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Digitally empowered students through teacher leadership: The role of authentic leadership

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Abstract

Technology is advancing, and with that, our students require digital empowerment and fluency to maximise their chances of success in their current and future personal and professional lives. In this paper, we build on the existing teacher leadership and digital literacy literatures. We theorise that authentic leader behaviours in higher education teachers offer a moderation effect on the relationship between teacher leadership and digital empowerment of students. We discuss the implications proposed from this critical review on increasing efficacy of student learning within the digital era. We see significance in this work, particularly as educators begin to test new digital pedagogies incorporating immersive learning environments, virtual reality, and augmented reality.

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Introduction

In today's digital world, there are far less classrooms filled with notebooks, printed hand-outs, bulky textbooks, pen licenses, and whiteboards with the teacher's name in the top right corner. From primary schools to higher education, the only significant difference is the size of the textbook and the frequency of exams. Today's contemporary higher education tutorial is a place of laptops and tablets, where innovative pedagogy enables learning: flipped classrooms (Abeysekera & Dawson, 2015; Bishop & Verleger, 2013) and blended learning (Osguthorpe & Graham, 2003) are but two examples. Contemporary approaches create opportunities for more effective and authentic learning for students, as well as significant challenges to facilitating high impact learning and teaching. Students can be engaged in learning relevant to their future personal and professional lives through effective utilisation of their devices (e.g. Prensky, 2005). Yet, a student's learning performance and cognitive abilities are affected by the mere presence of distracting technology (Thornton et al., 2014; Ward et al., 2017).

Students, in engaging with technology-enhanced learning and teaching require a suite of underlying digital competencies to a) critically evaluate digital content, and b) navigate content using their technology. There has been considerable emergent theoretical and empirical research conducted in this area despite a lack of clarity on terms used (Spante et al., 2018). In Spante et al.'s (2018) systematic literature review, digital literacy tended to be more commonly discussed in the literature compared to digital competence, except in Europe where the reverse was true. Regardless of the term or concept used, there is growing evidence that there is a genuine need to consider digital pedagogies for student (flexibility, opportunity, and authenticity) and organisational (financial efficiency and maintaining curriculum currency) reasons.

The aim of this paper is to examine the role that a teacher's authentic leader behaviours have on enabling students to be digitally empowered and to develop their digital fluency. Teachers play a critical role in the classroom, and their leadership behaviours influence this relationship (Yorke-Barr & Duke, 2004). To do so, this paper begins with a more holistic explication of the opportunities and challenges afforded by digital education and follows with a brief explanation of the critical review method approach adopted for this paper. In the literature section, we explore the current evidence on the digitally empowered student, and what teacher leadership is. We follow with explicating the authentic leader and their role in classroom settings and follow with a discussion theorising possible development activities for developing digital fluency and enabling digital empowerment in tertiary students.

Context

With technology impacting all industries, organisations are moving towards a digital service model (McKinsey Global Institute, 2018). However nearly half (44%) of businesses acknowledge that whilst they are incorporating digital into their strategy, they are not adequately preparing for

digital service delivery (Kane et al., 2016). Organisations are concerned about the impact of digital service growth on the workforce (McKinsey Global Institute, 2018). Those leading digital service transformations are considering now how to prepare the current and future workforce to be digitally fluent.

Digital literacy was conceptualised by Glister (1997, p. 1) as "the ability to understand and use information in multiple formats from a wide range of sources when it is presented via computers". This definition was proposed more than two decades ago, during the early days of home computing and even earlier days of the internet. During the two decades since, technology has integrated into every facet of our lives, reshaping how we transverse socially, professionally and educationally. As such, today's definition of digital literacy may be an extension of Glister's definition. Furthermore, its meaning differs depending on the discipline and context: "when we use the term literacy as a descriptor, it is because being literate is fundamental to how we communicate knowledge and meaning, and this includes the digital environment" (Combes, 2016, p. 6). Therefore, this paper adopts the Coldwell-Neilson (2018, p. 107) working definition: "digital literacy is the ability to identify and use technology confidently, creatively and critically to effectively meet the demands and challenges of living, learning and working in a digital society".

There are numerous predictions of technological transformation or trends for the next decade. As summarised by Hajkowicz et al. (2016), these often include the areas of data, connectivity, and artificial intelligence. Developments in the Internet of Things and automation will lead to increased big and small data, improving evidence-informed business strategies. This will, in turn, impact both organisational structures and workforces. Remote offices and co-working environments will increase, as will the number of contract or freelance workers. Within these environments, small business will experience rapid growth. Digital entrepreneurialism thrives in agile environments, driving productivity and innovation with low cost. As the governance structure of larger organisations does not inhibit start-ups, they can turn ideas into reality in lean, quick ways. Yet, it will depend on a digitally fluent workforce, with a higher skill set. In this transformation, Frey and Osborne (2013, 2017) predicted around 47 per cent of the employment market in the United States are at a high-risk for computerisation in the next one to two decades.

