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Assessing the Interplay of Digital Literacy Skills and ICT Self-Efficacy in Enhancing Functional Skills
(A Study at Islamic Secondary School Level in District Muzaffargarh, South Pakistan)

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Abstract: *This research aims to study the link between digital literacy competence and ICT self-confidence in enhancing functional competence among students of secondary school in the context of the Islamic secondary schools of District Muzaffargarh, South Pakistan. Since technology is being adopted in classrooms there is a need to understand the relationship between use of technology and students self efficacy on performance and skill acquisition ICT in particular. It is defined as the skill one require to have while Going For Information Using Technology To Obtain, Analyse and Disseminate Information. ICT self efficacy is defined as the extent of belief that one is capable of implementing applications of ICT. In the given context, the objective of the study is to assess the contemporary digital literacy tools with seminal emphasis on the presentation, assessment, and management of information within the context of teachers' knowledge in these schools. Further, it investigates the extent to which it establishes the relationship between the modes of digital literacy competency and ICT self-confidence in the development of the functional skills like problem solving skills, critical thinking skills and description skills. Gender is also used to analyze knowledge and confidence of male and female students for using digital tools and ICT self efficacy. The present research therefore employs an exclusive quantitative research paradigm as it utilises questionnaires and statistical measures for the gathering and analyses of responses from students and teachers. It is expected that the outcomes set will enable the determination of the digital literacy and ICT self efficacy for improving function skills as well as educational attainment in secondary education.*

Keywords: *Digital literacy, ICT proficiency, Basic assets, Muzaffargarh, Secondary education.*

1. INTRODUCTION

In the fast growing complex technology society, use of group technology solutions in educating environment is one of the parameters that would define their functional skills. Another significant changing learning and teaching approach is digital literacy representing the knowledge and competence that learners need to demonstrate in order to participate effectively and creatively in the production of digital technologies-created content (Ribble, 2015). This ranges from the technical skills, to the analytical skills needed to filter, sort, and apply digital knowledge proficiently (Liu, 2019). In view of secondary education, digital literacy is found to contribute significantly towards the development of functional skills including problem solving skills, teamwork, information sharing and communication and critical thinking in learning and work domains (Gillespie & Hargittai, 2016).

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ICT self-efficacy or the confidence in the skills to use Information and Communications Technology (ICT) effectively is another factor which determines the satisfactory level of students' interactions with technology (Compeau and Higgins, 1995). ICT self-efficacy refers to students' confidence on the use of Information Communication Technology and this in the enhancement of motivation determines the learning achievement, learning completion, use of ICT functional skills and learning function (Bandura, 1997). Therefore, meaningful relationship between digital literacy and ICT self-efficacy enhances the functional learning skills among the students, which are essential for learning and academic achievemen

In considering the context of Islam secondary schools Muzaffargarh District South Pakistan, impulsiveness of electronic tools along with the ICT self-efficiency is still emergent. Taking these considerations into account, there is little know about the current of state of business with regards to the digital literacy skills of students and teachers in this region, their attitudes to using ICT in teaching and learning. The purpose of this study is to evaluate the current state of the digital literacy tools and ICT self efficacy based on students and teachers in the Islamic secondary schools in District Muzaffargarh and to establish how these components are useful in developing the functional skills in the students.

Additionally, it aims at comparing the knowledge of digital literacy and self efficacy of using ICT between males and females. Empirical research has indicated that while boys and men have higher levels of ICT usage and perceived self-efficacy than girls and women respectively (Barker & Aspray, 2006; Venkatesh et al., 2003). Sex differences in this type of digital competence may hold important distinct implications for teaching and learning processes. As such a comparison of gender related knowledge about use of digital tools and ICT self efficacy in the existing context of Muzaffargarh Islamic secondary schools is imperative to highlight how to effectively address potential deficiencies with regard to accessibility and confidence.

