Digital Literacy for the 21ˢᵗ Century: Policy Implications for Higher Education

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Abstract

This paper discourses on digital literacy as a development tool for the 21ˢᵗ century in Higher education for both educators and learners. This is seen as a key requirement for Higher Education Institutions. It presents the challenges and policy implications for the Higher education. It stresses that being digitally literate is critical to functioning in a digitally connected environment.
Keywords: *Digital Literacy, Digital Inclusion, ICT, Policy, Higher Education, Learners, Educators*

Introduction

Given the rapid revolution of Information and Communication Technologies (ICT's) and the progress of the digital landscape, new prospects for exchange and cooperation has opened up. In lieu of this trend, pacing up to sustain the learning needs of the new generation of digital natives is vital for educators (Jarque et al., 2017). Some of the educators tag themselves as digital immigrants as opposed to digital natives (Cindy, 2018). The same can be said for learners as well. In contemporary times, the traditional assessments of literacy have been transformed as a result of digital technologies which has largely come about as a result of the socio-cultural processes (Olson and Cole, 2006). Studies demonstrate that technology plays an essential role in culture (Wiegel et al., 2009; Davies et al., 2009). This is why digital inclusion in Higher education has been inclined to be understood from the perspective of accessibility (Seale, Draffan and Wald, 2010). Finn (2004) argued that with the mandate of "No Child Left Behind", there is an augmented urgency correlated to technical skills or digital literacy. According to Finn, "it will become increasingly necessary to be digitally literate to function in a digital, internet-connected economy" (Finn, 2004, para 3). Here it is designated that digital competence is reinforced by digital literacy (Martin and Grudziecki, 2006). Digital Literacy is defined as the:

> *"Awareness, attitude and ability of individuals to appropriately use digital tools and facilities to identify, access, manage, integrate, evaluate, analyse and synthesize digital resources, construct new knowledge, create media expressions, and communicate with others, in the context of specific life situations, in order to enable constructive social action; and to reflect upon this process"* (Martin and Grudziecki, 2006, p. 255).

The European Commission (2010) published a Digital Competence Framework based on five (5) areas and twenty-one (21) competences, which comprise the notion of digital literacy (Ferrari, 2013). In 2008 UNESCO launched the policy document ICT competency standard for educators with focus on teacher education and digital literacy (UNESCO, 2008). Kuhn (2017, pp. 12–13) states that both policy and research delineates digital literacy: "The Horizon Report contends that finding effective ways to teach these skills is not a simple task (...) "Because digital literacy is less about tools and more about thinking, skills and standards based on tools and platforms have proven to be somewhat ephemeral". (ibid. p. 24). Other studies (Haythornthwaite, 2007; Radovanović et al., 2015) deliberate on new literacy requirements as comprising competencies in finding, processing, creating, and collaborating information as well as articulacy in online technologies, communication norms, application, and programming environments. Additional studies focus on the abilities, or skills, essential to progress to be able to use ICT tools (Parvathamma and Pattar, 2013). Digital Literacy is preferably one of the supreme and substantial parts of information society as it is highly dependent on digital resources. Thus, as one of the core necessities of the workplace and industries, digital literacy is progressively being assimilated in higher education prospectuses (Miranda, Isaias and Pifano, 2018). Other scholars allude that in order to exchange this environment effectively, learners ought to be digitally

literate (Davies and Merchant, 2009; Eshet-Alkalai, 2004; Hobbs, 2011; Wiegel, James and Gardner, 1995). Digital literacy is seen as a "survival skill in the digital era" (Eshet-Alkalai, 2004). Remarkably, enquiries advocate that although there are common users of technology tools, learners classically lack information literacy skills and their critical thinking skills are often mediocre (Oblinger and Oblinger, 2005). Modern day learners may be "digital natives" (Prensky, 2007), but they do not inevitably comprehend how their use of technologies affects their learning (Oblinger and Oblinger, 2005). Educators should seek to tactically embed collaborative digital learning objects in their courses to strengthen classroom-based learning and sustain specific skill improvement. Probable learning disruptions must be curtailed by ensuing best practice guidelines to confirm ease of access, a unified user experience, and well-timed feedback, as well as providing suitable provision for fast resolution of technical anomalies. From a broader standpoint, the imperative of digital literacy progress in higher education is apparent through the strategic priorities articulated by the highest levels of governance, both nationally and internationally (McGuinness and Fulton, 2019; Miranda, Isaias and Pifano, 2018; Law et al., 2018). A digitally literate national will be able to absorb and take accountability for their learning so these upshots to a higher demand for education (Mashhadia and Kargozarib, 2011). Thus, the focus of the paper that digital literacy is an important element of policy for the 21st century.

