Scholars Journal of Arts, Humanities and Social Sciences OPEN ACCESS
Abbreviated Key Title: Sch J Arts Humanit Soc Sci
ISSN 2347-9493 (Print) | ISSN 2347-5374 (Online)
Journal homepage: https://saspublishers.com

ICT Awareness Among the Higher Secondary Students, A Study

Dr. Pradip Kumar Das[1*]

[1]Formerly Associate Professor in Commerce, J. K. College, Purulia, S. K. B. University, Purulia, India

DOI: https://doi.org/10.36347/sjahss.2024.v12i09.005 | **Received:** 13.08.2024 | **Accepted:** 17.09.2024 | **Published:** 19.09.2024

***Corresponding author:** Dr. Pradip Kumar Das
Formerly Associate Professor in Commerce, J. K. College, Purulia, S. K. B. University, Purulia, India

Abstract **Original Research Article**

In the ongoing advancing digital era, emergence of Information and Communication Technology (ICT) has instinctively refashioned the strategy of all demeanors of pursuits within business, society, governance and in education beyond expectance. Panoramic advancement depends heavily on qualified personnel which is doable through christian upbringing. It has progressively revamped education from traditional to noble and fervent teaching methodology, learning processes, scientific research and archiving information. This empirical study has made an attempt to assess ICT awareness among the selected higher secondary level students in the district of Purulia of West Bengal state, a region portrayed by its distinct societal problems and more, to explore the eventuality for implicit growth. By employing a structured survey methodology, data have been obtained from a representative sample of students over varied schools in the district. Findings are expected to provide crucial visions into the current state of ICT literacy among these students and underscore the need for tailored approach to traverse digital gap. This study will further the genesis of strategies quested after boosting ICT education, safeguarding equal opportunities to digital resources, and nurturing a more in-depth learning surround in Purulia.

Keywords: ICT, Students, Awareness, Learning, Impact.

INTRODUCTION

Every nation has an incumbency to precipitate robust education for students through sound upbringing. In the digital age, it becomes socio-economic activity which commenced endorsing society perceptibly by engineering incorporation of traditional and novel approach. Teaching-learning with ICT has crescively metamorphosed academic society into knowledgeable critic society which, too, shapes economy to knowledge economy and bolsters nations to spawn wealth by dissecting knowledge. Teachers being crucial part of quality teaching, technology cannot thrive without them. To meet the cogitation, knowledge economy needs academy to originate candidates having all-important IT and other proficiency. This is possible only with acceptance and inclusion of ICT with teaching-learning practice. Heightened exposition of students to educational ICT through curriculum incorporation promotes nations to enhance educational system beyond classrooms and come near to all strata of society together. Developing competition in education sector and market demand supports ICT into classroom, learning structure to cultivate efficiency and transition, and to contribute backing for remodeled educational designs.

Integration of ICT in education has reinvigorated the approach awareness is broadcasted and gained, providing glowing opportunities for strengthening learning experience. Apropos of India, ICT plays starring role in bridging educational gaps, particularly in rural and poverty-stricken areas. The district of Purulia, situated in the state of West Bengal, is basically rural with privileged access to progressive educational provision. Despite governmental strives to foster ICT in schools, there is an increasing relevance about the intensity of ICT awareness and culture among students at higher secondary level in this region.

In this backdrop, this study has made a modest attempt to survey ICT awareness among higher secondary (HS) students in Purulia, viewing their gateway to digital tools, association with ICT concepts, and incorporation of technology into their learning techniques. Extrapolating the perspective of ICT awareness in this society is crucial, as it impacts their academic achievement as also their receptivity for higher education and upcoming career possibility. The findings

will suffice as a backbone for evolving strategic object to better ICT education and clinch that students in Purulia are prepared with requisite digital literacy to blossom in the 21st century.

ICT-Concept

ICT is perceived as wide-ranging technological tools and resources employed to transmit, store, create, share or exchange information. Mounting arena of ICT covers futuristic tools like artificial intelligence, Internet of Things (IOT), cloud computing, and data analytics, fresh metamorphosing how information is prepared and exercised (Kizza, 2017). It has developed into one of the basic constituents of modern society. ICT helps upgrade in multiple fields, including business, education, medicine, real-world problem-solving and even entertainment pursuits.

ICT is one of the economic upswing pillars to gain national competitive edge. It betters happiness because it may be utilized as academic media, transmission media in elevating and campaigning pragmatic issues, like health and social area. ICT fosters translucence in governance by accelerating public access to government activities and information.

