17.

Seamless editions: a future imaginary of digital editions for learning and public engagement

Aodhán Kelly

Introduction

The ambition of this book, set out in the call for chapters, is for the scholarly editing community to assemble their visions on the future of digital editions. This future-oriented exercise may lead us towards some form of newly constructed imaginary. The prominent Science and Technology Studies (STS) scholar, Sheila Jashanoff, argues that 'imaginaries, … encode not only visions of what is attainable through science and technology, but also of how life ought, or ought not, to be' (2015, 6). Within the STS field, Mager and Katzenbach, also highlight that 'visions of the future are omnipresent in current debates about digital transformation' (2020, 1). The impetus of this call could equally be framed within the sociology of expectations, which argues that expectations and visions drive innovation in science and technology (Borup et al. 2006). While it is furthermore understood that certain imagined futures can become socially performative (Oomen et al. 2022).

This sort of future-focused exercise has been conducted on numerous occasions within digital humanities more broadly over the last couple of decades. Scholarly editing, with long-established

historical practices, has arguably spent a considerable part of that intervening time trying to catch up on our digital present without always having the scope to look a significant distance into the future. For this current volume we have been asked to consider ways that digital editions can make better use of the computational potential of the digital medium, to avoid van Zundert's fear that we might express our digital editions as print texts and not take full advantage of the new context (2016, 106). Wim van Mierlo has pointed out that, while there are many visions for the future of digital editions, 'innovation always lags behind vision' (2022, 117).

One of the long-discussed areas of potential with the digital medium is the prospect of editors reaching a wider audience, a prospect that remains tantalisingly out of reach for many. The digital medium certainly provides affordances for scholarly editors to build tools for learning and public engagement, as pointed out by O'Sullivan et al.: 'Whatever else the emergence of digital modes of communication inhibits or enables, it opens unforeseen new opportunities for scholars to collaborate and to engage a wide public' (2016). While enabling learning and increasing outreach are frequently among the ambitions of digital editing projects – these purposes are often not well supported in the design of digital editions. There are undoubtedly many digital editions that are utilised in university teaching but there is little published about approaches and experiences in this area.

This chapter asks how the dissemination of digital editions can be modelled to enable learning and public engagement in diverse contexts, and what are the challenges that need to be addressed in order to achieve this? The chapter builds upon the scaffolding of work done by the author on modelling a conceptual framework for the dissemination of digital editions to a broader audience, and reframes it through the lens of an educational science approach, that of seamless learning. A seamless learning approach attempts to bridge gaps, particularly between learning contexts and settings, such as formal and informal learning, or between individual and social learning, and aims to make it possible for the learner to move between these contexts seamlessly.

The aim of this chapter is to put forward one possible future imaginary for digital editions, namely, where digital editions are designed to enhance learning and public engagement. As we emerge from the effects of the Covid-19 pandemic, it is a timely moment to look towards the future. Both educational institutions and memory institutions have experienced extensive disruption to their activities and accelerated digitalisation and hybridisation of their communication and engagement processes.

Status quo of editions and learning

Generally presented as research tools or research outputs, digital editions may be expected to primarily target scholarly audiences. However, the available data suggest that this is not the full picture. In their user survey study, Franzini et al. (2019), have highlighted that there is a disconnect between the expectations of the users of digital editions and the actual attributes of digital editions, arguing that the user perspective has yet to receive adequate attention. The survey is not amenable for analysing learners' perspectives on digital editions, as less than 12 per cent of its participants identified as students (some of whom may have been PhD students), and it is not clear how many of the 75 per cent of respondents occupying various academic positions were involved in teaching. However, the *Catalogue of Digital Editions* (Franzini et al. 2016), has documented and generated data on the target audiences of items in the catalogue as part of its data collection and analysis. The data clearly indicates that the target audience and, thereby, the intended purpose of digital editions extend far broader than a purely scholarly demographic.

In the catalogue at present[1] there are 320 editions, from which 145 (45 per cent) provided no information on the intended audience. For the remaining editions (n=175) that did provide information on

1 This measurement was taken when accessing the catalogue on 20 October 2022.

the target audience, we see that just over 90 per cent target students, teachers, the general public or combinations of those three demographics. At the time of Franzini et al.'s user survey study, when there were 242 editions in the catalogue, they found that 53 per cent of the editions which provided information on target audience 'explicitly target the general public (analogous terms used include "global audience" and "lay people")' (2019, 11). Additionally, in response to a survey question asking, 'What use would you make of the data published in a digital edition?', the top answer was 'teaching' at 31 per cent, marginally ahead of 'text analysis' at 30 per cent (2019, 17).

So it is very clear that enabling learning and the broader diffusion of knowledge to the public are among the intentions and ambitions of the creators of digital editions. There is no data available to quantify how many of these digital editions have actively considered learning design principles during their development. However, experience of using and analysing a large number of digital editions in this corpus would suggest that learning design considerations are not given much priority.