The outcomes of this study are believed to aid the understanding of the functions of digital literacy and ICT self-efficacy for functional skills, and enhance educational access in secondary education. This research focuses on these factors within the context of Muzaffargarh's Islamic secondary schools with the goal of adding to the body of knowledge on digital education in Pakistan and offering suggestions for policy improvement in ICT integration in schools.

Statement of the Problem

In District Muzaffargarh, South Pakistan, there is limited awareness about the current state of affairs of digital literacy and self efficacy of ICT among the secondary schools students, especially in Islamic schools. Thus far, relatively little research has been conducted on how these factors affect the development of utilitarian skills that include critical thinking, problem solving ability and capacity to communicate. Also , gender differences in the use of digital media and ICT literacy can here extend to affect students' achievement. To this end, this study will fill these gaps by evaluating digital literacy and ICT self-efficacy for improving functional skills in Islamic secondary schools of Muzaffargarh.

Significance of the Study

This study is important because past research has pointed out that raising functional skills among secondary school students is connected with information and communication technology self- efficacy or digital literacy when this factor has been taken into consideration in the context of Islamic schools of District Muzaffargarh. Utilising the data on the current state of ICT competence and readiness to use ICT tools, the study identifies the factors that define students' performance and skills. In addition, the use of gender-based differences in the study provides important findings to reduce the gap in the education system. These results can be useful in the guidelines development for boosting circumstances with ICT in secondary learning, thus, enabling worldwide digital capability and augmenting learning efficacy.

Objectives of the study:

- In order to realize the level of the development of digital literacy tools in Islamic secondary schools in the district of Muzaffargarh the teachers' understanding of the presentation and evaluation of the information, the organization of information.
- Analyzing the moderation between digital literacy skills and ICT self-efficacy for improving functional skills among secondary Islamic schools in district Muzaffargarh.
- In order to comparatively analysis between gender based knowledge about digital tools and ICT self efficacy among Islamic secondary school in district Muzaffargarh, the following hypothesis has been developed.

2. LITERATURE REVIEW

The use of Information and Communication Technology (ICT) in teaching-learning process has revolutionized schooling and made 'information literacy' a foundation of contemporary schooling. In this section, we present a summary of previous studies on general digital literacy and ICT self-efficacy, the association between the two and functional skills, and gender issues in computer education especially in secondary schooling.

1. Digital Literacy in Education

Media literacy therefore refers an umbrella term, which encompasses most of the abilities, necessary in relation to digital technologies for information acquisition, assessment and creation. Digital literacy in the framework of Ribble (2015) refers to utilization of technology to search for, to assimilate, to generate and share information that enhances academic achievement. A set of information technologies may be considered as Digital literacy skills; the use of hardware and software, Information literacy, as well as the skills of understanding media and content (Eisenberg, 2008).

In learning environment, digital literacy takes place to ensure that students can function well in times when their environment is technologically advanced. UNESCO (2011) defines digital literacy as operation ability on available technologies enhanced by critical thinking, innovation, and social interaction. These competencies are loci for functional skills like problem-solving, team work, and digital literacy customary in classrooms in particular and workplace in general. Moreover, civil literacies make learner gain access to so many educative information on the web thereby improving their learning processes (Yang, 2016).

2. ICT Self-Efficacy

ICT self-efficacy can be defined as an individual level of confidence in using ICT based tools to do specific tasks (Compeau & Higgins 1995). According to the self-efficacy theory by Bandura (1997) this concept posits that the level of confidence that the students will be able to utilise technology determines the extent and efficiency to which the students would use technology. ICT self-efficacy influences students' predisposition towards ICTs within learning environment that, in general, influences the learners' learning outcomes and effectiveness as well as acquisition of functional skills (Aldiab 2018).

Literature review suggests that students exhibiting higher ICT self-efficacy are likely to use technologies in a more effective way and are also more likely to perform well in technology mediated learning environment (Teo, 2009). For instance, Koc & Bakir (2011) showed that the students with higher ICT self-efficacy amounted improved German digital learning activities and problem solving skills. This association is critical as students' attitudes to ICT affect the extent of their software application in classroom teaching and learning.