Several countries consider ICT as integral of the essence of education, alongside reading, writing and numeracy. UNESCO strives to assure that all countries, both developed and developing, have door to the best educational centres essential to educate youth to play crucial role in industrialized society and to assist to a knowledge nation. Because of the critical position of ICT in modern civilization, its' introduction into secondary schools will be lofty on any partisan interest. Approaching technological innovation and changing proficiencies needed for scholastic demands a state-of the-art curriculum and pertinent career growth. ICT makes students more competent of applying information from different sources, and profoundly observing standard of learning resources (Chai *et al.*, 2010).

ICT also generates questions for society. Sundry cybercrimes are intended for disruptions that regulate vital infrastructure and, sometimes, originating broad turmoil and dismay. However, ICT has overhauled every process-functioning, communicating, learning and living. ICT's relevance to economic progress and business growth has been so overhauling that it is much accepted with preceding in the Fourth Industrial Revolution.

LITERATURE REVIEW

Professional development opportunities for teachers can assure they are well-educated to integrate technology efficiently into their teaching techniques, thereby impacting students' awareness and dexterity (Harris&Miller,2022). Discrepancy in socio-economic status and diverse strata of infrastructure in educational institutions impact conformity of ICT awareness among senior secondary students (Gupta &Wang,2021). Attempts to ameliorate awareness usually implicate executing digital literacy plan. Schools and governments may contribute in drives towards boosting students' apprehension of basic computer skills as also major features of ICT, like coding, telecommunication, and digital literacy (Robinson,2017). Educational institutions worldwide acknowledge significance of integrating ICT into curriculum to improve learning experience. Many schools propose ICT-related subjects or incorporate technology into several disciplines to upgrade digital literacy and area-specific proficiency (Brown,2019).

In the 21st century, ICT has evolved into backbone of life, affecting distinct aspects, involving education. Cognizance and perception of ICT among secondary students are vital in educating them for digital questions of the modern culture (Smith,2018). In planning integration of technology in education, it is important for teacher education to understand knowledge and skills required for teachers to efficiently apply ICT in institutions. Teachers need technical assistance to use and maintain technology (Barodiya *et al.*,2015). ICT provides education to the people inapproachable to school for various constraints and plays great role in both formal and non-formal education augmenting education standards (Devi *et al.*,2012).

ICT as a device ascertains learning lessons, solves problems, and feeds solutions. ICT makes literacy more approachable, and ideas in subject areas are presumed during students' involvement in practicing ICT (Castro & Chirino,2011). Integrated to effective interaction, curriculum program is crucial to academic achievement (Minichiello *et al.*,2022). Notwithstanding the possible advantages, challenges concerning digital divide and varying degree of access to technology may cause major impact of ICT on academic progress (Jones, 2017). Initiation of ICT learning environment equips students with opportunities for personalized and collaborative learning knowledge. Environment often feeds diverse cognitive processes and competences, promoting better academic achievements (Smith&Brown,2018). Integration of ICT into education has become notable, with probable inference for academic performance of secondary students. Pursuit of ICT tools and resources in academic world designs to broaden knowledge experiences and educate students for the needs of the digital age (Davis,2019). Higher education institutions are not completely leveraging feasibilities of information technology (Lillejord *et al.*, 2018). Institutions need to acknowledge worth of intellectual capital worldwide for higher education (Tariq *et al.*,2019). ICT has substantial effects on teaching-learning as well enriched students' achievements **(**Falobi, 2014). No wide gap is observed between teachers' and students' awareness on adoption of ICT (Ajisafe, 2014). There are depleting factors like

little upkeep practice of ICT opportunities, application of outmoded computers, old methodology of data dissemination, etc. (Onojetah,2012). Educators are not well-equipped with ICT educational opportunities about course and evaluation methods (Egboka, 2012). Periodic live interaction and input help students continue enthusiasm (Means & Neisler, 2021). Excogitating students' discernment and knowledge helps instructors evolve fruitful online educational setting (Widodo *et al.*,2020). Learner involvement is imperative to promising online programs (Castro & George,2021). Progression of ICT tools and courses meets requirements of multiple learners (Francis *et al.*,2019). Students meet success when ICT affords opportunities for collaboration and, exquisitely, for sincere affinity (Rose, 2018). Size of students in online courses has been constantly rising (Landrum, 2020). Extent of students registered in online education programs is predicted to grow in future particularly for ICT awareness that probably appeared around the society during the pandemic time (Cinar *et al.*,2021). Faculty members participating in shaping, promoting and conveying online courses should seek views from students about their life lessons and transmit this information to strengthen awareness concerning ICT (Bayrak *et al.*,2020).Aspects touching students' experiences on online learning, and approaches course inventors and designers apply, help instructors flourish online courses (Kurucay & Inan,2017).Resilience, a pragmatic scale of instructors' compassion, assists students to thrive (Kandemir & Cakmak,2021).Learners' active participation encourages teachers to cultivate integration of ICT in educational system to know their technological savvy (Ertmer *et al.*,2015).