McKinsey Global Institute (2018) examined the impact of automation and artificial intelligence on the future of the workforce, stating that there are current skills shortages across industries. Predicting the number of hours spent using different skills, they forecast a 55 per cent increase in technological skills by 2030. Some categories of skills will be less in demand, such as basic data input and processing skills (decline by 15 per cent) and physical/manual skills (decline by 14 per cent). These shifts signal the impact of technology on roles where the functions are largely routine procedural or manual tasks that could be performed by machine language or robotics.

This need for digitally fluent workers is already shifting the graduate capabilities in vocational and higher education. The Committee for Economic Development of Australia (CEDA, 2015) identified the significant shortages in digital skills and recommended the need to increase digital literacy in school education. Technological advancements are enabling institutions to meet demand for more flexible, individualised education. Davies et al. (2017) reported industry research findings that 70 per cent of vice-chancellors agreed technology-enhanced learning is essential in today's environment. With innovations such as MOOCs and the increase in blended learning (Harris & Fu, 2018), more universities are introducing digital capability frameworks to support staff and students. An examination of 32 Australian university websites identified only half publicly advertised information on their website about their approach, framework or strategy to build digital capabilities (Huber & Shalavin, 2018). Of these, all referred to staff or students, but five websites only referred to students and did not include staff. So, while Davies et al. (2017) report that vice-chancellors may agree on the importance of technology-enhanced learning, Huber and Shalavin (2018) report this is not translating into digital capability building across the sector. Furthermore, while many publicly published frameworks provide a structure to develop digital capability in an organisation, they do not describe the attributes of a digital worker, which in this context is either the student or the teacher. Many also do not consider the impact of the relationship between educator and learner and its impact on building digital capabilities in graduates.

Method

This paper adopts a critical review method and does so for numerous reasons. First, the areas of literature considered in this paper have some development in their own right; but lack coherency across these domains. Thus, a less systematic approach to assessing the current literature is required to create a preliminary understanding of how authentic leaders may aid in the digital empowerment challenge. In a typology of literature reviews, Grant and Booth (2009) highlight multiple parts to a critical literature review. The aim of a critical review should be to "demonstrate [the] writer has extensively researched [the] literature and critically evaluated its quality" (Grant & Booth, 2009, p. 94). Thus, we draw on our existing works in the area of authentic leadership (Crawford et al., 2020c), leadership in digital contexts (Low et al., 2019), digital fluency (Marc et al., 2019), and their synthesis in the workplace context (Crawford & Butler-Henderson, 2020).

Literature

This section begins with a discussion on the digitally empowered student, building on existing literature on the digitally empowered employee. Next, teacher leadership with a focus on the influence of teacher behaviours on student outcomes and development is considered. The section on authentic leaders and followers begins to explicate the theory of authentic leadership and the leader-follower relationship parallels that exist with effective

teacher-student relationships.

Digital literacy in students and academics

There is an assumption that the implementation of digital literacy approaches will result in students with a good level of digital literacy. For many, exposure is not equivalent to understanding in relation to a student's regular interaction with digital technology (Butler-Henderson & Crawford, 2019; Murray & Perez, 2014). Even where students are required to use technology as part of their studies, this does not translate into computer literacy (McLachlan et al., 2016). Further, there is a disconnect between perceived literacy and actual literacy, with ECDL (2016) reporting this variation differing on average by 55 per cent. Therefore, an understanding of the attributes of digital literacy in students is required as a foundation of any approach.

The existing frameworks are centered around the areas for development of digital literacy. The Jisc (2019) framework incorporates six elements: i) ICT proficiency (functional skills); ii) information, data and media literacies (critical use); iii) digital creation, problem-solving and innovation (creative production); iv) digital communication, collaboration and participation (participation); v) digital learning and development (development); and, vi) digital identity and wellbeing (self-actualising). The DigComp 2.0 framework (Vuorikari et al., 2016) includes the elements of i) information and data literacy; ii) communication and collaboration; iii) digital content creation; iv) safety; and, v) problem-solving. There is commonality between both frameworks, but neither describe the attributes they are aiming to develop in a student or academic. Taking the working definition posed by Coldwell-Neilson (2018), neither of these frameworks include their three C's: confidently, creatively, and critically. The closest is the Jisc Tool integration of creation, problem solving, and innovation, but this is still an area for development, not attributes.

