Article

Leveraging on technological support at homes and in schools for improved Foundational Learning

Executive Summary

Idara-e-Taleem-o-Aagahi (ITA) administers the Annual Status of Education Report (ASER), largest citizen-led; household-based survey reporting learning outcomes of children (Age 5 to 16) in the areas of Language (Urdu/Sindhi/Pashto), English and Arithmetic. Apart from conducting learning assessment of children, ASRE also collects information from the household on various indicators such as parental education, access to technology, health status etc. ASER reports on availability of TV, Internet, Radio, Computer/Laptop, Mobile phones, SMS facility and WhatsApp usage at household level and availability of internet connection, labs, and tablets in schools.

As per ASER 2023 finding, access to technology at the household level has improved from 2021 and this begs us to advocate for its potential for improving the learning outcomes. For the year 2023, ASER reports learning losses at the national and provincial level except for Gilgit-Baltistan. Government schools in Gilgit-Baltistan where there is provision of state-of-the-art computer labs and internet facilities. Use of technology in improving the learning outcomes is the need of the hour owing to the scarce resources. There is a need to prepare our students where technology literacy is not just a requirement but a necessity.

Introduction

The Annual Status of Education Report (ASER) is the only comprehensive report on Foundational Learning (FL) in Pakistan. ASER collects data on the learning outcomes of children aged 5-16 years in English, Urdu/Sindhi/Pashto and Arithmetic and a comprehensive set of questions related to access to communication and information technology at the household and school level.

The use of technology for transforming education is the way forward for countries facing economic depressions and political instability. D. M. Hannaway & M. G. Steyn in their paper titled *Teachers' experience of technology-based teaching and learning in the foundation phase* find that: "the benefit of technology, when used appropriately, exceeds the limitations thereof by capturing children's interests quickly and acquiring twenty-first-century skills. Another advantage of using technology for teaching in the Foundation Phase is that it serves as a motivating factor" (2016).

Access to online learning resources provides additional avenues for learning if students or guardians use that in a balanced manner. Students who cannot afford paying for tuitions can benefit most from the online support. "Overall, the research evidence over the last 40 years about the impact of computer and digital technologies on learning consistently identifies positive benefits…Remedial and tutorial use of technology can be particularly effective for lower attaining pupils or those with special educational needs or those from disadvantaged backgrounds in providing intensive support to enable them to catch up with their peers". (Steven Higgins et al., 2012).

In a study on the impact of district-wide one-to-one technology initiative on kindergarteners' engagement and learning outcomes Parks et al. finds that, "teachers appreciated having the tablets and believed that the resources improved instruction. Unexpectedly, the findings indicated that while children's literacy skills may have benefited from access to the digital math resources, their math skills did not. Digital resources show some promise in

impacting some children's foundational skills, but access to resources alone was not enough to improve targeted skills" (2020).

For the benefits and opportunities that technology offers in education, we need to have clear learning outcomes and we need to have in place a clear idea of how granularly those outcomes are measured along with a focus on active learning (Harvard Business Review, 2019).

In her critical examination of the adaptation of computer and information and communication technology in Pakistan's education system Ayesha Riaz highlights that using technology as a tool to impart relevant knowledge through integrating technology across a wide range of subjects instead of treating it as a separate subject, learning can be made socially meaningful and relevant. Thus, technology can play a significant role in winning students' attention and encouraging them to acquire knowledge that can significantly improve their lives (2011).

Political Promises and Unmet Commitments

The political climate has never been conducive in implementing the promises that were made in the realm of using technology for improving education landscape of the country. Pakistan Tehreek-e-Insaf **(**PTI) has briefly touched upon using technology for transformation of education, but the focus has been on higher education. Under the chapter: *Charter of Education*, PTI has stated that: "A forward-looking approach involves the implementation of standardized curricula, seamless integration of the internet and social media platforms, and extensive use of technology to enhance the accessibility and effectiveness of education" (PTI, 2024).

Under the chapter, *Educating our People*: *A Progressive Pakistan for All*, Pakistan People's Party (PPP) has promised to invest substantially in school infrastructure and internet provision. PPP aims to provide well equipped and inclusive classrooms, libraries, laboratories, computers and implement e-learning platforms (PPP, 2024).

