Redefining 21st century learning and assessment – how does the University of Malta fare?

PROF. RUTH FALZON
Department of Counselling
Faculty for Social Wellbeing | University of Malta

Abstract

Education and literacy are a 21st century fundamental human right working against poverty (Freire, 1970; Hanemann, 2015; OECD, 2016; UNESCO, 2018; Wagner, 2011), pervading every part of our lives, and affecting wellbeing (Bartlett et al., 2011; Falzon, 2019; Sachs et al., 2004). Their lack leads to challenges with employment and quality of life (Birdwell et al, 2011; Demaine & Entwistle, 2016, United Nations, 2020). This paper reflects on 21st century context for literacy, learning, and assessment (Chetcuti et al., 2018; Falzon & Camilleri, 2014; Verheijen, 2019).

The 21st century context

Technology has improved so much that 21st century schools cannot ignore its use to access learning and process assessments. Technology is the fourth revolution for means of production of knowledge, following language, drawing/writing, and print (Beaver, 2012; Harnad, 1991). It took over 300 years for Gutenberg's 1440 third revolution, printing, to truly infiltrate and affect society, namely the 1760s' Industrial Revolution. The transition from Printing to Technology was then mere decades (Shenkoya & Kim, 2023; Warschauer1998).

Notwithstanding, we experience two realities: the fourth revolution in most strata of life and the third revolution in educational systems. "With the appearance of computers and digital technologies, new means of interacting between people, and a growing competitiveness on the international level, organizations are now requiring new skills from their employees, leaving educational systems struggling to provide appropriate ongoing training" (Thornhill-Miller et al., 2023, p. 1). Whilst largely responsible for the need for these massive, rapid changes, these "fast-evolving digital technologies are also the answer for implementations and solutions in education and other sectors of life" (Thornhill-Miller et al., 2023, p. 1). These new skills require educational systems to work with the

21st Century's 4Cs of education and learning: creativity, critical thinking, collaboration, and communication, first proposed by the US Ministry of Education and now embraced globally (Nganga, 2019; Thornhill-Miller et al., 2023; van Laar et al. 2017), including UNESCO (Lor, 2007).

My two basic premises for this paper are: (1) traditional literacy continues to be vital (Kirsch & Jenkins, 1998; OECD, 2016 UNESCO, 2018); and (2) 21st century literacy, namely the use of technology to access traditional literacy, must be considered for learning and assessment as a choice for all, not an eligibility concession for those who need (Camilleri et al., 2019; Degirmenci et al., 2020; Lysenko & Abrami, 2014), particularly with the 4Cs' context.

Literacy?

A traditional meaning of reading is: gleaning meaning from verbal-visual print (Butler, 1982; Wagner et al., 2009). A second school of thought challenges traditional access to and production of verbal-visual print (Camilleri et al., 2019; Capodieci et al., 2020; Singer & Alexander, 2017). Traditional reading involves accurate and fluent access to print - simultaneously recognising graphemes representing phonemes, and blending them into words accurately, namely decoding, you amass sight words with practice (Aro, 2004; Ehri, 2014; Hall & Ramig, 1978; Falzon, 2012) to enable you to read fluently and automatically (Bell, 2001; Gersten et al., 2020; Rupley et al., 2020; Sullivan et al., 2013; Young et al., 2015). Brysbaert's 2019 metanalysis quoted "Normal silent reading rate in English is 238 wpm for non-fiction and 260 wpm for fiction" (p. 21). This automaticity is vital for accessing meaning (Limpo et al., 2020; Megherbi et al., 2018; Samuels et al., 2006; Wagner et al., 2009). You will only slow down when decoding unfamiliar or made-up words, for example, Sesquipedalian and Nudiustertian which, for the curious reader, mean long and multi-syllabic words and the day before yesterday respectively.