The nomological network of the digitally empowered worker (DEW) posed by Crawford and Butler-Henderson (2020) identified four dynamic attributes observed in an individual who has digital literacy. The DEW is an individual with strong digital literacy skills. The first attribute, awareness, is "the ability to perceive, feel, know, and understand people and events" (Crawford & Butler-Henderson 2020, p. 110). This includes developing social and emotional skills, including communication, negotiation, interpersonal, leadership, entrepreneurial, initiative-taking, adaptability and continuous learning skills. The second attribute, creativity, "involves forming solutions to bring one's ideas, thoughts and dreams into reality in ways that are novel and useful" (Crawford & Butler-Henderson, 2020, p. 111). Through the creation of ideas, innovation occurs whereby these ideas are used to improve processes, products, services, or procedures. The third attribute, agility, is the "ability to be flexible and quick" (Crawford & Butler-Henderson, 2020, p. 112). This involves decision making, cognitive flexibility, and judgement. The last attribute, learning orientation, is the ability "to be able to identify and set their own learning goals, and be open to new ways of working and learning" (Crawford & Butler-Henderson, 2020, p. 113). This enables individuals to remain current across contemporary developments through the

development of their knowledge and skills.

Three quarters of over 7,000 students surveyed reported improved learning when digital innovations were used effectively by teaching staff (Davies et al., 2017). Innovations included online activities, virtual learning environments and assessment submission. Huber and Shalavin (2018) identified several studies that discussed digital literacy in education, of which nine included staff in a higher education setting in the study population. Teacher leadership influence on student digital literacy did not appear in any of these articles. Coldwell-Neilson (2018) recommended that academic digital literacy should be at least to a level of confidence with technologies to enable them to pass this onto their students. This is the only reference the authors could find with regard to the connection between leadership and digital literacy in higher education.

Teacher leadership

Teacher leadership and school leadership have been oriented around the idea that principals, headmasters, advanced skill teachers, and other senior education administrators influence the effectiveness of front-line teachers (Heck & Hallinger, 2009; Huber, 2004; Leithwood et al., 2004). The term 'leadership' in higher education often lends itself to an apparent synonymous term 'manager' (e.g. Roettger et al., 2017). This is despite the recent evidence suggesting that leadership is the enactment of informal influence by an individual, rather than the leverage of positional power for achieving outcomes (Crawford et al., 2020c). There is, however, much to be understood between formal and informal leadership relations (White et al., 2016).

While distributed leadership theories articulate that central authorities distributing positional power across the organisation is necessary (Harris, 2009), there is growing evidence of the role of the teacher's leadership capability and behaviour. In fact, some scholars go as far as to distinguish the notion of leadership using primarily informal influence with some formal authority, and the management-oriented use of coercive rules (Vigoda-Gadot, 2007). While informal leadership capabilities are often sought (Wingrove, Clarke, & Chester, 2015), they are not always a priority against research and teaching proficiency and experience. In broad educational contexts, leadership capacity building is a key success factor in enabling sustainable improvement of student outcomes (Lizzio et al., 2011).

In higher education, progression has moved towards developing the teaching team (Benjamin, 2000; Brown et al., 2013; Carr et al., 2020). Organisational scholars recognise the value of developing leadership capacity in teams through formal and informal leaders (Day et al., 2004). The contemporary focus on individual teachers and their effect on student performance should be replaced by a broader approach to considering the teaching team surrounding the delivering teacher. In higher education, this is particularly important given the need for diverse expertise to deliver high quality content: from lecturers, professors, and content experts to administration support and educational developers.

Three elements emerged with regard to teacher leadership in the higher education context: i) individual lecturer behaviours, ii) their exhibition of leadership, and iii) student legitimisation. First is the individual leader and their innate and developing behaviours, attitudes, and skills. These psychosocial behaviours are commonly defined within leadership theories. Many of these behavioural frameworks have been applied to learning and teaching in higher education: transformational leadership (Lo et al., 2010), full-range leadership (Bodla & Nawaz, 2010), charismatic leadership (Bastedo et al., 2014), and authentic leadership (Elrehail et al., 2018) are commonly applied.

Second, lecturers and their relationship/exchange with students has a considerable effect on a student's desire to engage in their subject/unit content and remain in their course (Farr-Wharton et al., 2018). The authors reported these lecturers exhibit leadership through development of informal relationships and demonstration of legitimate expertise in their content delivery. They may, at times, also use minor forms of positional power by virtue of the institutional context they operate within. For example, via assessment deadlines and a baseline degree of power-distance between staff and student (e.g. DePew & Lettner-Rust, 2009; Taibi, 2006).

Third, within the literature, students characterise an educational leader different than lecturers (Richards, 2011). Teachers have perceptions of problem-based learning (Ribeiro, 2011) that conflict to some degree with student perceptions (Pepper, 2010). Follower legitimisation of leaders is a common method of assessing leadership capability with reduced bias (Crawford & Kelder, 2019). This approach has also led to theoretical understandings of the way in which followers interact with their leaders. Likewise, the way a student perceives their teacher will influence their engagement and attainment in the classroom setting. These three elements offer unique insights for consideration in our pursuit to better understand the context that can create more digitally empowered students.