Pakistan Muslim League Nawaz (PML-N) has promised to use e-learning as a platform to improve education in the country. PML-N stated that they will use IT resource for online education and establish smart classrooms in universities (PML-N, 2024). Here again the party does not have any say on using technology for transforming foundational education, which is the base for higher education.

Muttahida Quami Movement (MQM), one of the coalition parties in the centre wants to implement a 10-year education emergency. Under the education chapter in the manifestos, MQM states that: "MQMP shall ensure compulsory IT and AI based education in all primary and secondary schools/madrasas" (MQM, 2024).

Analysis of the ASER Findings

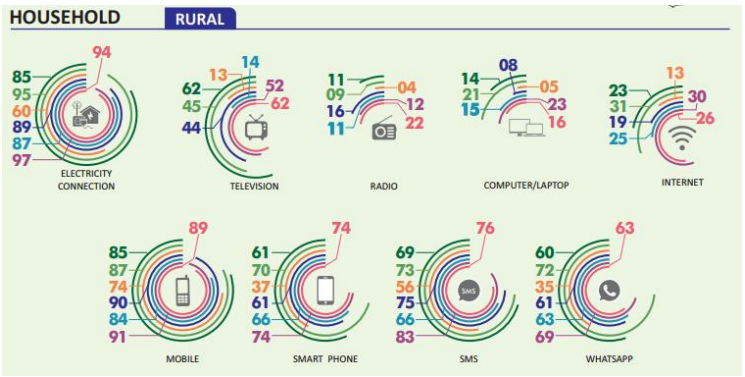


Figure 1: Access to technological support at homes-Urban

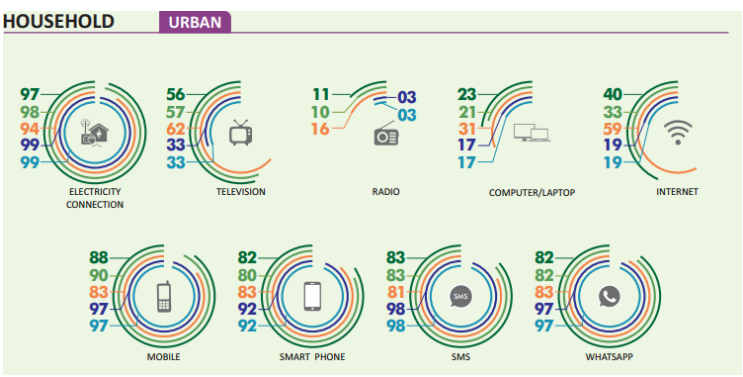
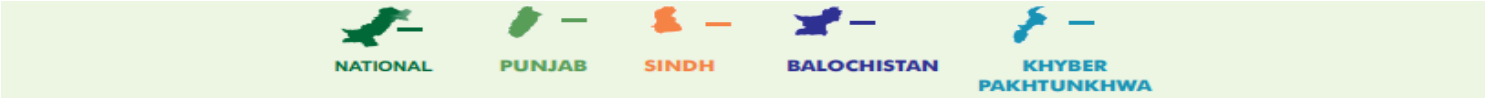


Figure 2: Access to technological support at homes-Rural



In rural Pakistan 85% households have electricity connection, 62% have TV, 11% use Radio, 14% possess Computer/Laptop, 23% have internet connection, 85% use mobile phones, 61% have smart phones, 69% use SMS facility and 60% use WhatsApp for communication.

Similarly, for urban Pakistan 97% households reported having an electricity connection, 56% have televisions at homes, 11% have radio, 23% have a computer/laptop, 40% have internet connectivity, 88% use keypad mobile phones for communication, 82% own smartphones, 83% have access to SMS facility and 82% use WhatsApp for communication.