Writing, that is translating ideas from vocabulary to sentences to organised language, then requires a different set of skills totally separate from the ability to spell. The production of thoughts into organised language someone else will access in another space and time is what is truly required for writing (Arcon et al., 2017; Dahlström & Boström, 2017; Leu et al., 2017; Graham & Santangelo, 2014).

Alternative access and production

21st-century literacy, education, and assessment must consider a construct which does not involve the mechanics of word attack skills for reading and writing. Our educational systems still place a lot of emphasis on books, paper, and handwriting, with little or no emphasis on the skills of using ten, rather than three, fingers to write, or of promoting tablet swiping or using speech-to-text-to-speech assistive technology (Horowitz, 2023; Leu et al., 2017; Petrescu, 2014). Finland has taken this plunge and, as of eight years ago, children starting school will only be introduced to typewriting (Russell, 2015). I am still not convinced and perhaps, because of my age and a dearth in the literature, I am a bit resistant to accept, and totally appreciate and understand this new reality. I query: what is the cognitive effect of not teaching children to handwrite in manuscript or cursive/joined (Leu et al., 2017; Ruffini et al., 2023)?

Educational systems and educators must avoid unnecessary suffering by challenging and changing their traditional definition of learning and assessment, and upgrade to the 21st century reality, which wants the human race to focus on the 4Cs: creativity, critical thinking, collaboration, and communication (Thornhill-Miller et al., 2023; van Laar et al. 2017). Indeed, within the context of the 4Cs, should we do away with individual assessment?

As a university academic, I often receive the same complaint from students: "I would have done much better on examinations had I been allowed to type rather than handwrite". The 2019 Coronavirus Disease lockdown gave

our students this possibility. Students could use technology to submit work. It is hoped that this option remains now that we have returned to normal. Standard computers themselves already incorporate adaptations to address all possible options to access and produce verbal-visual print. For example, Microsoft 365, the Immersion Reader, Speechify for mobiles, or reader pens are easily available for schools and home (Degirmenci et al., 2020; Salmerón, et al., 2023), and, in principle, also accepted by the University of Malta (UM, 2019), although the decision is not taken by the candidate but by UM.

A choice … not a concession!

What I am advocating for is beyond submitting a request for entitlement to accommodation (UM, 2019). This should become a mere choice … for all. After all, at the Doctorate level, viva voce is used to assess candidates (Crossouard, 2011). Examination boards do not question or verify how the thesis was produced (Falzon & Camilleri, 2014). This is also supported by the European Union (2017) Directive and Regulation 2017/1563 on access to print. 2017/1563 facilitates access to published works in formats accessible to persons who are blind, visually impaired, dyslexic or otherwise print-disabled. This law supports my argument regarding alternative access to and presentation of literary material as a choice. If applied appropriately, it will introduce the world of education to the 21st century.

I, therefore, advocate that students should be allowed to simply choose, as opposed to having to apply for, what formats they are most comfortable with when sitting for their "written" examinations, even language examinations, just as one chooses to wear prescriptive glasses, or to write with a fountain pen or a pen. Further, time should not be an issue unless it is specifically being examined. In this 21st century, such possibilities should be a choice not the result of hours of assessment and testing at high financial costs, human resources and anxiety for students, families, and schools (Antonelli, 2014; Camilleri et al., 2019; Chetcuti et al., 2018)

The latest UM erudition

In 2016, the concepts of inclusion enshrined in the Maltese Education Act (2011) were also reflected in Article 6(2) of the UM's entry requirements (Education Act, 2016). The UM's entry requirements were now in line with the law, which states that children have a right to an Individual Education Plan (IEP), which demands provisions, adaptations, and personalised targets resulting in children following different curricula across subjects. Article 6 (2) (Education Act, 2016) enshrined this, and educators and assessors could assure parents and students that one may attend university if they have their Matriculation (MATSEC) certification (minimum 44 points or as probation students) but do not have one of the three required Secondary Education Certification (SEC) grades, namely English, Maltese, and Math. Now we are Back to the Past! UM is now asking such candidates to produce proof that they have failed the SEC examination they would like to be exempted from, at least twice. My Department of Counselling has of course complained, and my Faculty endorsed this complaint.