Authentic leaders and followers

Authentic leadership theory emerged in the early 2000s as a response to growing concerns of corporate malfeasance at the hand of unethical or unaware leaders. The dotcom bust and 9/11 are commonly cited in the early literature for their role in the formation of more ethical, positive, and authentic forms of leadership (Luthans & Avolio, 2003). The current literature debates the underlying philosophies of the authentic leader with new definitions and conceptualisations emerging from the literature. Some argue it may offer a positivity trap (Alvesson & Einola, 2019), or challenge its current assumptions (Iszatt-White et al., 2019a). The construct, however, has been applied broadly in the past decade. A systematic literature review (Gardner et al., 2011) formed the third-largest cited paper in *Leadership Quarterly* during the 2010-2019 decade (Gardner et al., 2020) signifying the emergent utility of the authentic leadership construct.

Crawford and Butler-Henderson (2020) argue that an authentic leader (a person) is distinct from authentic

leadership (a process of enactment and influence), defining the authentic leader as an individual who “influences and motivates followers to achieve goals through their sincerity and positive moral perspective, enabled through heightened awareness and balanced processing” (p. 126). In the same model, an authentic follower “is an individual who, through their capacity for authenticity and positive organisational engagement, is self-managing and follows leaders whom they share values” (Crawford et al., 2018, p. 274). These leaders and followers have been applied to a wide range of contexts including healthcare and nursing (Wong & Walsh, 2019), addressing wicked problems (Crawford et al., 2020b), and media discourse of politicians (Iszatt-White et al., 2019b). In the higher education context, authentic leaders are argued to enable greater innovation through transparent and sincere knowledge-sharing (Elrehail et al., 2018), higher academic creativity by leveraging intrinsic motivation and mood (Ahmad et al., 2015), and increased trust and engagement (Bird et al., 2012).

Outside of higher education, but within the scope of this paper is consideration of the role that authentic leaders have in elements of digital fluency, literacy, adoption, and skill development. Prince (2017) reported that several leadership scholars focus on the explication of leadership theories without consideration to digital applicability or efficacy. Arguably, there is a challenge in digital settings for leaders who understand the innate complexity of the digital landscape. At the time of writing, ‘point of view’ videos on social media platforms like TikTok pose a form of dysphoric entrance into a reality either unobtainable to the viewer or elucidating a nostalgic feeling from a commonplace experience of a younger generation. While evidence of these activities remains in its infancy at the time of writing, the growing deterritorialization characteristic of a post-truth digital era (Kozinets et al., 2018) has created a new wave of digital responses for students, employees, citizens, and teachers. Within emergent and future trends is a need to enable students to cope with, and navigate, the world. Likewise, is the need for lecturers and professors to exercise leadership to build a curriculum that is both temporally situated and relevant to students. This paper continues in the discussion to explicate the relationship between authentic leader behaviours exhibited by academic teachers and their students’ digital empowerment.

Discussion

In a digital era, students having an adequate understanding of their digital landscape is critical for their future success in professional and personal lives. Throughout this paper, we have explored the need for digital empowerment in students, teacher leadership, and authentic leader theory. This section explores the role that teacher leadership has on student outcomes pertaining to digital fluency. We extend this narrative to explore the effect of authentic leader behaviours enacted by higher education teachers in contributing to greater digital empowerment in student populations.

Online pedagogy, including digital efficacy, is becoming a critical factor in the contemporary curriculum. At present,

universities internationally are coping with the necessary digitalisation of curriculum as a result of COVID-19 complications (Crawford et al., 2020a). The authors reported that higher education institutions that have responded faster are likely to be those which have more robust digital processes and digital efficacy among their staff. In this section, we identify the theoretical parameters that would support more effective digital empowerment in student populations as digital curriculum becomes more prominent.

The review identified that while there are two main frameworks used by higher education organisations to develop digital literacy in students and staff, the attributes of digital literacy are poorly understood. A comparison of the attributes identified by Crawford and Butler-Henderson (2020), the Jisc framework (2019) and the DigComp 2.0 framework (Vuorikari et al., 2016) establishes that none of those frameworks addresses all four attributes. Whilst the Jisc framework can strengthen awareness, it has limited opportunities to develop agility while the DigComp 2.0 framework does not develop emotional intelligence (awareness) or development (learning orientation) attributes. Table 1 summarises the examination of the attributes within each framework.

Table 1. Examination of the digital enabled worker (DEW) attributes in the JISC and DigComp 2.0 framework.