Literature Review: Challenges

Just as digital literacy is imperative for learners, so is it correspondingly significant for educators. Scholarships highlight the necessity of specialized training in digitalising content for teaching, extensive didactic support and reconnoitring teaching and learning contexts to draw demonstrative successful examples (Lisbeth, Hellström and Stigmar, 2019). Sadaf and Gezer (2020) recent study highlights positive attitude, perceived usefulness, and self-efficacy to be the strongest indicators of educators' intentions to assimilate digital literacy into their classroom practices. This study further highlights that educators recognize the welfares of digital literacy for cultivating students' 21st century skills and preparing them for specialized careers (Sadaf and Gezer, 2020). Lei (2009) study suggests that educators are savvy with basic technologies and social-communication technologies, nonetheless, their technology ability is constrained by both the narrow scope and the absence of depth of their technology activities. The Coalition for Digital Intelligence (CDI), is a well-known platform created in association with the World Economic Forum (WEF) and formed conjointly by the Organization for Economic Co-operation and Development (OECD), IEEE Standards Association (IEEE), and DQ Institute, launched the DQ Global Standards Report 2019 which is the world's foremost endeavour to delineate a global standard for digital literacy, skills and readiness across the education and technology sectors (DQ Institute, 2019). The OECD, the WEF, the World Bank, and the United Nations have all identified these digital competencies as important for future readiness (OECD, 2018, WEF, 2018; WB, 2019; UN, 2018). Spires et al. (2017) study stresses on the implications of digital literacy for the 21st century. The progress of digital literacies has been stipulated by Alexander et al. (2017) as irregular. The author critiques that although higher education institutions aim for digital literacies education to embrace the 2020 skills acknowledged by the World Economic Forum, or to address similar sets of desired competencies, execution efforts remain unequal throughout the world and within communities (Alexander et al., 2017). Bali (2017) further reflects that there are three (interconnecting) ways in which disparities shape digital literacy. The first relates to access to digital tools and the functional skills to practice; second is in how the external milieu can support or hamper the competence to practice the digital literacies cultured and third is the extent to which specific literacies are imperative for certain populations. The author further resonates that there are also ways in which digital literacies can be trained to have an equity emphasis, for instance, integrating and creating enhanced access to people with disabilities, or using substitutes for varying levels of internet connectivity. The author deliberated that the role of higher education and of educators, is to work on cultivating digital literacies across the syllabus, taking into consideration the disparities of access to advance digital literacies in higher education (Bali, 2017). Bailey and Calonge (2017) thus, reiterate

that pedagogy should consequently be informed by this societal shift and necessities to retort accordingly.

Methodology
This study has undertaken an exploratory review of the secondary literature sourced from mainly journals. Primary data has not been collected.

Discussion
To endorse digital transformation, equal prominence should be merited for digital literacy skills development and infrastructure development in higher education. Setting up an appropriate symposium on digital literacy would strengthen digital literacy coupled with digital literacy training that ought to be customised for learners as well as for educators. There should also be a standard way of measuring digital literacy which should inform the data collection/analytics at the institutional level. It is prudent to assess digital divide and inequalities and respond efficiently through digital inclusion policies. Higher education institutions could form partnerships with mobile and tech companies to leverage ICT's as well as provide free and discounted devices. Government also has an important responsibility which is to create a meaningful environment of digital equality, thus Governments could provide education and training programmes for parents, educators and learners, and this element of digital literacy should also be fully integrated in the curricula. Governments through their policies could also subsidise internet access and charges and prioritise infrastructure projects and development. Higher education institutions should also set the impetus for research on digital literacy spanning the teaching and learning and research spectrum. Public-private partnership (PPP) models and frameworks can also be sought as an active means to deliver extensive digital access, ensuring that legal frameworks are existent in the backdrop.

