

Bridging the Digital Divide in the G20 – Skills for the New age

Response to the peer reviewer

1. Strategy to address the divide in digital skills

The statistics included in the paper present the burden and scale of the challenge faced by G20 nations in terms of internet access. As noted in the paper’s background, approximately 60% of the world’s population are disconnected from the internet and effectively do not participate in the digital economy. The top three countries affected by this challenge, are each a member of the G20. Considering the rapid pace of technological advancement and our growing dependence on technology, in our opinion, this issue should be viewed as an international priority.

In terms of our understanding of the 2017 T20 hosted by Germany, promoting a more inclusive digital economy was recognized as an objective for 2017, thus the task teams established were invited to produce recommendations to reach this outcome. Considering the goal of the task-team, it did not seem necessary to reiterate the goals of the G20. With this in mind, we accept that the argument connecting the G20 to addressing the digital divide could be further emphasized.

However, the point of departure of this paper is that given the need to address the digital divide and the burdens experienced by G20 countries, what strategies could be adopted. Thus, our recommendations were to (1) call for monitoring the skills required by employers, (2) develop a holistic skills upliftment strategy and (3) the need to address socio-cultural norms.

2. Systematic review

Due to space limitations, we decided to abbreviate the methodology section of the paper. To expand on the approach taken during the literature review, we performed keyword and title search for journal articles across academic databases, using the keywords “digital literacy” & “definition” during 2005 to 2016. The results that emerged are:

Database	Article Count
OneFile (GALE)	18
ABI/INFORM Complete	8
ABI/INFORM Global	7
Taylor & Francis Online - Journals	4
ERIC (U.S. Dept. of Education)	4
SAGE Journals	4
Agricultural & Environmental Science Database	3
SpringerLink	3
ABI/INFORM Dateline	1

JSTOR Current Journals	3
Directory of Open Access Journals (DOAJ)	2
Emerald Insight	1
Literature Resource Center (Gale)	1
Medline/Pubmed (NLM)	2
ScienceDirect Journals (Elsevier)	2
Oxford Journals (Oxford University Press)	1
	64

Although the topic of Digital Literacy alone is popular and commonly researched, the articles dedicated to its definition are limited. On further inspection of the abstracts of these 64 articles, it was found that very few of these studies were appropriately framed or instead, the context of the article narrowly defined a component of digital literacy. This challenge required a change in tack to how we analysed the literature that was reviewed. The second stage of the literature review involved a review of papers released by leading International organisations between 2010 and 2016 pertaining to Skills Development and to follow the references raised by the authors of these identified studies. The organisations identified include UNESCO, OECD, WEF and the Chinese Internet Network Information Centre. From this combination of approaches, the key studies that were identified were produced by OECD (2016), SCONUL Working Group on Information Literacy (2011), McKinsey & Company (2014), Pirzada and Khan (2013), Ridsdale et al. (2015), UNESCO (2011), Martin (2008), Covello (2010) and Bawden (2008). If deemed necessary, the details of this approach can be added to the paper.

3. Case studies of Asia and Africa

The research teams based in South Africa and India further focused on local developments pertaining to digital skills attainment in their respective regions. This is presented in the literature discussed in the findings section. These examples emerge within the discussion pertaining to the gender divide and socio-cultural norms, which is driven by challenges emerging in India, whilst the South African examples are discussed in the sections pertaining qualification framework which shows little international alignment, particularly in terms of the content of the curriculums of the reviewed countries. Interestingly, the socio-cultural issues were predominant in Indian studies, whilst the structure of the curriculum were more pervasive amongst South African literature.

The jobs skill analysis performed through a review of the Career Junction website was intended to provide a practical example of how one could identify snapshots of digital skills required by employers. Such an approach can be useful to policy makers to poll digital skills requirements of employers and monitor how skills needs change over the short, medium and long terms.

Furthermore, the qualification frameworks of India, South Africa and Europe were reviewed together with a collection of studies which described the concerns which described the challenges of embedding technology within the curricula. These points were included as they are relevant in the manner G20 countries attempt to align their curricula to effectively respond to the changing digital skill demands of employers.

If the manner in which these studies from Asia and Africa are utilised in producing this paper, revisions can be made to clarify their usage.

4. Selection of job ads

As noted in the paper, the jobs extracted off South Africa's CareerJunction were limited to all active and open positions at an entry level position, listed on the site, as at a particular point in time. Although the date (18 May 2017) is not provided, it is possible to perform this analysis on any chosen date and thereafter refresh the data extracted. To identify the predominant skills which emerged on this day, text analysis was performed and sets of synonyms were grouped. For example, words such as *Web* or *Internet* were combined as the keyword frequencies were quantified. As job adverts can be categorized in terms of the sector or salary expectation (were provided), the jobs that were linked to digital skills were thereafter presented in terms of sector and annual salary. The analysis approach was rudimentary and the manner in which the keywords are presented can be refined in future iterations of such a study. The important take-away, was that such analysis is possible and will be useful to G20 policy makers.

5. Digital Skill disciplines and role of academics in a standard setting body

The challenge experienced in releasing this paper, is that the ground-work for the study is closely linked to the complementary paper also submitted to the Economics E-Journal, titled: "Bridging the digital divide: measuring digital literacy." On request by the editor of the journal, the team was requested to remove the common analysis shared across these papers, which describe the components of digital literacy. The difficulty arises in that the framework is relevant to both papers. In light of this request, we abbreviated the discussion behind the construction of the framework and only provided an outline of the components included in our proposed framework for digital literacy. The core concepts used in this framework were derived from OECD (2016), Pirzada and Khan (2013), UNESCO (2011), Martin (2008), Covello (2010) and Bawden (2008). Although, we present the outline of this framework, the takeaway point is that digital skills are multi-disciplinary, and the needs of employers will evolve over time. Furthermore, those that reach a state of 'digital-mastery' are employees that are able to succeed in applying their skills in varied contexts. Thus, skills complementarity is important and arises from the multidisciplinary nature of digital skills. For example, a proficient programmer who understands digital media, could apply his programming knowledge innovatively in a new field. The challenge for policy makers and the coordinators of skills training programmes is how to institute processes to recognise which skills are valued by employers, to inculcate such practices.

If we accept that technology needs of employers change rapidly, the set of digital skills required today are likely to change in the future. Thus, academics are required to guide the standard setting body in recognising the changing digital skills demanded by employers and adapting our training programmes accordingly. Policy makers, will require guidance and assistance in the manner they balance the demands of employers against the skills supplied by existing training programmes and the requisite needs of such programmes. The work of Calitz in particular highlights the pressures training programmes are under from employers, and we therefore suggest that academics are included in such a structure to guide the manner in which a holistic skills upliftment programme is introduced and maintained over time.

6. How do skills help build awareness amongst women regarding the value of ICT?

It is important to distinguish digital skills from understanding the value of digital/ICT skills. If we are to institute a holistic skills upliftment strategy, it is important to recognise the socio-cultural context of communities which may undermine the delivery of digital training courses. The perceived lack of value of digital tools and advancements in some communities emerges from their lack of knowledge of the pace of technological change and its impact on society at the macroeconomic level. Countering these misconceptions and educating the misinformed is therefore a valuable pursuit, to ensure new digital training programmes are effectively instituted. Thus, the training programmes which are delivered must be mindful of such dynamics and be designed in manner to counter such responses.