DEW Attributes	Jisc	DigComp 2.0
Awareness	2. Information, data and media literacies (Critical use). 4. Digital communication, collaboration and participation (Participation) 6. Digital identity and wellbeing (Self-actualising)	2. Communication and collaboration 4. Safety
Creativity	3. Digital creation, problem solving and innovation (Creative production)	3. Digital content creation
Agility	3. Digital creation, problem solving and innovation (Creative production)	5. Problem-solving
Learning orientation	5. Digital learning and development (Development)	

The nomological network by Crawford and Butler-Henderson (2020) postulates that authentic leader behaviour influences development of these attributes in a follower. In context, this is the influence of a teaching academic on the digital literacy attributes of a student. However, neither of the frameworks examined here refers to the influence of leadership, and the literature cited above similarly did not examine this influence. Therefore, organisations need to ensure that digital literacy strategies include staff. Furthermore, a focus on authentic leadership development can theoretically enhance student digital literacy. The findings from a study by de Jong et al. (2014) provides evidence on the ability to teach authentic leadership skills, resulting in students developing many of the attributes listed above. Lastly, Crawford and Butler-Henderson (2020) posit that this influence will subsequently result in higher rates of digital innovation and digital productivity, as discussed by Crawford and Butler-Henderson (2020). As such, graduates can develop the attributes to work in digital services industries. Adapting the nomological network by Crawford and Butler-Henderson (2020) to this context, as shown in Figure 1, four hypotheses are drawn:

Hypothesis 1. *That academics with authentic leadership behaviours will have a direct influence on the degree to which*

students develop digital literacy.

Hypothesis 2. That students' authentic follower behaviours will have a predictive effect on student digital literacy.

Hypothesis 3. That students who develop digital literacy will have higher rates of digital innovation than students who do not develop digital literacy.

Hypothesis 4. That students who develop digital literacy will have higher rates of digital productivity than students who do not develop digital literacy.

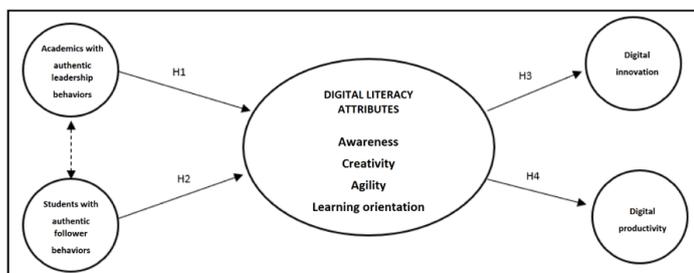


Figure 1. Influence of academics with authentic leader behaviour on student digital literacy.

Future research and conclusions

This paper seeks to adapt the nomological network posed by Crawford and Butler-Henderson (2020) to a higher education context. Other than a brief recommendation by Coldwell-Neilson (2018), there is no theoretical or empirical examination of the influence of the academic role on student digital literacy. Further, the alignment between authentic leadership behaviours and digital literacy attributes suggests developing authentic leadership behaviours in academics will improve student digital literacy. This paper posits an organisational strategy that focuses on developing authentic leader behaviours in academics will directly influence student digital literacy, as will student authentic follower behaviour. In turn, graduates will be better prepared to work in digital services, meeting employer needs.

This research is limited by a lack of primary data, as are all theoretical work. However, we believe there is a necessary logical theoretical argument posed prior to empirical analysis. This research provides the theoretical foundations for a series of empirical works, particularly with the opportunity to test our theorised moderation relationship. Likewise, scholars should also consider how other leadership behaviours beyond authentic leadership may enable higher student digital empowerment and fluency. The role of the teacher's leadership in relation to student self-efficacy and their own self-leadership should also be examined to enable student digital fluency. This will create a baseline set of knowledge to understand whether teacher leadership has a similar effect on students compared to organisational leaders on their subordinates. The differences in the teacher-student relationship compared to manager-subordinate relationships needs to be explored to understand the nuances in the nomological network posed by Crawford and Butler-Henderson (2020) when contextualised to higher

education.

We conclude with a critical remark. This paper discusses the nature of digital empowerment within the higher education context and problematizes the notion of conflating continued use of digital technology with digital fluency. Just because our students' technology exposure is often high, does not mean their skills are proficient without pedagogical support to embed digital literacy training into the curriculum. We have proposed that academics who develop their authentic leadership behaviours will enable greater digital fluency in their students. We also proposed that students who develop their authentic followership behaviours in class will be more digitally innovative and productive. The outcome? The propensity for students who are better able to engage with their personal and professional lives as a result of their digital fluency.