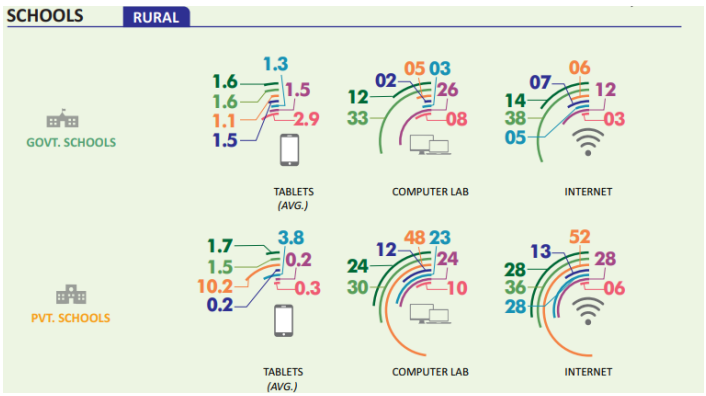


Figure 3: Technological support in schools-Rural

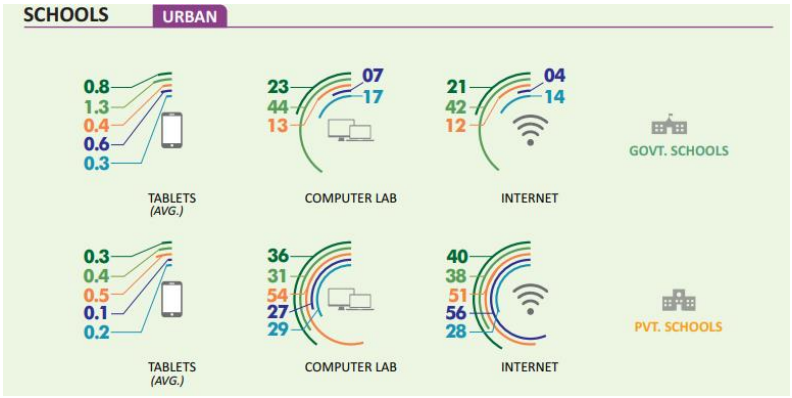


Figure 4: Technological support in schools-Urban

Access to education and quality of the learning outcomes can greatly be aided by access to technology in schools. ASER reports that for government schools in the rural areas of Pakistan, 12% have computer labs, 14% have an internet facility and on average they received 1.6 tablets. For rural private schools, 24% had a computer lab, 28% had internet connection and on average received 1.7 tablets.

For urban government schools, the report finds that 23% have computer labs, 21% have internet access and on average these schools received 0.8 tablets. 36% of privately owned schools in the urban areas have computer labs, 40% have internet access and on average 0.3 tablets were provided within the last year of the survey.

In the light of the findings above, we need to introduce and integrate technology into schools, aiming to bridge the digital divide and provide students with opportunities for enhanced learning experiences. exposure to technology in schools and households equips students with practical skills that are increasingly relevant in the modern workforce. Proficiency in using digital tools opens up new avenues for communication, collaboration, and problem-solving, essential skills for success in the 21st-century globalized economy. According to a press release by the Chief Secretary office of Gilgit-Baltistan as reported in The News, “Blended Learning Smart Classes have been implemented across the region's higher secondary schools as of December 2022. These classes feature cutting-edge teaching tools like LED Smart TVs, integrated LMS systems and Chromebooks…32 government schools showed 100pc pass percentage in 2023, as against 29 schools in 2022. Similarly, schools achieving 90pc results rose from 28 to 37pc” (Abbasi, 2023).

Conclusion

In the fast-evolving landscape of education, technology has become an indispensable tool for shaping literacy. ASER 2023 findings show a promising landscape for Pakistan in terms of technological access both at homes and in schools. For implementation of Article-25 A of the constitution of Pakistan and to meet the SDG-4.4.1 target, we need to invest in technology at homes and in schools and

advocate the public to use technology for the betterment of learning outcomes of children. ASER reports that a high number of households have access to technological support in the form of availability of television, internet, laptop/computer etc. at homes and there is a need to direct this access in aiding the foundational learning outcomes of the children.

Recommendations

- It can be seen from the report that schools do not have enough computer labs and do not have internet access. The education departments of the respective provinces should prioritize investing in technological support in terms of providing each school with modern computer labs, smart classrooms, and better internet connectivity. This is true for all the privately owned schools in all the provinces.
- It is a good sign that households have access to smartphones and a reasonable number of households have internet access. We should run advocacy campaigns for people to use the facilities for improving quality education.
- The government should introduce and provide technical education in lieu of access to technology at households among adults in stemming out the high unemployment rate and aware the masses of the digital avenues for earning opportunities. This will have a trickle-down effect on the children in the households.
- By engaging with policymakers and stakeholders, we can influence decisions that prioritize technology as a catalyst for positive change in literacy development.
- Technology in education can provide personalized learning pathways and engaging content for children who have different learning needs and pace. Government should export best international practices and invest on indigenous content for children keeping in view of the contextual realities.

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