The argumentation in this chapter is anchored in what Patrick Sahle's conceives of as the 'digital paradigm shift' in scholarly editing (2016). Learning and public engagement are two areas that can greatly benefit from this paradigm shift – opening many affordances that were not possible in the print paradigm. Public engagement, for the purposes of this chapter, could be defined as actions and tools that help diffuse knowledge of scholarly texts to broader audiences outside formal educational settings. Likewise, the perspective on learning here relates not to the acquisition of scholarly editing or digital humanities skills, but more towards the textual content, or what Peter Robinson calls 'knowledge of texts' (2010, 152–3).

There are already various attempts to re-imagine how editions are presented to wider audiences, such as with reading editions or social editons. Vanhoutte (2013) has pointed out that different types of users require different types of editions depending on their intent,

but also highlights that the shift to a digital paradigm does not in itself result in a quantitative increase in access.

Identity crisis or freedom to experiment?

The problem raised by Kenneth Price (2009) in his article 'Edition, Project, Database, Archive, Thematic Research Collection: What's in a Name?' regarding the naming issues for digital scholarly outputs, is as valid today as it was at the time of publication. There exists a spectrum of digital scholarly outputs with a variety of epistemological interpretations of where any of them might be positioned as knowledge products. There have been attempts by scholars to introduce new terms that encompass the mutiple functions and roles that digital editing projects might fulfil, such as Shillingsburg's 'knowledge site' (2006) or Price's 'arsenal' (2009), but these have not seen any great uptake in the field.

Editions, digital or otherwise, play a major role in the transmission of historical texts through time, but the challenges of coherency extend far beyond naming conventions: there are uncertainties across many aspects of scholarly editing in the digital paradigm. With digital editions there are many unresolved issues and concerns around the long-term sustainability of these types of resources and the (sometimes rapid) obsolescence of the software employed for their delivery. The recognition of digital editions as scholarly outputs within academic rewards and recognition structures still remains highly inconsistent and ambiguous. Traditional roles in the creation and consumption of editions have seen a major reconfiguration in the shift to digital paradigms and this may continue to evolve. The disappearing role of 'publisher' has left the editor with new roles and responsibilities. While 'readers' have become 'users' in the terminology of the digital paradigm, the delineation between 'editor' and 'user' is also blurred in certain contexts, such as with social editions.

From a bibliographic perspective there is little consensus or consistency in guidance for librarians on the classification of digital editions

as bibliographic entities (Pierazzo 2015, 56). Roman Bleier has highlighted in a recent study that there persists 'very strong "culture of non-citation" of electronic resources among students and researchers in the humanities', in part due to the instability of digital editions as a reference point (2021, par. 1). Practices of contemporary scholarly editing are furthermore confronted with new forms of source materials, such as born-digital content on social media platforms. New experimental ways of representing materials are also emerging that make us reconsider our understanding of an edition, for example with '3D editions' rooted in virtual worlds such as the *Battle of Mount Street Bridge* (Papadopoulos and Schreibman 2019).

Is this definitional ambiguity a form of identity crisis, or does it rather reflect a rich and diverse scholarly field with multiple approaches and practices? Seen from the perspective of diffusing knowledge and enabling learning and public engagement, the rather malleable concept of 'digital editions' and their transitory conventions, presents us, not with threats, but with vast opportunities to experiment. If we accept that there is no fixed definition for digital editions, and also the seamless learning assumption that there is no fixed setting for learning – then we are left with space to conceptualise ways to bridge the gaps in how they are used for learning and public engagement. Consequently we then need to consider how to best enable learning and outreach by consciously designing editions for multiple settings and reflect on the gaps that need to be bridged in specific contexts.

Conceptual framework for seamless editions

The ever-evolving digital landscape means that any successful model to reach wider audiences requires digital editions of the future to have a certain amount of flexibility and adaptability. In the discussion above I have illustrated that there are not many clear boundaries for digital editions within the ambiguous landscape they occupy. Elena Pierazzo has pointed out that 'at the present time, it seems that placing boundaries around the types of resources that

can be produced might not be a productive way to look at the transformations introduced by the digital medium' (2014, 210). This question of boundaries is central to the seamless approach – by focusing on the boundaries or seams between learning settings and contexts.

This attempt to build a framework will not consider the digital edition as an isolated publication, but starts from the premise that it may also have various connected or derived outputs that position it in both publishing and knowledge landscapes. In my PhD thesis I termed these connected outputs as 'satellite' publications.[2] The analogy was chosen as these derivative publications act as an intermediary in transmitting select information from the core digital edition, and in some cases can also serve a role transmitting feedback in the opposite direction (Kelly 2017, 127–30). This aligns itself at least partially to Shillingburg's concept of 'knowledge site' and also with van Zundert and Boot's vision of the future of digital editions as 'composites of independent and distributed components, containing multiple media, and subject to permanent change' (2015, 1).