References

- Abeysekera, L., & Dawson, P. (2015). Motivation and cognitive load in the flipped classroom: Definition, rationale and a call for research. *Higher Education Research & Development*, 34(1), 1-14.
- Ahmad, I., Zafar, M. A., & Shahzad, K. (2015). Authentic leadership style and academia's creativity in higher education institutions: intrinsic motivation and mood as mediators. *Transylvanian Review of Administrative Sciences*, 11(46), 5-19.
- Alvesson, M., & Einola, K. (2019). Warning for excessive positivity: Authentic leadership and other traps in leadership studies. *The Leadership Quarterly*, 30(4), 383-395.
- Bastedo, M. N., Samuels, E., & Kleinman, M. (2014). Do charismatic presidents influence college applications and alumni donations? Organisational identity and performance in US higher education. *Higher Education*, 68(3), 397-415.
- Benjamin, J. (2000). The scholarship of teaching in teams: What does it look like in practice?. *Higher Education Research & Development*, 19(2), 191-204.
- Bird, J. J., Wang, C., Watson, J., & Murray, L. (2012). Teacher and principal perceptions of authentic leadership: Implications for trust, engagement, and intention to return. *Journal of School Leadership*, 22(3), 425-461.
- Bishop, J. L., & Verleger, M. (2013). The flipped classroom: A survey of the research. *In ASEE National Conference Proceedings*, 30(9), 1-18.
- Bodla, M. A., & Nawaz, M. M. (2010). Comparative study of full range leadership model among faculty members in public and private sector higher education institutes and universities. *International Journal of Business and Management*, 5(4), 208-214.
- Brown, N., Kelder, J., Freeman, B., & Carr, A. (2013). A message from the chalk face - what casual teaching staff tell us they want to know, access and experience. *Journal of University*

Teaching and Learning Practice, 10(3), 1-16.

Butler-Henderson, K., & Crawford, J. (2019). *Digitally empowering students through authentic leadership*. In *Proceedings of Teaching Matters 2019: Our Distinctive Future*. Hobart, Australia: University of Tasmania.

Carr, A., Kelder, J., & Crawford, J. (2020). Exploring the impact of SoTL on day-to-day learning and teaching: A conceptual framework for professional development and quality improvement. In R. Plews & M. Amos (Eds.), *Evidence-Based Faculty Development Through the Scholarship of Teaching and Learning (SoTL)* (pp. 388-412). Hershey, Pennsylvania: IGI Global.

CEDA (2015). *Australia's future workforce? The committee for economic development of Australia*. <http://www.ceda.com.au/research-and-policy/policy-priorities/workforce>.

Coldwell-Neilson, J. (2018). Digital literacy expectations in higher education. In open oceans: Learning without borders. M. Campbell, J. Willems, C. Adachi, D. Blake, I. Doherty, S. Krishnan, S. Macfarlane, L. Ngo, M. O'Donnell, S. Palmer, L. Riddell, I. Story, H. Suri, ... J. Tai (Eds.), *ASCILITE 2018 Conference Proceedings - Open Oceans: Learning without borders* (pp. 330-334). ASCILITE.

Crawford, J., & Butler-Henderson, K. (2020). Digitally empowered workers and authentic leaders: The capabilities required for digital services. In K. Sandhu (Ed.), *Leadership, management, and adoption techniques for digital service innovation* (pp. 103-124). Hershey, Pennsylvania: IGI Global.

Crawford, J., Butler-Henderson, K., Rudolph, J., Malkawi, B., Glowatz, M., Burton, R., Magni, P., & Lam, S. (2020a). COVID-19: 20 countries' higher education intra-period digital pedagogy responses. *Journal of Applied Learning & Teaching*, 3(1), <https://doi.org/10.37074/jalt.2020.3.1.7>.

Crawford, J., Kelder, J. A., & Knox, M. (2020b). What does it take to be a social entrepreneur?: Authentic leaders and their effect on innovation. In C. Dogru (Ed.), *Leadership styles, innovation, and social entrepreneurship in the era of digitalization* (pp. 282-310). Hershey, Pennsylvania: IGI Global.

Crawford, J., Dawkins, S., Martin, A., & Lewis, G. (2020c). Putting the leader back into authentic leadership: Reconceptualising and rethinking leaders. *Australian Journal of Management*, 45(1), 114-133.

Crawford, J., Dawkins, S., Martin, A., & Lewis, G. (2018). Conceptualising authentic followers and developing a future research agenda. In D. Cotter-Lockard (Ed.), *Authentic leadership and followership* (pp. 271-293). Cham, Switzerland: Palgrave Macmillan.

Davies, S., Mullan, J., & Feldman, P. (2017). *Rebooting learning for the digital age: What next for technology-enhanced higher education? HEPI Report 93*. Oxford, UK: Higher Education Policy Institute. https://www.hepi.ac.uk/wp-content/uploads/2017/02/Hepi_Rebooting-learning-for-the-digital-age-Report-93-02_02_17Web.pdf

Day, D. V., Gronn, P., & Salas, E. (2004). Leadership capacity in teams. *The Leadership Quarterly*, 15(6), 857-880.

DePew, K. E., & Lettner-Rust, H. (2009). Mediating power: Distance learning interfaces, classroom epistemology, and the gaze. *Computers and Composition*, 26(3), 174-189.

de Jong, N., Könings, K., & Czabanowska, K. (2014). The development of innovative online problem-based learning: A leadership course for leaders in European public health. *Journal of University Teaching & Learning Practice*, 11(3), 3.