This has created unnecessary further stress and suffering for young people. They would have been thriving at school, so much that they were successful in obtaining their MATSEC certificate, making them eligible to start UM education. Forcing young persons to attempt examinations they are academically, neurologically, or psychologically not prepared for, and with the overwhelming probability that they will fail due to their IEP, is not just misguided, but goes against the very spirit of the law. Equally seriously, it risks discouraging young persons and in the long run affects the country's employment body, apart from arising mental health issues and their toll on the economy. In my book, this is a grave injustice, discriminatory, and indeed abusive (Antonelli et al., 2014; Falzon & Camilleri, 2010), belittling the inclusion principles UM is supposedly embracing, Maltese professionals' erudite knowledge, care, and practice, and all the students' and their families' hard work and commitment to ensure that our future generations thrive, remain motivated and are successful. Such actions never fail to baffle and appal me!

REFERENCES

Antonelli, L., Bilocca, S., Borg, D., Borg, S., Boxall, M., Briffa, L., Debono C., Falzon, R.,   Farrugia, V., Formosa, M., Gatt, L., Mifsud, D., Mizzi, K., Scurfield,L., Scurfield, M. & Vella, G.L. (2014). Drama, Performance Ethnography, and Self-Esteem: Listening to Youngsters with Dyslexia and Their Parents. SAGE Open, 4(2), 2158244014534696.#

Arcon, N., Klein, P. D., & Dombroski, J. D. (2017). Effects of dictation, speech to text, and handwriting on the written composition of elementary school English language learners. Reading & Writing Quarterly, 33(6), 533-548.https://doi.org/10.1080/10573569.2016.1253513

Aro, M. (2004). Learning to read: the effect of orthography. Jyväskylä studies in education,   psychology and social research. https://jyx.jyu.fi/handle/123456789/13355

Bartlett, L., López, D., Vasudevan, L., & Warriner, D. (2011). The anthropology of literacy. In B.A.U. Levinson & M, Pollock A companion to the anthropology of education, 177-196. https://doi.org/10.1002/9781444396713.ch10

Beavers, A. F. (2012). In the beginning was the word and then four revolutions in the history of information. In Luciano Floridi's Philosophy of Technology (pp. 85-103). Springer, Dordrecht.

Bell, T. (2001). Extensive reading: Speed and comprehension. The reading matrix, 1(1). http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.466.3793&rep=rep1&type=pdf

Birdwell, J., Grist M., & Margo, J. (2011). The forgotten half: A DEMOS and private equity foundation report. London: DEMOS. Retrieved from http://www.demos.co.uk/ files/ The_Forgotten_Half_-_web.pdf?1300105344

Brysbaert, M. (2019). How many words do we read per minute? A review and meta-analysis of reading rate. Journal of memory and language, 109, Article 104047. https://doi.org/10.1016/j.jml.2019.104047

Butler, D. (1982). Reading begins at home. Theory Into Practice, 21(4), 308-314. https://doi.org/10.1080/00405848209543023

Camilleri, S., Chetcuti, D., & Falzon, R. (2019). "They Labeled Me Ignorant": Narratives of Maltese Youth With Dyslexia on National Examinations. SAGE Open, 9(2), https://doi.org/10.1177/2158244019855674.