Policy Implications and Way Forward for Higher Education Institutions
The following are the key implications in the context of Higher education:
1. Invest in infrastructure development
2. Invest in digital literacy skills development for both educators and learners
3. Set up symposiums and workshops to enhance capacity building and training in-house and externally by focusing on customised packages
4. Collect data on the learning analytics
5. Set up digital inclusion policies and assess digital gaps
6. Leverage partnerships to enable discounted service delivery
7. Government initiatives ought to be tailored at digital literacy and should set the foundation from schools
8. Government to consider the option of subsidizing the internet and prioritise infrastructure development
9. HEIs to build research capacity
10. Explore more PPP models
11. There should be monitoring, assessment and further development of digital literacy
12. There should be a Hub that serves as a "think-tank", supporting the progress of policy and practice, and monitoring the development of digital education, including the implementation of any new Digital Education Action Plans paving the way forward.

Conclusion
The prioritization of digital literacy in higher education is highly dependent on the Government and institutions of higher education. While prominence is given to the philosophy of digital literacy, the growing role of technology in teaching and learning, brings with it enormous challenges, however at the heart of it all is being agile and adaptive. The prominence of instinctively acclimatizing to new

digital environments and nurturing behaviours that encourage lifelong learning and the continuous mastery of new skills and knowledge is also at the core of the success of digital literacy.

References

Alexander, B., Adams Becker, S., Cummins, M., and Hall Giesinger, C. 2017. Digital Literacy in Higher Education, Part II: *An NMC Horizon Project Strategic Brief. Volume 3.4*, August 2017. Austin, Texas: The New Media Consortium.

Bailey, J., and Calonge, D. S. 2017. "*How Does Digital Literacy Change Pedagogy?*" in Alexander, B., Adams Becker, S., Cummins, M., and Hall Giesinger, C. 2017. Digital Literacy in Higher Education, Part II: An NMC Horizon Project Strategic Brief. Volume 3.4, August 2017. Austin, Texas: The New Media Consortium.

Bali, M. 2017. "*Inequalities within Digital Literacies*", in Alexander, B., Adams Becker, S., Cummins, M., and Hall Giesinger, C. 2017. Digital Literacy in Higher Education, Part II: An NMC Horizon Project Strategic Brief. Volume 3.4, August 2017. Austin, Texas: The New Media Consortium.

Cindy, J. 2018. Using technology in the language classroom: So what if I'm not techsavvy? Accessed on 01st October, 2020 from: http://www.cambridge.org/elt/blog/2018/01/30/using-technology-languageclassroom/ in Had, M. Z. C., and Rashid, R. A. 2019. A Review of Digital Skills of Malaysian English Language Teachers. IJET, iJET – 14 (2): 139-145. https://doi.org/10.3991/ijet.v14i02.8732

Davies, J., and Merchant, G. 2009. "*Web 2.0 for schools: Learning and social participation*". New York: Peter Lang: 15. Empowering learners with digital and media literacy.

DQ Institute. 2019. "*DQ Global Standards Report 2019 Common Framework for Digital Literacy, Skills and Readiness*". Retrieved from: https://www.dqinstitute.org/wp-content/uploads/2019/03/DQGlobalStandardsReport2019.pdf (Accessed 30 September 2020)

Eshet-Alkalai, Y. 2004. "Digital literacy: a conceptual framework for survival skills in the digital era". *Journal of Educational Multimedia and Hypermedia*, 1391, 93–106. Retrieved from: http://www.openu.ac.il/Personal_sites/download/Digital-literacy2004JEMH.pdf (Accessed 30 September 2020)

European Commission. 2010. "A Digital Agenda for Europe". Brussels. Retrieved from: http://ec. Europa.eu/information society/digital-agenda/ index_en.html (Accessed 30 September 2020)

Ferrari, A. 2013. DIGCOMP: A Framework for Developing and Understanding Digital Competence in Europe. Retrieved from http://ftp.jrc.es/EURdoc/JRC83167.pdf>. (Accessed 17 November 2020).