Research Gap

Researcher has identified research gap in extant knowledge. The recent study is unalike from the rest of the studies as there is minor research focused as regards cognizance in ICT education among the secondary school students in Purulia. Scanty former researchers accentuated age, gender, location, teaching-learning landscape and approaches of secondary school students apropos the reception of ICT in Purulia in West Bengal.

Significance of the Study

Holocene era is acclaimed as information era due to cogency of ICT on the entire citizenry. Dream of education in this high-tech society is to accoutre students for the world beyond obligatory schooling. Schools should equip millennials of students for a workspace where ICT is progressively wall-to-wall. It should view how ICT can complement traditional education and communicate novel process of perception to achieve better education like their associates in other countries. Teachers still employ technology occasionally under urgency rather than because they are swayed of its merit as academic tool. Students remain passive consumers of learning and information collectors instead of alive involvement in the exploration of information of significant lessons drawn. This is what appearing in primary level to higher secondary level in Purulia schools. Secondary students, particularly, perceptive of ICT have pivotal role for cogently utilization of learning technology in traditional doctrine. Thus a current study to research whether the students of higher secondary in Purulia are learning canonical digital literacy that are necessary for them to triumph in their future feels to be executed.

Objectives of the Study

i) To ascertain the degree of awareness regarding ICT of higher secondary school students based on medium in Purulia.
ii) To survey potential variations in the awareness of ICT among higher secondary school students based on gender in Purulia.
iii) To accentuate the basic problems associated with ICT for effective teaching-learning environment in the region.

MATERIALS AND METHODS

The present research has employed descriptive and survey approaches to have an eye to the HS level students towards their ICT awareness in the district of Purulia, West Bengal. The sample for the study has been taken from the selected students of Purulia District. Stratified random technique tool is exerted for selecting sample. Sample limit is 500 students. In gender variable 250 from boys, 250 from girls; in medium of instruction variable 250 students from English medium, 250 students from Bengali medium. Questionnaire embraces multiple areas like basics of ICT, MS-Word, MS-Excel, MS-PowerPoint, MS-Access, Internet, etc. Discussions and personal interviews with the students, teachers and the relevant authorities of institutions were initiated by the researcher. On-the-spot studies were executed by reason of well-structured questionnaire. Tentative questionnaires were pre-tested with the students, teachers and authorities. Although there was outfaced phlegm or complacence amongst distinct levels in riposting, the researcher could weather the same through righteous appeal and in-depth bedevilment. It was demystified to them that the information so garnered will be consummately exercised for scholastic pursuits and decent reticence will be restored.

The oeuvre of this study is limited to concoct, incipiently, concept of ICT. In addition, an assessment on the pinnacle purpose essaying cognizance of ICT in Purulia has been limned. While several studies have addressed implementation of ICT, with none explicitly directing secondary school students in this district. Wherefore, the researcher feels the necessity to assess the level of ICT awareness and skills among secondary school students in this region. Approach of explication is seminal for contemplating degree of ICT sentience of Purulia.

Hypothesis

- There is no significant difference between the boy students and girl students with respect to their ICT awareness.
- There is no significant difference between the Bengali medium students and English medium students with respect to their ICT awareness.
- There is no significant difference between the boy students and girl students with respect to their MS-Word awareness.
- There is no significant difference between the Bengali medium students and English medium students with respect to their MS-Word awareness.
- There is no significant difference between the boy students and girl students with respect to their MS-Excel awareness.
- There is no significant difference between the Bengali medium students and English medium students with respect to their MS-Excel awareness.
- There is no significant difference between the boy students and girl students with respect to their of MS-PowerPoint awareness.
- There is no significant difference between the Bengali medium students and English medium students with respect to their MS-PowerPoint awareness.

RESULTS AND DISCUSSIONS

Interpretation

$H\mu_1$: There is no significant difference between the boy students and girl students with respect to their ICT awareness

Table-1: ICT awareness between the boy students and girl students

Sl. No.	Variable	Mean	SD	't' Value	LOS
1	Boys	5.75	1.55	1.6	N.S.
2	Girls	5.36	1.05		

Table-1 shows that mean scores of the school boy students and girl students are 5.75 and 5.36 respectively. SD values of the same are 1.55 and 1.05 respectively. The calculated 't' value (1.6) being less than the table value (1.98) at 0.05 level of significance implies no significant difference between the boy students and girl students of the schools towards their awareness on ICT. Therefore, null hypothesis is accepted.

