more significant activities instead of lower level topics. There are considerable connections between utilizing ICT to think through problems and acquiring sound reasoning skills, according to McMahon's review from 2009. Higher levels of critical reasoning skills can be developed in students through a wider exposure to the ICT environment (M.-P. Prendes-Espinosa, 2020). In this way, educational institutions are well-trained to coordinate technology across all learning domains and levels. When this is complete, students can use technology to achieve more important levels of perception in clear learning environments.

4. Methodology

The exploration procedure made use of a benchmark group, a pretest-posttest strategy, and a semi-exploratory approach. The actual population for the 2019-2020 school year consisted of all grade 10 students enrolled in secondary schools located in Aurangabad city, Pune. The comfort test method was also adopted because the school needed adequate equipment and professional infrastructure in addition to the basic skills of the students (Meenakshi, 2013). As a result, a school in Aurangabad with a projector, PC studio and internet was selected. Her two classrooms at a particular school were then randomized into her two experimental groups (ICT-based education) and a control group (conventional education). There was also a pre-study test during the two meetings before the start of the semester. The moral implications of each step in this review are considered. Review participants were informed of findings relevant to their participation in the study, as well-crafted reports may pose a risk of compromising participants' privacy. At that point, they received a digital contract that they had to sign and send to the scientist. The purpose of the review was explained to the participants and it was made clear that both their identities and comments would be kept private. In addition, respondents can withdraw their ratings at any time. Towards the end of the review, you will also be notified of the final results.

Twelve 45-minute sessions were on the model's agenda. Narrative programming used text, audio, educator voices, models, activities, and games to create teaching materials as needed. Two days before him in the classroom, the experimental group received content from an interpersonal organization, while the benchmark group received no intercession (N. Ahmad,

2020). Towards the end of the semester, the two groups took a post-test. Orientation, age, education level, and instruction were considered in the review.

Levene's test was used to set terms for differences between group outcomes, and analysis of covariance (ANCOVA) was used to test exploratory hypotheses.

5. Result

As reported in Table 1, the exploratory and control group's explicit measure of learning energy showed that the experimental group's students' post-test mean on the variable scientific enthusiasm was higher than the benchmark group's mean.

Table 1: (Mean and SD) Strong intellectual drive in the experimental and control groups

Scale	**Groups**	**Control group**		**Experimental group**	
		Mean	**SD**	**Mean**	**SD**
Academic enthusiasm	Pretest	82.30	6.38	80.67	24.89
	Posttest	82.26	24.42	84.46	26.67

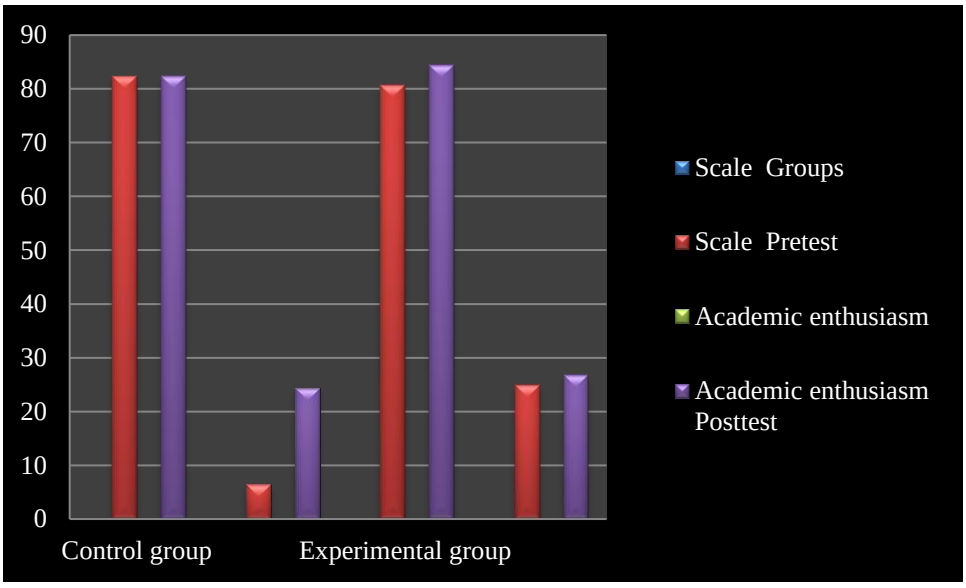

Figure: 1. intense intellectual drive in the experimental and control groups (mean and SD)

Table 2 shows the results of the Kolmogorov-Smirnov test used to examine the distribution of the academic energy mean.