Finn, C.W.P. 2004. "The mandate of digital literacy." Retrieved from: http://www.techlearning.com. (Accessed 30 September 2020)

Haythornthwaite, C. 2007. "Social facilitators and inhibitors to online fluency". In: 40th annual Hawaii international conference on system sciences (HICSS '07).

Hobbs, R. "Keynote Empowering Learners with digital and media literacy." *Knowledge Quest*, 39 (5): 2011, p. 12+. *Gale Academic OneFile*, (Accessed 01 October 2020).

James, W.B. & Gardner, D.L. 1995. Learning Styles: Implications for Distance Learning. *New Directions for Adult and Continuing Education, 67*, 19-31. Retrieved November 16, 2020 from https://www.learntechlib.org/p/79514/. (Accessed 17 November 2020).

Jarque, C., Cwele, S. C., Ekholm, B., Martin, K., Varkey, S., Granryd, M., Mlambo, P. 2017. "Working Group on Education: Digital skills for life and work". Had, M. Z. C., and Rashid, R. A. 2019. A Review of Digital Skills of Malaysian English Language Teachers. IJET, iJET – 14 (2): 139-145. https://doi.org/10.3991/ijet.v14i02.8732

Kühn, C. 2017. "Are students ready to (re)-design their personal learning environment? The case of the E-Dynamic. Space". *Journal of New Approaches in Educational Research* 6(1): 11–19. doi: 10.7821/ naer.2017.1.185

Lei, J. 2009. "Digital Natives As Preservice Teachers". *Journal of Computing in Teacher Education*, 25 (3): 87-97, doi: 10.1080/10402454.2009.10784615

Law, N., Woo, D., de la Torre, J., and Wong, G. 2018. "A Global Framework of Reference on Digital Literacy Skills for Indicator 4.4.2". Centre for Information Technology in Education (CITE), University of Hong Kong.

Lisbeth, A., Hellström, L., and Stigmar, M. 2019. "Teacher Educators' Use of Digital Tools and Needs for Digital Competence in Higher Education". *Journal of Digital Learning in Teacher Education,* 35 (4): 203-220, doi: 10.1080/21532974.2019.1646169

Martin, A., and Grudziecki, J. 2006. "DigEuLit: Concepts and tools for digital literacy development". *Innovation in Teaching and Learning in Information and Computer Sciences* 5 (4): 249–267. https://doi.org/10.11120/ital.2006.05040249.

Mashhadia, V. Z., and Kargozarib, M. R. 2011. "Influences of digital classrooms on education". *Procedia Computer Science,* 3 (2011): 1178–1183.

McGuinness, C., and Fulton, C. 2019. "Digital literacy in higher education: A case study of student engagement with e-tutorials using blended learning". *Journal of Information Technology Education*: *Innovations in Practice*, 18, 1-28. https://doi.org/10.28945/4190.

Miranda P., Isaias P., and Pifano S. 2018. "Digital Literacy in Higher Education". In: Zaphiris P., Ioannou A. (eds) Learning and Collaboration Technologies. Learning and Teaching. LCT 2018. Lecture Notes in Computer Science, vol 10925. Springer, Cham. https://doi.org/10.1007/978-3-319-91152-6_6.

Oblinger, D.G. and Oblinger, J.L. (EDS). 2005. *Educating the net generation.* Boulder, Co: EDUCAUSE.

Olson, D.R., and Cole, M. 2006. *Technology, literacy, and the evolution of society: Implications of the work of Jack Goody*. Mahwah, NJ: Lawrence Erlbaum.

Organisation for Economic Co-operation and Development (OECD). 2005. "Definition and Selection of Key Competencies. Executive Summary" (online resource), OECD Publishing.