$H\mu_2$: There is no significant difference between the students of Bengali medium and English medium students with respect to their ICT awareness.

Table-2: ICT awareness between the students of Bengali medium and English medium

Sl. No.	Variable	Mean	SD	't' value	LOS
1	Bengali	5.66	1.33	0.79	N.S.
2	English	5.86	1.54		

Table-2 exhibits that the mean scores of the Bengali medium students and English medium students are 5.66 and 5.86 while their SD values are 1.33 and 1.54 respectively. The calculated 't' value (0.79) is less than the table value (1.98) at 0.05 level of significance indicating no significant difference between the Bengali medium students and English medium students towards their awareness on ICT. Therefore, null hypothesis is accepted.

$H\mu_3$: There is no significant difference between the boy students and girl students with respect to their MS-Word awareness.

Table-3: MS-Word awareness between the boy students and girl students

Sl. No.	Variable	Mean	SD	't' value	LOS
1	Boys	3.16	1.25	2.35	S
2	Girls	2.63	1.25		

Table-3 shows that the mean scores of the boys and girls are 3.16 and 2.63 whereas their SD values are 1.25 and 1.25 respectively. The calculated 't' value (2.35) being less than the table value (2.60) at 0.01 level of significance infers no significant difference between the boys and girls towards their awareness on MS-Word. Therefore, null hypothesis is accepted.

$H\mu_4$: There is no significant difference between the students of Bengali medium and English medium with respect to their MS-Word awareness.

Table 4: MS-Word awareness between the students of Bengali medium and English medium

Sl. No.	Variable	Mean	SD	't' value	LOS
1	Bengali	2.35	1.05	5.71	S
2	English	3.49	1.25		

Table:4 shows that the mean scores of the students of Bengali medium and English medium are 2.35 and 3.49 while their SD values are 1.05 and 1.25 respectively. The calculated 'value' (5.71) is greater than the table value (2.62) at 0.01 level of significance which indicates significant difference between the students of Bengali medium and English medium towards their awareness on MS-Word. Therefore, null hypothesis is rejected.

$H\mu_5$: There is no significant difference between the boy students and girl students with respect to their MS-Excel awareness.

Table-5: MS-Excel awareness among the boy students and Girl students

Sl. No.	Variable	Mean	SD	't' Value	LOS
1	Boys	2.86	1.33	3.16	S
2	Girls	2.18	1.07		

Table-5 exhibits that the mean scores of the boys and girls are 2.86 and 2.18 whereas their SD values are 1.33 and 1.07 respectively. The calculated 't' value (3.16) is greater than the table value (2.61) at 0.01 level of significance which implies significant difference between the boys and girls towards their awareness on MS-Excel. So, null hypothesis is rejected.

$H\mu_6$: There is no significant difference between the students of Bengali medium and English medium with respect to their MS-Excel awareness.

Table-6: Awareness of MS-Excel among the students of Bengali medium and English medium

Sl. No.	Variable	Mean	SD	't' value	LOS
1	Bengali	2.85	1.19	4.09	S
2	English	2.96	1.15		

Table-6exhibits that the mean scores of the students of Bengali medium and English medium are 2.85 and 2.96 respectively. Their SD values are 1.19 and 1.15. The calculated 't' value (4.09) is greater than the table value (2.61) at 0.01 level of significance prescribing significant difference between the mediums of instruction towards their awareness on MS-Excel. Hence, null hypothesis is rejected.

$H\mu_7$: There is no significant difference between the boys and girls with respect to their MS-PowerPoint awareness.

Table -7: Awareness of MS-PowerPoint among the boys and girls

Sl. No.	Variable	Mean	SD	't' value	LOS
1	Boys	3.27	1.30	4.10	S
2	Girls	2.79	1.15		

Table-7shows that the mean scores of the boys and girls are 3.27 and 2.79 while their SD values are 1.30 and 1.15 respectively. The calculated 't' value (4.10) is greater than the table value(2.61)at 0.01 level of significance. Hence, there is a significant difference between the boys and girls towards their awareness on MS-PowerPoint. Therefore, null hypothesis is rejected.

$H\mu_8$: There is no significance difference between the students of Bengali medium and English medium with respect to their MS-PowerPoint awareness.