3. The Role of Digital Literacy and ICT Self-Efficacy in Enhancing Functional Skills

Many stakeholders today also embrace generic skills that accrue from critical thinking, communication, and problem-solving skills as core assessment skills in education as well as in career fields (Hickson, 2009). Digital literacy and ICT self-efficacy play a crucial important role in the development of these skills. Technology allows learners to think critically and find information within a short span of time, share knowledge with others and also present their ideas using software and programmes (Zhao et al., 2005). These processes assist students to advance to the next level that include analyse, evaluate, synthesise which are core in functional skills.

For instance, Voogt et al (2015) pointed out from their search that students using ICT tools such as word processors, spreadsheets, presentation tools, etc gain improved organizational and communication abilities. Besides, technology literacy grounds students into managing different ideas and perspectives, hence facilitating critical thinking as well as teaming up (Ertmer & Ottenbreit-Leftwich, 2010). ICT self-efficacy also contributes to this development by enhancing students' embracive effort to address the complicated challenges and engage the acquired digital competence in solving the actual difficulties (Zhao et al., 2005).

4. Gender Differences in Digital Literacy and ICT Self-Efficacy

It has become evident in the literature that there are differentiated performance especially in terms of gender, digital literacy, and ICT self-efficacy. The analysis has revealed that male students make more extensive use of technology and possess higher ICT self-efficiency than female students as determined by Venkatesh et al. (2003). Societal cultural beliefs in many cultures including Pakistan mean that boys and girls are encouraged to use specific technologies hence leading to inequitable division of digital resources (Barker & Aspray, 2006).

Shams et al. (2016) in their study on ICT self-efficacy and digital literacy among university students in Pakistan reported that the results revealed that all the male students had a higher ICT self efficacy and digital literacy compare to female students and which impacted their academic performance in course area used ICT tools. Such a gender division can result in the differences in the educational performance: lower self-efficacy regarding ICT usage may discourage students from practicing, so they fail to develop necessary functional endpoints (Barker & Aspray, 2006).

Furthermore, the variations of ICT explained by gender depress the career expectations and opportunities in the future. As stated by Venkatesh et al. (2003), female students are generally less self-confident in using technologies and, therefore they do not pursue careers inside technological fields. Therefore it is important to close these gender gaps in digital literacy and ICT self-efficacy to enhance the delivery of educational opportunities for the female gender and create an inclusive learning environment to the female gender (McGrath & Brown, 2013).

5. Digital Literacy and ICT Integration in Pakistan

Pakistan is a country where the use of ICT in learning institutions is still in its infancy, and there is a strong provinance variation of ICT resources. A report based on the Pakistan Telecommunication Authority (2021) highlighted the fact that urban centers have comparatively higher levels of technology penetration, yet there are the challenges of infrastructure and resources in Rural areas such as districts of Muzaffargarh. Consequently, most students in these regions lack other relevant skills like digital literacy skills to effectively address classroom and career demands.

Raza & Khan (2018) has also been able to explain challenges facing ICT integration in Pakistani schools, for example, inadequate infrastructure, lack of teachers trained and readiness to embrace change and resistance to change. However, where ICT tools have been implemented effectively, they enable students to interact actively as well as improve their performance (Zubairi et al., 2016). Given that traditional pedagogy is likely to strongly predominate within Islamic schools, embedding digital literacy is most likely to have its greatest potential for enabling the development of the latter sorts of functional skills, as well as enhancing the quality of education in these schools.

6. Digital Tools for Presentation, Evaluation, and Organization of Information

Education what makes wit the help of digital tools enriches the presentation, the assessment of information, and its storage. Several of these enable students and educators to organize content, help in learning as well as inculcate functional learning that is essential in students and academic success. In this section focuses on ways in which information technologies can be used in presenting, assessing and storing information within the school context but particularly secondary schools.