Organisation for Economic Co-operation and Development (OECD). 2018. "The Future of Education and Skills, Education 2030". Accessed on 01st October, 2020 from: http://www.oecd.org/education/2030/E2030%20Position%20Paper%20 (05.04.2018).PDF in Alexander, B., Adams Becker, S., Cummins, M., and Hall Giesinger, C. (2017). Digital Literacy in Higher Education, Part II: An NMC Horizon Project Strategic Brief. Volume 3.4, August 2017. Austin, Texas: The New Media Consortium.

Parvathamma, N., and Pattar, D. 2013. "Digital literacy among student community in management institutes in Davanagere District, Karnataka State, India". *Annals of Library and Information Studies*, 60 (3): 159–166.

Prensky, M. 2007. How to Teach with Technology: Keeping Both Teachers and Students Comfortable in an Era of Exponential Change. Emerging Technologies for Learning, 2, 40-46.

Radovanović, D., Hogan, B., and Lalić, D. 2015. "Overcoming digital divides in higher education: Digital literacy beyond Facebook". *New Media and Society*, 17(10), 1733–1749. doi: 10.1177/1461444815588323

Sadaf, A., and Gezer, T. 2020. "Exploring factors that influence teachers' intentions to integrate digital literacy using the decomposed theory of planned behavior". *Journal of Digital Learning in Teacher Education*, 36 (2): 124-145, DOI: 10.1080/21532974.2020.1719244.

Seale, J., Draffan, E.A. and Wald, M. 2010. "Digital agility and digital decision-making: conceptualising digital inclusion in the context of disabled learners in higher education". *Studies in Higher Education,* 35 (4): 445-461, DOI: 10.1080/03075070903131628.

Spires, H.A., Paul, C. M., Kerkhoff, S. N. 2017. "Digital Literacy for the 21st Century". Accessed on 01st October, 2020 from: 10.4018/978-1-5225-7659-4.ch002. in Alexander, B., Adams Becker, S., Cummins, M., and Hall Giesinger, C. (2017). Digital Literacy in Higher Education, Part II: An NMC Horizon Project Strategic Brief. Volume 3.4, August 2017. Austin, Texas: The New Media Consortium.

United Nations (UN). 2018. "Sustainable Development Goals". https://www.un.org/sustainabledevelopment/sustainable-development-goals/. 5 September

2018. Accessed on 01st October, 2020 from in Alexander, B., Adams Becker, S., Cummins, M., and Hall Giesinger, C. (2017). Digital Literacy in Higher Education, Part II: An NMC Horizon Project Strategic Brief. Volume 3.4, August 2017. Austin, Texas: The New Media Consortium.

The United Nations Educational, Scientific and Cultural Organization (UNESCO). 2008. "*ICT competency standards for teachers. Policy Framework (156210)*". Paris, France: United Nations Educational, Scientific and Cultural Organization.

Wiegel, M., James, C., and Gardner, H. 2009. "Learning: Peering backward and looking forward in the digital era". *International Journal of Learning and Media (ILJM)* Winter 2009, 1 (1).

World Bank. 2019. "The Changing Nature of Work". Accessed on 01st October, 2020 from http://documents.worldbank.org/curated/en/816281518818814423/2019-WDR-Report.pdf in Alexander, B., Adams Becker, S., Cummins, M., and Hall Giesinger, C. (2017). Digital Literacy in Higher Education, Part II: An NMC Horizon Project Strategic Brief. Volume 3.4, August 2017. Austin, Texas: The New Media Consortium.

World Economic Forum (WEF). 2018. "The Future of Jobs Report". Accessed on 01st October, 2020 from: http://www3.weforum.org/docs/WEF_Future_of_Jobs_2018.pdf in Alexander, B., Adams Becker, S., Cummins, M., and Hall Giesinger, C. (2017). Digital Literacy in Higher Education, Part II: An NMC Horizon Project Strategic Brief. Volume 3.4, August 2017. Austin, Texas: The New Media Consortium.