ECDL Foundation (2016). *Perceptions and Reality: Measuring Digital Skills in Europe. Position paper*, <http://www.ecdl.org/index.jsp?p=2417&n=3043>

Elrehail, H., Emeagwali, O. L., Alsaad, A., & Alzghoul, A. (2018). The impact of transformational and authentic leadership on innovation in higher education: The contingent role of knowledge sharing. *Telematics and Informatics*, 35(1), 55-67.

Farr-Wharton, B., Charles, M. B., Keast, R., Woolcott, G., & Chamberlain, D. (2018). Why lecturers still matter: The impact of lecturer-student exchange on student engagement and intention to leave university prematurely. *Higher Education*, 75(1), 167-185.

Frey, C., & Osborne, M. (2013). *The future of employment. How susceptible are jobs to computerisation?* Oxford: Oxford Martin School.

Frey, C. B., & Osborne, M. A. (2017). The future of employment. How susceptible are jobs to computerisation? *Technological Forecasting and Social Change*, 114(January), 254-280.

Gardner, W. L., Coglisier, C. C., Davis, K. M., & Dickens, M. P. (2011). Authentic leadership: A review of the literature and research agenda. *Leadership Quarterly*, 22(6), 1120-1145.

Gardner, W. L., Lowe, K. B., Meuser, J. D., Noghani, F., Gullifor, D. P., & Coglisier, C. C. (2020). The leadership trilogy: A review of the third decade of the leadership quarterly. *Leadership Quarterly*, 31(1), 101379.

Glister, P. (1997). *Digital literacy*. Wiley, Computer Pub.

Grant, M. J., & Booth, A. (2009). A typology of reviews: an analysis of 14 review types and associated methodologies. *Health Information & Libraries Journal*, 26(2), 91-108.

Hajkovicz, S., Reeson, A., Rudd, L., Bratanova, A., Hodgers, L., Mason, C., & Boughen, N. (2016). *Tomorrow's digitally enabled workforce. Megatrends and scenarios for jobs and employment in Australia over the coming twenty years*. CSIRO, Brisbane.

Harris, A. (2009). Distributed leadership: What we know. In A. Harris (Eds.), *Distributed leadership* (pp. 11-21). Springer, Dordrecht.

Harris, C., & Fu, S. (2018). The blend justifies the means: The relationships between lecturer use of online content inclass, student age, and student self-stated understanding, with