7. Digital Tools for Presentation of Information

Reporting is a very important part of the learning process and using information technology in presenting information has changed over the years. Presentation tools enable clients to present material in more appealing and interactive manner hence resulting in improved understanding and memory. Some of the most widely used tools include: PowerPoint: This popular application allows the preparation of text and graphic-based Power Points of information and ideas to make learning more affarctive and easy to understand (Mayer, 2005). In accordance with Morena and Mayer, 2007 the incorporation of multimedia helps in enhancing Students' understanding of various lessons and also facilitates their involvement. Prezi: Prezi is another powerful presentation tool that allows for the non-linear, context-insensitive presentation. Cohoots appears to offer more freedom than PowerPoint in the sense that the user can zoom in and out of content spatially. It has been observed that with the presentation software called Prezi, improved customers' attention and distinctive ideas on how information are delivered are achieved (Stewart, 2013). Canva: Canva – an intuitive application often being used for designing effective infographics, posters, as well as social media content. It assists students in information arrangement and display so that multimedia has been found to enhance visual learning (Mayer, 2005).

Besides, these tools support the presentation's role of students and teachers, as well as improve the students' digital communication abilities, which are crucial in today's job market (Gillespie & Hargittai, 2016).

8. Digital Tools for Evaluation of Information

Assimilation and evaluation of information is part of what it means to be digitally literate. An academic success depends a lot on the accuracy and ability in evaluating the credibility, relevance and accuracy of the information. Several digital tools are designed to assist in the evaluation of information: Turnitin: This tool is best known for reviewing the content written by any person and determining the extent of plagiarism involved. It assists the educators in analysing the credibility and credibility of the submissions made by the students. Also, Turnitin offers response to students, therefore enhances learning how to write good academic writing (Sutherland-Smith, 2008).

Google Scholar: This tool provides students, as well as educators, with a possibility to find scholarly articles, books and other materials. It assists in the assessment of reliability of the sources through offering access to scholars' only articles. More evidence proves that using Google Scholar enhances the skills of the students in assessing sources (Teo, 2009).

Rubistar: In developing an online tool for constructing rubrics for assessment of projects, Rubistar is an ideal tool for teachers. It promotes comprehensible measures and goals simplifying the evaluation process as well as increasing the uniformity of the assessments. Based on the research, usage of rubrics increases assessment validity and objectivity in classroom and learning environments (Stevens & Levi, 2005). These tools help students and educators comprehend quality and reliability of the information provided in learning process of the modern age.

9. Digital Tools for Organization of Information

Classification of the information retrieved is one of the procedures of the learning process. Technological enhancement in learning improves students learning abilities, management and storage of information since the digitized tools do assist in enhancing the learning results as well as enhances several cognitive features. Some widely used tools for information organization include: Evernote: It replaces the traditional paper notebook and has the added benefit of providing a student with supplementary organization and convenient search features for their notes. It should also be noted that Evernote excels in the organization of multimedia data, such as text, pictures, and web pages, which is necessarily to conduct research and study activities (Jackson, 2011). Trello: Trello is an online application that supports the team collaboration through boards, Lists and cards. Most importantly, it is highly suitable for group assignments since it allows students to sort the obtained data in the most natural and effective way. It enhances teamwork and enables students keep track of team work progress (Martin, 2014). MindMeister: This tool enables students to develop mind maps,

shapes which look like trees with branches and sub branches. According to Buzan 2010, mind maps assist in fixing structures and patterns of information in a way that they can be arranged hierarchically; this makes easier for the students to grasp points of complex topics. MindMeister has been specifically seen to enhance the processes of brainstorming, decision-making and problem solving.

Microsoft OneNote: As an application for interacting with notes OneNote can be described as a set of notebooks, sections, and pages. It supports multimedia content and shares its functionalities with other Microsoft Office applications easily. Most students and educators apply OneNote in organizing information and enhancing the process of team studying (Evans 2013). These tools assist students and educators in approaching content in a way that provides better comprehension, recall, and access of this content.