Table-8: Awareness of MS-PowerPoint among the students of Bengali medium and English medium

Sl. No.	Variable	Mean	SD	't' value	LOS
1	Bengali	2.65	1.15	3.57	S
2	English	3.40	1.20		

Table-8reflects that the mean scores of the students of Bengali medium and English medium are 2.65 are 3.40 whereas their SD values are 1.15 and 1.20 respectively. The calculated 't' value (3.57) is greater than the table value(2.61) at 0.01level of significance inferring a significant difference between the students of Bengali medium and English medium towards their awareness on MS-PowerPoint. So, null hypothesis is rejected.

$H_{\mu 9}$: There is no significance difference between the boys and girls with respect to their MS-Access awareness.

Table-9: Awareness of MS-Access among the boy students and girl students

Sl. No.	Variable	Mean	SD	't' value	LOS
1	Boys	2.85	1.47	3.79	S
2	Girls	1.95	1.20		

Table-9shows that the mean scores of the boys and girls are 2.85 and 1.95 respectively. SD values of the same are 1.47 and 1.20. The calculated value (3.79) is greater than the table value (2.61) at 0.01 level of significance implying significant difference between the boy students and girl students towards their awareness on MS Access. Therefore, null hypothesis is rejected.

RESULTS

- ✓ Majority of the HS students of Purulia District have above average level of ICT awareness.
- ✓ There is no significant difference between the boy students and girl students in ICT awareness. However, boy students have more sharpness than girl students.
- ✓ There is no significant difference between the students of Bengali medium and English medium in awareness on ICT basics. However, the students of English medium are better than the Bengali medium.
- ✓ There is no significant difference between the boy students and girl students in awareness on MS-Word. Boy students have an edge over girl students.
- ✓ There is significant difference between the students of Bengali medium and English medium in awareness on MS-Word. However, the students of English medium have more interest than the Bengali medium.
- ✓ There is significant difference between the boy students and girl students in awareness on MS-Excel awareness. However, boy students show an edge over girl students.
- ✓ There is significant difference between the students of Bengali medium and English medium in awareness on MS-Excel basics. However, the English medium students predominate over Bengali medium students.
- ✓ There is significant difference between the boy students and girl students in awareness on MS-PowerPoint awareness. However, boy students have more effectiveness than girl students.
- ✓ There is significant difference between the students of Bengali medium and English medium in awareness on MS-PowerPoint. However, English medium students have pungency over students from Bengali medium.
- ✓ There is significant difference between the boy students and girl students in awareness on MS-Access. However, boy students exhibit paramountcy over girl students.

Problems Associated with ICT

While ICT has prognosis to metamorphose education, its' implementation in rural areas like Purulia experience deep obstacles. These obstacles impede efficacious integration of ICT in the teaching-learning system at the HS level. This section delineates the basic problems correlated with ICT pursuits apropos of Purulia and brings into being for envisioned propositions in the study.

Poor Infrastructure: One of the most crucial concerns is inadequate infrastructure. A plethora of schools in Purulia lack access to decisive electricity, suitable classrooms, or ICT facilities like computers, projectors, and internet connection. Without these basal essentials, it becomes challenging to integrate ICT into the education system appropriately.

Language and Content Obstacles: Availability of digital educational content in idiomatic languages is restricted. Since Purulia has a large population that speaks Bengali and local patios, students may travail with ICT devices and resources principally in English, also deterring their involvement with e-learning approach.

Teachers' Training and Advertence: Success of ICT in education is closely dependent on teachers' competence to apply digital means tidily. In Purulia, several teachers need requisite training in ICT, which curtails their potential to integrate technology into their teaching practices. Inadequate training programs and tiny understanding of modern ICT devices more intensify this problem.

Students' Previous Knowledge: Students' past adventure has deep impact on their attitude of development and receptivity to welcome more meticulous reasonable elucidation or hypothesis. Students' intellectual pursuits in learning contains reforming learning fabric. Recognition of students' misapprehension is cardinal to paradigm shift in education. It is, therefore, imperative to study the opinions students possess in learning and to consider their acumen before framing ideas on them. Teachers must incorporate novel knowledge with students' past knowledge of scientific phenomena.

Digital Gap: A socio-economic gap prevails between students in rural Purulia and those in urban or more-evolved domains. Multiple students hail from poverty-stricken environments and need admittance to personal digital appliances, restraining their capacities to respond to ICT-based learning off-campus.

Cultural Resilience: There is often cultural resilience to implementing technological innovation in teaching, as both teachers and parents may be incredulous of ICT's post in education. This remonstrance can originate impediment to the acceptance of digital techniques and modes in schools.

Students' Misperception: Students often have misknowledge about principal propensity to arrest integration of novel venture; thus, can also fetter students' evaluations.