Table 2: standard deviation

Variables	d.f.	z	p
Academic enthusiasm	43	0.33	0.000

Since p>0.05, it was assumed that the dispersion had been standardized, and the academic energy studies indicated that p>0.05 was a critical level (Çiftçi, 2019). Additionally, the Kolmogorov-Smirnov test findings showed a typical dispersion of the mean scores of academic interest. Table 3 provides an analysis of ICT-based and conventional ways for advising on scholastic energy.

Table 3: a variance equivalence analysis based on the outcomes of the Levene test

Variables	d.f.1	d.f.2	F	p
Academic enthusiasm	1	43	0.027	0.983

After excluding the effect of the pre-test, the mean score of school enthusiasm between the experimental group and the control group was fundamentally different, suggesting that ICT-based education is more successful than conventional education in terms of undergraduate school enthusiasm. was taken (Oladejo, 2018). Answer the survey question: "Is teaching English using ICT-based counseling techniques more viable than conventional teaching within the academic energy of the 10th year undergraduate?"

Table 4: Results of an ANOVA test for the difference in academic zeal mean scores between the experimental and control groups.

Variables	Source of change	Sum of squares	F	Mean squares	d.f.	p
Academic enthusiasm	Interconnection	12355.24	245.38	12355.24	1	0.000
	Group	250.56	5.24	250.56	1	0.056
	Error	3334.43	---	78.25	42	---
	Total	3824.00	---	----	45	---

6. Discussion

The current review supports research hypotheses that using ICT to teach English can be more effective than traditional teaching methods in improving grade 10 students' academic

performance. Results of Bexton et al., Bashpour et al., Kavetsos and Koutroumpis, Naeemi Hosseini et al. Moradi Mokhles and colleagues investigated the effects of using ICT on learning and presentation and agreed with this finding.

The results of this study are consistent with those of Azizi Nejad and Allah Karami. They examined the impact of traditional education and ICT-integrated education on the academic performance of 8th grade students in Javanrood (Al-Kadi, 2021). They hypothesized that there was a large gap in academic rigor between the exploratory and control groups. The conclusion of the study showed that her ICT-based approach to teaching was more effective than conventional teaching in promoting students' motivation to learn. The study findings are similar because each of the previous studies alluded to the impact of ICT use in teaching and learning. The use of ICT is seen as successful in promoting pleasure, fulfillment, viability and academic inspiration. All of these relate to scientific energy and, through discussion with educators, lead to radical improvements in world translation.

In an ICT-based learning environment, a student is given the opportunity to learn and evaluate new content using dynamic information provided through her web-based communication, providing dynamic information that helps her learn about her individual past experiences. given a static and dynamic member. Data collection changes. It is widely believed that the presence of a participatory environment engages students in challenging tasks and helps them develop the skills necessary to cope with life obstacles in an ICT-based learning environment. Additionally, this problem helps students become passionate thought leaders. Two elements of her that are necessary are revealed: collaboration and a sense of involvement (S. Alonso-García, 2019). The foundations and structures of education and the responsibilities of teachers and students are changing with the use of information and communication technology as a learning tool in the classroom and in gaining experience. If teachers and students are willing to use and implement these tools, they can use their potential and skills more effectively. Most students can focus on their learning while using the devices mentioned above as well as cutting-edge tools such as media, images, recordings and audio. These tools create integration possibilities by making teaching fun while the text is playing or developing compositions for students. ICT to a more practical educational cycle for students. Their energy increases when they focus on the benefits of the relationship which prevents them from feeling exhausted or burned out because they are fascinated and amazed by it.