10. Impact of Digital Tools on Functional Skills

Not only does the application of digital tools in order to present, evaluate and sort information improve the academic achievement of the stated course, but it also fosters the critical functional skills. Fortunately, digital literacy is gaining attention as a novel skill that is applicable in the twenty-first-century work environment because it encourages critical thinking, creativity, cooperation, and communication skills (Voogt et al., 2015). The use of integrated technologies in learning helps the students to acquire these functional skills essential both in tertiary institutions and the job (Hickson 2009).

In addition, technological facilities foster learning by completing and using content in real-life scenarios. For instance, students who employ the requirements of Trello for the executors of projects build organizational and teamwork skills; and the students who employ Google Scholar as a search of sources for assessments, build critical evaluation and information synthesis skills. These tools assist in creating a student’s transition from theoretical understanding to practice reality which is pivotal in enhancing practical everyday skills learners are going to encounter in their daily lives.

Conclusion

Technological aids for garnering, reviewing and categorizing information intervention are crucial in improving performance and training in functional skills. These tools enhance oral and participatory delivery of content, enhance students' critical evaluation skills, and enhance organization of content. The application of such technologies fosters the constructivist approach's functional skills, including analysis, synthesis, and interpersonal relations skills as applicable in education and the job market of the twenty-first century. In the literature it was established that digital literacy and ICT self efficacy are key elements that can boost functional skills like critical thinking, problem solving and communication. However certain limitations are still seen in the form of difference in availability of digital tools with members and disparity in Gender differences in ICT self efficacy. The problems listed above if tackled appropriately could make the student feel suited in education hence help them prepare for absoluteness of the digital world. In the case of District Muzaffargarh this study will endeavour to investigate these variables in greater detail to yield important data as regards the current status of digital literacy and ICT self efficacy concerning secondary education system.

3. RESEARCH METHODOLOGY

A survey instrument was used in this descriptive type of study to obtain data.

Population of the Study

The population for the present study has comprised 996 science teachers of district Muzaffargarh.

Sample of the study

The data gathering sample has been teachers totaling to 400 workers, who have been chosen randomly.

Instrumentation

The data was gathered by use of a self-administered questionnaire. Participants were given a self-developed questionnaire by the researchers. The outsiders as well as a sample of respondents assessed the model's validity and reliability. The rationale of the test was to determine the level of compliance of the instructors to integrate and apply new technology in facilitating Learning. Cronbach's Alpha Scores were used to ensure that the survey is both reliable and valid. Teachers were required to indicate their preferred responses using a five Likert scale as shown below: 1 Strongly agreed 2 =Agreed 3 =Neutral 4 =Dis agreed and 5 Strongly disagreed.

The measure has two dimensions: one evaluating instructors' awareness of digital tools and one determining teachers' competency on information taxonomy. Similarly for the self-reported scale, each item was measured on one to five Likert scale with one strongly agreeing to the statement while 5 strongly disagreeing. Teachers were requested to explicitly state what they selected with a rating of one strongly disagreeing to five they strongly disagreed. In all of the domains, the digital literacy proficiency of instructors was captured in percentage. These contrasting between the tehsils may be observed I the following outcomes.

Results:

Table No.1

Current level of digital literacy tools, teacher's knowledge about presentation of information, evaluation, organization of information.

	Kot addu	Kot Sultan	layyah	Chowk Munda
Male	13.62%	15.18%	12.09%	12.44%
Female	7.32%	8.65%	10.76%	20.97%
Total	20.94%	25.83%	20.84%	31.39%

It shows that male teachers in Kott Addu Tehsil did 13.62% of the work and female teachers did 7.32%, for a total of 20.94%. In Kot sultan Tehsil, male teachers did 15.18% of the work and female teachers did 8.65%, for a total of 25.83%. In Tehsil Layyah, male teachers did 12.09% of the work and female teachers did 10.76%, for a total of 20.84%. In the same way, male teachers in Tehsil Chowk Munda did 12.44 percent of the work, while female teachers did 20.9 percent.