Ethnic Diversity: Promising usage of few propositions does not simply illuminate maturity and skill incongruousness but also empowers students to connect further details to prescience that may evince age ethnic differences.

Contemplating these issues necessitates concerted efforts to better fabric, arrange decent pedagogy, traverse digital gap, and produce socially and morphologically felicitous ICT resources. Whipping these obstacles is decisive to cinching that ICT can be effectually interwoven into the schooling network in Purulia.

CONCLUSION

The study on ICT awareness among higher secondary students in Purulia district underscores both the knowledge and problems associated with adapting ICT into educational panorama. It is perspicuous that while a critical segment of students are cognizant of ICT tools and their appositeness, there prevails disparity in approach, application, and cognizance of these technologies situationally. Aspects like socioeconomic background, opportunity of infrastructure, and teacher receptivity take the lead in tailoring ICT erudition among students.

The pilot sampling enkindles to the conclusion principally pertaining to gender, medium of instruction and impact on ICT awareness among the HS students of Purulia District of West Bengal state. ICT awareness among the students in this district shows passable. Their scores support its' fidelity. The boy students are identified higher than the girl students in their ICT awareness, MS-Word, MS-Excel, MS-PowerPoint, MS-Access, Internet, etc. Rather, the students of English medium are discerned better than the Bengali medium in their awareness on MS-Word, MS-Excel, MS-PowerPoint, MS-Access, Internet, etc.

Students are likely to encounter manifold hurdles, embracing poor access to computers, unstable digital connection, and inadequate technical back-up. Besides, the research accentuates the necessity for a better methodical ICT curriculum, linked with sufficient teachers' training, to safeguard students not only access but also cultivate a profound knowledge of ICT's role in understanding and potential career possibilities.

To upend the extant digital divide, strategists and teachers must work together to strengthen ICT framework. Drives towards making ICT resources readily available and reasonable will be primal to enriching students' overall technological competence. Furthermore, deliberate attempts to offer practical knowledge and nurture a e-learning platform will endow students to leverage technology more judiciously.

In closing, while there is an propitious level of ICT awareness among higher secondary students in Purulia, consensual endeavors are incumbent to affirm impartiality and cohesive integration of ICT in education. This becomes indispensible in equipping students for the digital environment and the crescively avant-garde future.

Recommendations

Infrastructure Amelioration: The Government should focus more in the teaching-learning ICT knowledge. For this, the Government should back in elevating ICT infrastructure in schools over Purulia. This constitutes feeding strong internet access, sufficing computers, and other technology tools like projectors, greenboards, and tablets to establish accessibility for academe.

Teachers' Training Workshop: Teachers should undergo constant training on the usage of ICT tools. This facilitates them to appropriately integrate technology into their teaching practices. Teachers' workshop should deliberate on both fundamental and higher digital literacy, promising that educators are tailored to instruct students in their ICT scholarly voyage.

Students' Workshops: Regular ICT workshops and practical training sessions can be arranged to improve students' involvement. These workshops should be framed to help students study and employ technology tools in deciphering practical issues, abetting intellectualism and concoction.

Administration Surveillance: Administration must accentuate respective student to flourish their ICT insights.

Compendious ICT Curriculum: Introducing ICT as core subject at the HS level is crucial. Curriculum should address pragmatic experience like coding, online research, tech savvy, and cybersafety alertness. This can qualify students with pertinent competencies for scholastic and specialistic surroundings.

Parents' and Societies' Awareness: Endeavor should be doomed to develop parents and the broad society about the significance of ICT knowledge. Regional awareness campaigns, seminars, debates, etc. can dissipate any illusion and embolden society support for incorporating technology in education.

Government and Private Collaboration: Collaboration between government and private sectors can subtend the resource scarcity. Public-private collaboration can be bred to pioneer technical know-how, financial support, and infrastructural assistance to schools in Purulia for ICT improvement.

Equitable Access: Unique measures need to be taken to corroborate that students from vulnerable social and interior areas have equitable access to ICT means. Accommodating assistance or costless digital appliances and internet access can arrest digital gap from blooming.

Inadequate Laboratory: Maximum schools in Purulia do not have satisfactory ICT laboratory; it may affect in the cognitive process. Authority should take necessary steps for adequate computer, Internet, etc.

Creating Motivation: Creating motivation affords pragmatic policies teachers can exercise to illuminate their students' impetus. Motivation is a cornerstone of any academic purpose, but it might be problematic to discern between dispirited students and apathetic students. This launches creative pedagogies that espouse teaching as artistic style reminiscing instability. Creative teachers are honored by students' enriched motivation to rummage. Every academy should create and motivate buzz among students for acquiring ICT knowledge through ICT or computer and Internet. It should be probative to students looking for higher studies.