- students' use of online content out-of-class in a blended commerce course. *Journal of Applied Learning & Teaching*, 1(1), 5-12.
- Heck, R., & Hallinger, P. (2009). Assessing the contribution of distributed leadership to school improvement and growth in math achievement. *American Educational Research Journal*, 46(3), 659-689.
- Huber, S. (2004). School leadership and leadership development: Adjusting leadership theories and development programs to values and the core purpose of school. *Journal of Educational Administration*, 42(6), 669-684.
- Huber, E. & Shalavin, C. 2018, 'Surveying the digital literacy landscape for academic and professional staff in higher education', in M. Campbell, J. Willems, C. Adachi, D. Blake, I. Doherty, S. Krishnan, S. Macfarlane, L. Ngo, M. O'Donnell, S. Palmer, L. Riddell, I. Story, H. Suri & J. Tai (eds), *Annual conference of the Australasian society for computers in learning in tertiary education: ASCILITE 2018: Conference Proceedings*, ASCILITE, Australia, pp. 151-158.
- Iszatt-White, M., Carroll, B., Gardiner, R., & Kempster, S. (2019a). Leadership Special Issue: Do we need authentic leadership? Interrogating authenticity in a new world order. *Leadership*, 15(3), 398-401.
- Iszatt-White, M., Whittle, A., Gadelshina, G., & Mueller, F. (2019b). The 'Corbyn phenomenon': Media representations of authentic leadership and the discourse of ethics versus effectiveness. *Journal of Business Ethics*, 159(2), 535-549.
- Jisc. (2019). *About us*. <https://www.jisc.ac.uk/about>.
- Kane, G., Palmer, D., Phillips, A., Kiron, D., & Buckley, N. (2016). Aligning the organisation for its digital future. *MIT Sloan Management Review*, 58(1), n.p.
- Kozinets, R., Gambetti, R., & Biraghi, S. (2018). Faster than fact: consuming in post-truth society. *Advances in Consumer Research*, 46(1), 413-419.
- Leithwood, K., Jantzi, D., Earl, L., Watson, N., Levin, B., & Fullan, M. (2004). Strategic leadership for large-scale reform: The case of England's National Literacy and Numeracy Strategies. *Journal of School Leadership and Management*, 24(1), 57-80.
- Lizzio, A., Dempster, N., & Neumann, R. (2011). Pathways to formal and informal student leadership: The influence of peer and teacher-student relationships and level of school identification on students' motivations. *International Journal of Leadership in Education*, 14(1), 85-102.
- Lo, M. C., Ramayah, T., & De Run, E. C. (2010). Does transformational leadership style foster commitment to change? The case of higher education in Malaysia. *Procedia-Social and Behavioral Sciences*, 2(2), 5384-5388.
- Low, S., Butler-Henderson, K., Nash, R., & Abrams, K. (2019). Leadership development in health information management (HIM): Literature review. *Leadership in Health Services*, 32(4), 569-583.
- Luthans, F., & Avolio, B. (2003). Authentic leadership development. In K. Cameron & J. Dutton (Eds.), *Positive organizational scholarship* (pp. 241- 258). San Francisco, CA: Berrett-Koehler Publishers.
- Marc, D., Butler-Henderson, K., Dua, P., Lalani, K., & Fenton, S. H. (2019). Global workforce trends in health informatics & information management. *Studies in Health Technology and Informatics*, 264, 1273-1277.
- McKinsey Global Institute (2018). *Skill shift. Automation and the future of the workforce*. <https://www.mckinsey.com/featured-insights/future-of-work/skill-shift-automation-and-the-future-of-the-workforce>.
- McLachlan, C., Craig, A. & Coldwell-Neilson, J. (2016): Students' computing use and study: When more is less. *Australasian Journal of Information Systems*, 20. DOI: <http://dx.doi.org/10.3127/ajis.v20i0.990>
- Murray, M. C., & Pérez, J. (2014). Unravelling the digital literacy paradox: How higher education fails at the fourth literacy. *Issues in Informing Science and Information Technology*, 11, 85-100, <http://iisit.org/Vol11/IISITv11p085-100Murray0507.pdf>
- Osguthorpe, R., & Graham, C. (2003). Blended learning environments: Definitions and directions. *Quarterly Review of Distance Education*, 4(3), 227-33.
- Pepper, C. (2010). 'There's a lot of learning going on but NOT much teaching!': Student perceptions of problem-based learning in science. *Higher Education Research & Development*, 29(6), 693-707.
- Prensky, M. (2005). What can you learn from a cell phone? Almost anything!. *Innovate: Journal of Online Education*, 1(5), n.p.
- Prince, K. A. (2017, December). *Industrie 4.0 and leadership*. In *Proceedings of the 17th International Conference on Electronic Business, ICEB* (pp. 132-139).
- Ribeiro, L. (2011). The pros and cons of problem-based learning from the teacher's standpoint. *Journal of University Teaching & Learning Practice*, 8(1), 4.
- Richards, D. (2011). Leadership for learning in higher education: The student perspective. *Educational Management Administration & Leadership*, 40(1), 84-108.
- Roettger, C., Roettger, L., & Walugembe, F. (2007). Teaching: more than just lecturing. *Journal of University Teaching & Learning Practice*, 4(2), 119-133.
- Spante, M., Hashemi, S., Lundin, M., & Algers, A. (2018). Digital competence and digital literacy in higher education research: Systematic review of concept use. *Cogent Education*, 5(1), 1-21.

- Taibi, M. (2006). Reconsidering tutorials and student-lecturer power relationships in language subjects. *Porta Linguarum*, 6(1), 23-32.
- Thornton, B., Faires, A., Robbins, M., & Rollins, E. (2014). The mere presence of a cell phone may be distracting. *Social Psychology*, 45(6), 479-488.
- Vigoda-Gadot, E. (2007). Leadership style, organisational politics, and employees' performance. *Personnel Review*, 36(5), 661-683.
- Vuorikari, R., Punie, Y., Carretero, S., & Van den Brande, L. (2016). *DigComp 2.0: The Digital Competence Framework for Citizens*. http://publications.jrc.ec.europa.eu/repository/bitstream/JRC101254/jrc101254_digcomp%202.0%20the%20digital%20competence%20framework%20for%20citizens.%20update%20phase%201.pdf.
- Ward, A., Duke, K., Gneezy, A., & Bos, M. (2017). Brain drain: The mere presence of one's own smartphone reduces available cognitive capacity. *Journal of the Association for Consumer Research*, 2(2), 140-154.
- White, L., Currie, G., & Lockett, A. (2016). Pluralized leadership in complex organisations: Exploring the cross network effects between formal and informal leadership relations. *The Leadership Quarterly*, 27(2), 280-297.
- Wingrove, D., Clarke, A., & Chester, A. (2015). Distributing leadership for sustainable peer feedback on tertiary teaching. *Journal of University Teaching & Learning Practice*, 12(3), 1-12.
- Wong, C. A., & Walsh, E. J. (2019). Reflections on a decade of authentic leadership research in healthcare. *Journal of Nursing Management*, 28, 1-3.
- York-Barr, J., & Duke, K. (2004). What do we know about teacher leadership? Findings from two decades of scholarship. *Review of Educational Research*, 74(3), 255-316.