Education based on information and communication technology can provide students with a comfortable learning environment full of inner inspiration, joy, mental stability, and freedom from stress and humiliation. Here, the search for material is more inspired and engaging for both the teacher and the student (Delibalta, 2020). In actuality, ICT-based education enables students to benefit from a range of teaching strategies in addition to

extending learning and drawing upon their own ideas. Strong criticism and helpful advice from the teacher will also help students become less anxious before exams, become more aware of what is expected of them, receive more support, share information, and further their understanding, which highlights the importance of understanding and reveals the understudies' current situation. The review's primary effect is to draw students into the study hall. Sadly, recent events have led to some students leaving their educational institutions, particularly in low-paying locations and as a result of their work in additional bogus jobs. Eliminating traditional queries, offering services at the school, eschewing the professors' tactics and discourse, and fostering an effective learning environment will all have an impact on the understudies' satisfaction and importance. Both directly and indirectly, these acts will have an impact on this variable. It could affect students' academic performance and motivation. Due to the rapid developments in science and technology, educators and educational authorities continue to employ traditional teaching techniques despite still being uninformed of the advantages of combining information and communication technologies with traditional education. The information gathered and the new theories and approaches to dealing with science and its presentation techniques suggest that education professionals and educators should stop emphasizing logical reality and focus solely on course content. There is Under all circumstances, new technology should be used instead. However, given that children spend a significant amount of time in school and will be knowledgeable about a variety of topics in the future, it is twice as crucial to pay attention to the factors that influence their behavior and academic success.

Students may become less tired and more willing to participate in educational activities as a result of the use of sight and sound in ICT-based learning environments (Ghafory, 2021). Students might feel more fearless in these situations, where there are favorable growth opportunities, and they might not go through despair or burnout. However, students could feel more energised and fulfilled as a result of the range of content offered and the variety of learning methods. Therefore, utilizing information resources and asking lecturers for immediate input could enhance collaboration, hasten learning, and also work on scholarly execution and excitement. ICT-based education, according to studies, offers the conditions needed to improve students' academic self-concept and, in addition, increase students' scholarly motivation.

7. Conclusion

The review's conclusions suggest that an ICT-based strategy for teaching English could improve students' academic self-concept and psychological well-being. Higher degrees of intellectual excitement may so arise from student involvement and full development. Last but not least, student-created media can help further develop a positive academic self-image and increase enthusiasm for the English language. The conditions are:

In government, educators should be trained in the use of ICT-based education, schools should be equipped with ICT and implemented by principals, and teachers and students should be encouraged to explore the nearly limitless possibilities of ICT (S. M. M. Davoudi, 2018). Schools should be equipped with the relevant ICTs and principals should implement them. It is desirable to identify and evaluate teachers who use this type of teaching. ICT-based education requires webcasting.

Consider the following exploring concepts:

Studying ICT-based techniques for guidance at various levels of educational frameworks and institutions

(i) Examining ICT-based education across a range of subjects

(ii) Examining understudy enthusiasm using other novel approaches

(iv) Examining the effects of ICT in study halls on various aspects to be explored in the future, such as scholastic burnout and scholarly transformation.

(v) Investigating ICT-based instruction among male understudies.