By executing these recommendations, the district of Purulia can dramatically boost ICT perception and adroitness among HS students, furthering a fresh technologically dexterous nascency.

Implication of the Study

Significance of having ICT awareness is crucial to every student at higher studies. Students must exercise computer and Internet in their learning moment. It helps develop profound knowledge about the curriculum associated and better their dexterity also.

This study will be propitious to secondary educational institutions and teachers and non-teaching staffs in cultivating rosy outlook of secondary school students tutored by ICT. The fruit of this study will also be salutary since contemplation of gender-wise (male and female) and medium-wise (Bengali and English) distinction was assiduously interpreted.

Further Research Scope

The current study epitomizes the status of ICT awareness among higher secondary students in the Purulia district. Notwithstanding, there is immense potential for further research in this area. Future studies could enlarge the experimental length to involve more schools to have a better insight of ICT awareness. Further, reconnoitering the aspect of socio-economic considerations, like parental background, in impressing ICT awareness could elucidate priceless lesson.

The study is rooted in few students in particular region. The exploratory study may further be elevated picking a good deal of students of other districts built on their computer lab operation approach to extrapolate the conclusion. The researcher senses that the scope in this area necessitates extensive study to arrive at more illustrious conclusion.

Comparative studies between urban and rural areas of the district, and between Purulia and other districts, may too delineate regional diversities in ICT passport and adoption. Further research could study the efficacity of government and school enthusiasm towards revamping ICT knowledge. Contemplating the impression of innovative technologies, like smartphones and tablets, in upgrading academic success among students can be elsewhere for inquisition. Perspective study to evaluate variations in ICT awareness someday, particularly apropos of blossoming digital ecosystem, would further proffer irreplaceable bestowals to the area.

Research Remarks

Secondary educational institutions are agonist in humanity. ICT integration in HS education initiates modulation in student and teacher studying demeanor and progression strong proficiency like cooperation beyond infinity and elucidates intricate proper global challenges. For the improvement of higher secondary education, educators should rejuvenate their curriculum as also integrate technology into it.

Veracity of ICT must cultivate introspection, manumitted erudition and elegant approach for roman success and welfare state. Education is broad-spectrum and begs stewardship. To triumph, coopetition is prerequisite. Dream hovers frivolous whenever the students are unlettered to nurture the dream.

Acknowledgement

This paper is dedicated to **ALMIGHTY GOD** who shows **HIS** blessings in all walks of my life.

REFERENCES

- Ajisafe, O. E. (2014). Fostering utilization of information and communication technology skills among students of business education. *Proceedings of the 22nd Conference of the Association of Business Educators of Nigeria, 1*(1),171 – 174.