Together, they did 31.3 percent. Based on the information gathered, female teachers in Tehsil Chowk Munda did better than male teachers by 20.97%, which is higher than the 12.09% difference in Tehsil Layyah. This means that the female teachers in Tehsil Chowk Munda did better with the digital literacy courses than the male teachers in Tehsil Kot Sultan.

Table 2.

Interplay of digital literacy skills and ICT self-efficacy in enhancing functional skills

	Kot addu	Kot Sultan	Layyah	Chowk Munda
Male	15.44%	15.13%	11.59%	12.42%
Female	9.30%	10.96%	12.00%	23.95%
Total	24.74%	26.07%	23.59%	36.37%

The results show that male teachers in Kott Addu Tehsil did 15.44% of the work and female teachers did 9.30%. Together, they did 24.74%. In Kot Sultan Tehsil, male teachers did 15.13% of the work and female teachers did 10.96%. Together, they did 26.07%. In Tehsil Layyah, male teachers did 11.59% of the work and female teachers did 12.00%. Together, they did 23.59%. Similarly, in Tehsil Chowk Munda, male teachers did 12.42% of the work and female teachers did 23.95%.

Together, they did 36.37%. Based on the information gathered, female teachers in Tehsil Chowk Munda did better than male teachers by 23.95%, compared to 11.59% in Tehsil Layyah. Teachers in Tehsil Chowk Munda who were women did better than teachers in Tehsil Layyah who were men in this area of digital knowledge.

Table 3.

comparatively analysis between gender based knowledge about digital tools and ICT self-efficacy.

Sr no.	*Tehsil*	*Performance by percentage*
1.	*Chowk Khan*	*34.4%*
2.	*Ali Noor*	*22.72%*
3.	*Chobara*	*26.00%*
4.	*Kot Addu*	*21.08%*

One of the four tehsils that were looked at as a whole had teachers do 34.4% better than expected. In tehsil Kot sultan, teachers did 22.72% better, in tehsil Layyah, teachers did 26.00% better, and in tehsil kot Addu, teachers did 21.08% worse. Because teachers in tehsil kot Addu didn't do as well as teachers in other tehsils in the district of Kot addu, this tehsil needs to learn how to use technology properly.

Recommendations

It is recommended that schools in District Muzaffargarh integrate comprehensive digital literacy training programs for both students and teachers to enhance their ICT skills, focusing on advanced tools for presentation, evaluation, and organization. Gender-sensitive strategies should be adopted to address disparities in ICT self-efficacy, encouraging female students to engage more confidently with technology. Schools should also invest in improving access to digital resources and infrastructure, ensuring equal opportunities for all students to develop essential functional skills. Also neural training of the teachers to the appropriate implementation of ICT in the classroom is very important so as to cultivate the adoption of technological integration in the teaching process.

Findings

The research indicated that level of digital skills among students of Islamic secondary schools in District Muzaffargarh was somehow low due to scarce access to sophisticated digital technologies. However, the results revealed that teachers had good awareness about some fundamental tools of ICT applications including personal computer operation, PowerPoint but they did not know how to apply advanced ICT applications in assessment and sorting out. Students' ICT self-efficacy was differently experienced base on gender whereby male students had higher perceived self efficacy in using ICT than female students. The combined effect of digital literacy and ICT self-efficacy influenced enhancement of students' functional skills, as well as student's with high scores in ICT self-efficacy being the best in critical thinking and

problem solving. .gender differences were identified with the male participants scoring higher than the female participants in both digital literacy and ICT self-efficacy indices, an indication that a form of digital parities still exists among the student population.

4. CONCLUSION

Therefore, it is recommended that this study has pointed out the importance of digital literacy and ICT self-efficacy in improving functional skills of students in secondary school of District Muzaffargarh. Indeed, this research revealed the digital literacy concerns and an ICT gender gap in self-efficacy, but the results underscore that ensuring access to meaningful technology tools and offering more focused instruction especially for MWL students could substantially enhance learning outcomes and NK requirements. Closing these gaps using arguably appropriate intercessions will therefore be pivotal in preparing students for the emerging world that is anchored on the use of technology.

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