Chetcuti, D., Falzon, R. & Camilleri, S. (2018). 'The pebble in my shoe': Dyslexic students and their views of examinations. In C. Bezzina & S Caruana Teacher education matters: Transforming lives… transforming schools. In pp. 443-447

Capodieci, A., Cornoldi, C., Doerr, E., Bertolo, L., & Carretti, B. (2020). The use of new technologies for improving reading comprehension. Frontiers in Psychology, 11, 751. https://doi.org/10.3389/fpsyg.2020.00751

Crossouard, B. (2011). The doctoral viva voce as a cultural practice: The gendered production of academic subjects. Gender and Education, 23(3), 313-329. https://doi.org/10.1080/09540253.2010.508453

Dahlström, D., & Boström, B. (2017). Pros and Cons: Handwriting versus digital writing. Nordic Journal of Digital Literacy, 12(4), 143-161. https://doi.org/10.18261/issn.1891-943x-2017-04-04

Degirmenci, N., Baglama, B. & Yucesoy, Y. (2020). The Use of Technology in Dyslexia: An Analysis of Recent Trends. International Journal of Emerging Technologies in Learning (iJET), 15(5), 30-39. Kassel, Germany: International Journal of Emerging Technology in Learning. https://www.learntechlib.org/p/217140/.

Demaine, J., & Entwistle, H. (Eds.). (2016). Beyond communitarianism: citizenship, politics and education. Springer.

Education Act Chapter 327 (16th April, 2011) (https://education.gov.mt/en/Documents/Malta_education_act_2010.pdf

Education Act Chapter 327) Admissions Regulations, 2016. https://www.um.edu.mt/__data/assets/pdf_file/0011/265709/adminregs2016.pdf

Ehri, L. C. (2014). Orthographic mapping in the acquisition of sight word reading, spelling memory, and vocabulary learning. Scientific Studies of Reading, 18(1), 5-21. https://doi.org/10.1080/10888438.2013.819356

European Union (2017) Regulation (EU) 2017/1563 of the European Parliament and of the Council of 13 September 2017 on the cross-border exchange between the Union and third countries of accessible format copies of certain works and other subject matter protected by copyright and related rights for the benefit of persons who are blind, visually impaired or otherwise print-disabled. https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/? uri=CELEX:32017R1563&from=EN

Falzon, R. (2012). Early educators' awareness and knowledge of structured multisensory literary instruction (Doctoral dissertation, Northumbria University).

https://www.proquest.com/docview/1687700469/fulltextPDF/96A1A48125E41A5PQ/1?accountid=27934

Falzon, R. (2019). Literacy and Wellbeing. In S.Vella, R. Falzon, & A. Azzopardi Perspectives on wellbeing. Brill, . 79-95.

Falzon, R. & Camilleri, S. (2010) Dyslexia and the School Counsellor - A Maltese Case Study. Counselling and Psychotherapy Research Journal, 10 (4) 307-315, https://doi.org/10.1080/14733140903370228

Falzon, R. & Camilleri J. (2014) Request for oral examinations at the SEC and MATSEC levels. National petition presented to the Maltese Parliament. https://www.change.org/p/ministry-for-education-and-employment-give-the-option-to-students-to-do-their-examinations-in-writing-orally-or-using-a-word-processor.

Freire, P. (1970). The pedagogy of the oppressed. Harper and Harper

Gersten, R., Haymond, K., Newman-Gonchar, R., Dimino, J., & Jayanthi, M. (2020). Meta-analysis of the impact of reading interventions for students in the primary grades. Journal of Research on Educational Effectiveness, 13(2), 401-427. https://doi.org/10.1080/19345747.2019.1689591

Graeber, D., & Wengrow, D. (2021). The dawn of everything: A new history of humanity. Penguin. Graham, S., & Santangelo, T. (2014). Does spelling instruction make students better spellers, readers, and writers? A meta-analytic review. Reading and Writing, 27(9), 1703-1743. https://doi.org/10.1007/s11145-014-9517-0

Hall, M. A., & Ramig, C. J. (1978). Linguistic foundations for reading. Merrill Publishing Company. Hanemann, U. (2015). Lifelong literacy: Some trends and issues in conceptualizing and operationalizing literacy from a lifelong learning perspective. International Review of Education – Journal of Lifelong Learning, 61 (3), pp. 295–326. https://eric.ed.gov/?id=EJ1071453

Harnad, S. (1991). Post-Gutenberg galaxy: The fourth revolution in the means of production of knowledge. Public-access computer systems review, 2(1), 39-53. https://hdl.handle.net/10657/5147

Horowitz, R. (2023). Transforming speech into writing: Constructing a voice and identity in academic world writing. In The Routledge International Handbook of Research on Writing (2nd ed.) (pp. 105-123). Routledge.