- Barodiya, P., Singh, S., & Choudhary, A. 2015). Use of ICT in teacher education. *The International Journal of Indian Psychology, 2*(4), 131-136. DOI:1025215/0204.013
- Bayrak, F., Tibi, M., & Altun, A. (2020). Development of online course satisfaction scale. Turkish *Online Journal of Distance Education, 21*(4), 110-123. https://doi.org/10.17718/tojde.803378
- Brown, C. (2019). Integrating ICT into secondary education: best practices and challenges. *Educational Technology Journal, 18*(3), 221-238. http://dx.doi.org/10.3126/irj.v1i1.51813
- Castro Sanchez, J. J., & Chirino Alemán, E. (2011). Teachers' opinion survey on the use of ICT tools to support attendance-based teaching. *Computers and Education*. *56*(3), 911-915. https://doi.org/10.1016/j.compedu.2010.11.005
- Castro, E., & George, J. (2021). The impact of COVID-19 on student perceptions of education and engagement. *E-Journal of Business Education & Scholarship of Teaching, 15*(1), 28-39.
- Chai, C. S., Koh, J. H.., & Tsai, C. C. (2010). Facilitating pre-service teachers development of technological, pedagogical, and content knowledge (TPACK). *Journal of Educational Technology and Society, 13*(4), 63-73.
- Cinar, M., Ekici, M., & Demir, O. (2021). Medication or Band-Aid? Revisiting university students' readiness for online education. *Turkish Online Journal of Distance Education, 22*(2), 176-191. DOI: 10.17718/tojde.906848
- Davis, E. (2019). The role of ICT in modern education: a comprehensive review. *Journal of Educational Technology, 46*(1), 87-104.
- Devi, S., Rizwaan, M., & Chander, S. (2012). ICT for quality of education in India. *International Journal of Physical and Social Sciences, 2*(6), 552-554.
- Egboka, P. N.(2012). The status of information and communications technology (ICT) in empowering policy implementation in universities in south east zone of Nigeria. *International Journal of Educational Research and Development, 4*(1), 231-236.
- Ertmer, P. A., Ottenbreit-Leftwich, A. T., & Tondeur, J. Teachers' beliefs and uses of technology to support 21st-century teaching and learning, *International Handbook of Research on Teachers' Beliefs*. Routledge, 2015, 403-419. http://hdl.handle.net/1854/LU-5815883
- Falobi, O.V.(2014).An investigation into the impact of ICT on commercial students' academic performance in public schools in Lagos State. *Journal of Association of Business Educators of Nigeria, 1*(1), 48-154.
- Francis, K., Salter, J., Costanzo, L., Desmarais, S., Troop, M., & Parahoo, R. (2019). Scribe Hero: An online teaching and learning approach for the development of writing skills in the undergraduate classroom. *Online Learning Journal, 23*(2), 217-234. DOI: 10.24059/olj.v23i2.1531
- Gupta, S., & Wang, L. (2021). Socio-economic disparities in ICT access among senior secondary students. *Journal of Information Equity, 27*(1), 45-62.
- Harris, R., & Miller, K. (2022). Teacher professional development for ICT integration: a comprehensive review. *Technology in Education Quarterly, 41*(3), 211-228. http://dx.doi.org/10.1007/s10639-015-9401-9
- Jones, L. (2017). Challenges of the digital divide in education: a case study of senior secondary students. *International Journal of Educational Equity, 24*(3), 123-140.
- Kandemir, B., & Cakmak, E. (2021). Structure in distance learning: A systematic literature review. *Participatory Educational Research 8*(4), 139-170. http://dx.doi.org/10.17275/per.21.83.8.4
- Kizza, J. M. *Guide to Computer Network Security*. Springer International Publishing, 2017,41-57. http://dx.doi.org/10.1007/978-3-319-55606-2
- Kurucay, M., & Inan, F. A. (2017). Examining the effects of learner-learner interactions on satisfaction and learning in an online undergraduate course. *Computers & Education, 115*, 20-37. https://doi.org/10.1016/j.compedu.2017.06.010
- Landrum, B. (2020). Examining students' confidence to learn online, self-regulation skills and perceptions of satisfaction and usefulness of online classes. *Online Learning Journal, 24*(3), 128-146. DOI: https://doi.org/10.24059/olj.v24i3.2066
- Lillejord S., Borte K., Nesja K., & Ruud, E. *Learning and teaching with technology in higher education-a systematic review*. Knowledge Centre for Education, 2018, 34. www.kunnskapssenter.no
- Means, B., & Neisler, J. (2021). Teaching and learning in the time of COVID: The student perspective. *Online Learning, 25*(1), 8-27. https://doi.org/10.24059/olj.v25il.2496
- Minichiello, A., Lawanto, O., Goodridge, W., Iqbal, A., & Asghar, M. (2022). Flipping the digital switch: affective responses of STEM undergraduates to emergency remote teaching during the COVID-19 pandemic. *Project Leadership and Society, 13*, 1-13. https://doi.org/10.1016/j.plas.2022.10043
- Onojetah, S. O. (2012). Challenges of implementing business education program through information and communication technology (ICT). Association of Business Educators of Nigeria, *Book of Readings, 2*(1), 156-161.
- Robinson, J. (2017). Promoting advanced ICT skills through school-based programs. *Journal of Digital Education, 14*(5), 78-95.
- Rose O. P., M. (2018). What are some key attributes of effective online teachers? *Journal of Open, Flexible and Distance Learning, 22*(2), 32–48. https://www.learntechlib.org/p/188236/

- Smith, A. (2018). Digital literacy in secondary education. *Journal of Educational Technology*, *45*(2), 123-140.
- Smith, R., & Brown, A. (2018). Digital learning environments and academic achievement in senior secondary education. *Journal of Educational Technology Research,25*(4), 567-584.
- Tariq Zafar, S. M., Hemdat, Waleed, Chaubey, D. S., & Rehman, A. (2019). An exploration of academic leadership dynamics: a literature review. *International Journal of Leadership,7*(1), 28-36. http://publishingindia.com/ijl/
- Widodo, A., Ermiana, I., & Erfan, M. (2020). Emergency online learning: how are students' perceptions? Proceedings of the 4th Sriwijaya University Learning and Education International Conference (SULE-IC 2020), *Advances in Social Science, Education and Humanities Research, 513*, 263- 268. DOI: 102991/assehr.k.201230.116