References

1. A. Adinda, N. Parta, and T. D. Chandra, "Investigation of students' metacognitive awareness failures about solving absolute value problems in mathematics education," European Journal of Educational Research, vol. 95, no. 95, pp. 17–35, 2021.
2. A. M. Antelm Lanzat, A. J. Gil, M. L. Cacheiro González, E. Pérez Navío, and E. Fonseca Pedrero, "Learning styles and vocational guidance in secondary education," Educational Sciences: Theory and Practice, vol. 20, no. 3, pp. 1–15, 2020.
3. Asikhia, U. O. & Awolusi, O. D. (2015). Assessment of Critical Success Factors of Business Process Reengineering in the Nigerian Oil and Gas Industry, South African Journal of Business Management, 46(2), 1-14
4. C. Oduma and C. Ile, "ICT education for teachers and ICT supported instruction: problems and prospects in the nigerian education system," African Research Review, vol. 8, no. 2, pp. 199–216, 2014.
5. Eze, T. O. & Awolusi, O. D. (2018). Effect of Critical Factors on Expatriate Assignment Performance in the Nigerian Oil and Gas Sector, Global Journal of Interdisciplinary Social Sciences, 7(2), 6-19.
6. G. W. R. Fernandes, A. M. Rodrigues, and C. A. Ferreira, "Professional development and use of digital technologies by science teachers: a review of theoretical frameworks," Research in Science Education, vol. 50, no. 2, pp. 673–708, 2018.

7. GM. Chao, "Impact of teacher training on information communication technology integration in public secondary schools in mombasa county," Human Resource Management Research, vol. 5, no. 4, pp. 77–94, 2015.
8. J. A. Fredricks, P. C. Blumenfeld, and A. H. Paris, "School engagement: potential of the concept, state of the evidence," Review of Educational Research, vol. 74, no. 1, pp. 59–109, 2004.
9. K. Das, "Role of ICT for better mathematics teaching," Shanlax International Journal of Education, vol. 7, no. 4, pp. 19–28, 2019.
10. M. A. Abdalqader, I. A. Ariffin, H. F. Ghazi, M. F. Baobaid, and M. A. Fadzil, "The prevalence of bullying and it's associated factors among one of high school students in Selangor, Malaysia," Malaysian Journal of Public Health Medicine, vol. 18, pp. 52–56, 2018.
11. M.-P. Prendes-Espinosa, P.-A. García-Tudela, and I.-M. Solano-Fernández, "Gender equality and ICT in the context of formal education: a systematic review," Comunicar, vol. 28, no. 63, pp. 9–20, 2020.
12. Meenakshi, P. G. (2013). Importance of ICT in Education. Journal of Research & Method in Education, 1(2), 468- 493
13. N. Ahmad, N. Hoda, and F. Alahmari, "Developing a cloud-based mobile learning adoption model to promote sustainable education," Sustainability, vol. 12, no. 8, p. 3126, 2020.
14. Ö. Ardıç and H. Çiftçi, "ICT competence and needs of turkish EFL instructors: the role of gender, institution and experience," Eurasian Journal of Applied Linguistics, vol. 5, no. 1, pp. 153–173, 2019.
15. Oladejo, M. J. & Awolusi, O. D. (2018). Effect of Work-Family Role Conflicts on Employees Commitment and Organizational Performance: A study of AKLAD Interlink concept, Nigeria, Global Journal of Commerce and Management Perspective, 7(2), 81-96.
16. R. Ahmed and A. Al-Kadi, "Online and face-to-face peer review in academic writing: frequency and preferences," Eurasian Journal of Applied Linguistics, vol. 7, no. 1, pp. 169–201, 2021.
17. S. Alonso-García, I. Aznar-Díaz, M.-P. Cáceres-Reche, J.-M. Trujillo-Torres, and J.-M. Romero-Rodríguez, "Systematic review of good teaching practices with ICT in Spanish higher education. trends and challenges for sustainability," Sustainability, vol. 11, no. 24, p. 7150, 2019.
18. S. E. Akbay and A. Delibalta, "Academic risk-taking behavior in university students: academic procrastination, academic locus of control, and academic perfectionism," European Journal of Educational Research, vol. 89, pp. 159–177, 2020.
19. S. Ghory and H. Ghafory, "The impact of modern technology in the teaching and learning process," International Journal of Innovative Research and Scientific Studies, vol. 4, no. 3, pp. 168–173, 2021.

20. S. M. M. Davoudi, K. Fartash, V. G. Zakirova et al., “Testing the mediating role of open innovation on the relationship between intellectual property rights and organizational performance: a case of science and technology park,” Eurasia Journal of Mathematics, Science and Technology Education, vol. 14, no. 4, pp. 1359–1369, 2018.

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