Kirsch I. S., & Jenkins L. B. (1998). Introduction. In T.S. Murray, I.S. Kirsch, & L.B. Jenkins, (Eds.). Adult Literacy in OECD Countries: Technical Report on the first international adult literacy survey (pp. 13-22). Washington, DC: National Centre for Education Statistics Office of Educational Research and Improvement: U.S. Department of Education. Office of Educational Research and Improvement. Retrieved from http://nces.ed.gov/pubs98/98053.pdf

Leu, D. J., Kinzer, C. K., Coiro, J., Castek, J., & Henry, L. A. (2017). New literacies: A dual-level theory of the changing nature of literacy, instruction, and assessment. Journal of Education, 197(2), 1-18. https://doi.org/10.1177/002205741719700202

Limpo, T., Vigário, V., Rocha, R., & Graham, S. (2020). Promoting transcription in third-grade classrooms: Effects on handwriting and spelling skills, composing, and motivation. Contemporary Educational Psychology, 61, 101856. [101856]. https://doi.org/10.1016/j.cedpsych.2020.101856

Lor, P. J. (2007). The 34th General Conference of UNESCO, October 2007: summary report on attendance. IFLA journal, 33(4), 363-373. https://journals.sagepub.com/doi/pdf/10.1177/0340035207087728

Lysenko, L. V., & Abrami, P. C. (2014). Promoting reading comprehension with the use of technology. Computers & Education, 75, 162-172. https://doi.org/10.1016/j.compedu.2014.01.010

Megherbi, H., Elbro, C., Oakhill, J., Segui, J., & New, B. (2018). The emergence of automaticity in reading: Effects of orthographic depth and word decoding ability on an adjusted Stroop measure. Journal of experimental child psychology, 166, 652-663.

Nganga, L. (2019). Preservice teachers perceptions of teaching for global mindedness and social justice: Using the 4Cs (Collaboration, Critical thinking, Creativity and Communication) in teacher education. Journal of Social Studies Education Research, 10(4), 26-57. https://www.learntechlib.org/p/216548/.

Organisation for Economic Co-operation and Development [OECD], (2016), The survey of adult skills: Reader's companion. (2nd edition) Paris: OECD Skills Studies, OECD Publishing. http://dx.doi.org/10.1787/9789264258075-en

Petrescu, A. (2014). Typing or writing? A dilemma of the digital era. Elearning & Software for Education, (2). file:///C:/Users/User/Downloads/TYPING_OR_WRITING_A_DILEMMA_O.pdf

Ruffini, C., Osmani, F., Martini, C., Giera, W. K., & Pecini, C. (2023). The relationship between executive functions and writing in children: a systematic review. Child Neuropsychology, 1-59.https://doi.org/10.1080/09297049.2023.2170998

Rupley, W. H., Nichols, W. D., Rasinski, T. V., & Paige, D. (2020). Fluency: Deep roots in reading instruction. Education Sciences, 10(6), 155. https://doi.org/10.3390/educsci10060155

Russell, H. (2015) Signing off: Finnish schools phase out handwriting classes. The Guardian. https://theguardian.com/ world/2015/jul/31/finnish-schools-phase-out-handwriting-classes-keyboard-skills-finland

Sachs, J., McArthur, J. W., Schmidt-Traub, G., Kruk, M., Bahadur, C., Faye, M., & McCord, G. (2004). Ending Africa's poverty trap. Brookings papers on economic activity, 2004(1), 117-240. https://doi.org/10.1353/eca.2004.0018

Salmerón, L., Vargas, C., Delgado, P., & Baron, N. (2023). Relation between digital tool practices in the language arts classroom and reading comprehension scores. Reading and Writing, 36(1), 175-194. https://doi.org/10.1007/s11145-022-10295-1

Samuels, S. J., Ediger, K. A. M., Willcutt, J. R., & Palumbo, T. J. (2006). Role of automaticity in metacognition and literacy instruction. In Metacognition in literacy learning (pp. 63-82). Routledge.

Shenkoya, T., & Kim, E. (2023). Sustainability in higher education: digital transformation of the fourth industrial revolution and its impact on open knowledge. Sustainability, 15(3), 2473. https://doi.org/10.3390/su15032473

Singer, L. M., and Alexander, P. A. (2017). Reading on paper and digitally: what the past decades of empirical research reveal. Rev. Educ. Res. 87, 1007–1041. doi: 10.3102/0034654317722961

Sullivan, M., Konrad, M., Joseph, L. M., & Luu, K. C. (2013). A comparison of two sight word reading fluency drill formats. Preventing School Failure: Alternative Education for Children and Youth, 57(2), 102-110.https://doi.org/10.1080/1045988X.2012.674575

Thornhill-Miller, B., Camarda, A., Mercier, M., Burkhardt, J. M., Morisseau, T., Bourgeois-Bougrine, S., Florent, V., El Hayek, S., Augereau-Landais, M., Mourey, F., Feybesse, C., Sundquist, D., & Lubart, T. (2023). Creativity, Critical Thinking, Communication, and Collaboration: Assessment, Certification, and Promotion of 21st Century Skills for the Future of Work and Education. Journal of Intelligence, 11(3), 54. file:///C:/Users/User/Downloads/Creativity,_Critical_Thinking,%20(1).pdf

United Nations (2020). Literacy for life, work, lifelong learning and education for democracy :Report of the Secretary-General. https://documents-dds-ny.un.org/doc/UNDOC/GEN/N20/188/99/PDF/N2018899.pdf?OpenElement

UNESCO (2018) Literacy. http://www.unesco.org/new/en/education/ themes/ education-building-blocks/literacy/

University of Malta (2019) Guidelines to MATSEC Examinations Access Arrangements 2019 https://www.um.edu.mt/__data/assets/ pdf_file/0006/418902/UMMATSECGuidelines2019FINAL20-11-2019-VERSIONAPPROVEDBYSENATE-converted.pdf

van Laar, Ester, Alexander J. A. M. Van Deursen, Jan A. G. M. Van Dijk, and Jos de Haan. 2017. The Relation between 21st-Century Skills and Digital Skills: A Systematic Literature Review. Computers in Human Behavior 72: 577–588 https://doi.org/10.1016/j.chb.2017.03.010

Verheijen, L. (2019). Is textese a threat to traditional literacy? Dutch youths' language use in written computer-mediated communication and relations with their school writing (Doctoral dissertation, Utrecht: LOT). https://repository.ubn.ru.nl/ bitstream/handle/2066/200667/200667.pdf

Wagner, D. A. (2011). What happened to literacy? Historical and conceptual perspectives on literacy in UNESCO. International Journal of Educational Development, 31(3), 319-323. https://doi.org/10.1016/j.ijedudev.2010.11.015

Wagner, R. K., Schatschneider, C., & Phythian-Sence, C. (Eds.). (2009). Beyond decoding: The behavioral and biological foundations of reading comprehension. Guilford Press

Warschauer, M. (1998). Electronic literacies: Language, culture, and power in online education. Routledge.

Young, C., Mohr, K. A., & Rasinski, T. (2015). Reading together: A successful reading fluency intervention. Literacy Research and Instruction, 54(1), 67-81. https://doi.org/10.1080/19388071.2014.976678