Seamless learning attempts to bridge gaps, particularly between formal and informal learning settings, and between individual and social learning. It emerged as an approach that appeared in US universities in the 1990s where it was an attempt to model ways to connect on-campus and off-campus learning activities. It then found a second life in the twenty-first century with the emergence and adoption of personal mobile technologies (Wong 2015). It is a learning design approach that aims to enable learners to learn in multiple contexts and settings and to switch between those seamlessly (Wong 2019). Its aim is to investigate the boundaries or seams between the learning settings in order to help bridge the

2 Examples of 'satellites' discussed in the PhD thesis included: reading editions, digital exhibits, MOOCs, social editing/transcribing environments, as well as metadata and XML source files. These will also be raised in the discussion that follows below.

gaps. These learning contexts and settings can include formal (for example, schools and universities) versus informal settings (for example, MOOCs and museums), individual versus social settings, locations, multiple devices, systems and tasks, among others (Chan et al. 2006; Nussli 2021). Seamless learning accepts that there is no fixed scenario or context for learning activites, but rather that learning happens in a variety of 'places', that learners move between settings, and it is augmented by various devices (Wong 2015). The reason why seamless learning has been chosen to conceptualise learning and outreach for digital editions is this focus on addressing the seams or gaps between contexts and settings, by exploring flexible and adaptable approaches which could help overcome the aforementioned challenges faced by digital editions and leave space for experimentation.

The Open University (UK) publishes annual reports in a series called *Innovating Pedagogy*, in which it highlights innovations that are likely to impact learning in the near future. Seamless learning was profiled in the report from 2012. It defined seamless learning as 'when a person experiences a continuity of learning across a combination of locations, times, technologies or social settings'. Furthermore, it highlights that learning can take place in intentional and accidental ways and that it is not dependent on personal technologies, but that it can help enable fluidity in learning activities and that it 'may form part of a wider learning journey that spans a person's life transitions, such as from school to university or workplace' (Sharples et al. 2012, 24–5). Seamless learning is a theory with some parallels and overlaps with other learning theories such as mobile learning, ubiquitous learning and universal design for learning (UDL).

Within the field of seamless learning there are a number of existing frameworks, two of the most frequently adopted are highlighted here. A framework of 10 dimensions for 'Mobile Seamless Learning' was first developed by Wong and Looi (2011) and stimulated the discussion, making explicit what the seams to learning might actually be (although they do not advocate for the removal of all 10 seams for in every learning design): *(MSL1) Encompassing formal*

and informal learning; (MSL2) Encompassing personalized and social learning; (MSL3) Across time; (MSL4) Across locations; (MSL5) Ubiquitous access to learning resources; (MSL6) Encompassing physical and digital worlds; (MSL7) Combined use of multiple device types; (MSL8) Seamless switching between multiple learning tasks; (MSL9) Knowledge synthesis; (MSL10) Encompassing multiple pedagogical and learning activity models (Wong 2015, 16). Another well-known seamless learning framework by So et al. (2008, 108) focuses on types of formal and informal learning. This is represented in the form of a matrix mapping the intentionality of the learning that occurred (intended/unintended) and the physical settings in which it occurred (inside/outside classroom settings and so on).

The dimensions in these frameworks of seamless learning are modelled primarily for purposes of mobile learning and are connected in some way to an educational curriculum. While these frameworks are useful for educators to help model a specific learning task in a seamless way, this is perhaps not entirely fitting for scholarly editors who wish to make their resource more effective for learning and public engagement. Perhaps a less granular approach can be adapted to suit digital editions. Dilger et al. argue that a more realistic approach might be to aim for 'seam-aware' learning instead of 'seamless' (2019). Whereas the Open University report on seamless learning also argues that 'it can best be seen as an aspiration rather than a bundle of activities, resources and challenges' (Sharples 2012, 25). This raises the question: what are the contexts, settings and challenges to enable learning and public engagement of which the creators of digital editions should be aware?

EDUA conceptual framework

Owing to the heterogeneity of digital editions, there can be no prescriptive model or definitive best practices on how to design them for enabling learning, but a conceptual framework can help bring some structure to the numerous issues that could have an impact. In my PhD thesis such a conceptual framework was developed for

disseminating digital editions, that was based on the communicative affordances and barriers of the digital medium (Kelly 2017). The various concerns were clustered into four overarching dimensions: Engagement, Discoverability, Usability and Accessibility (EDUA).[3] While the EDUA framework was constructed to conceptualise the dissemination of digital editions to wider audiences, this dissemination is defined not only in the frame of distributing digital editions as publications, but also in terms of how we diffuse the knowledge of texts in those editions. Thus, the ambition to enable learning and to engage with broader publics are the central concerns of the framework. With this in mind, we could then treat the four dimensions of the EDUA model as types of seams or gaps to be bridged in order for digital editions to reach broader audiences for learning purposes. The four dimensions have certain overlaps with each other and are thereby not intended to be considered in isolation from the others.

Those four dimensions of the EDUA framework are defined as:

> ***Engagement****: the range of activities that seek to invite and sustain users' active participation with a digital scholarly output.*
>
> ***Discoverability****: the propensity of the publication to be discovered or found by users through digital means.*
>
> ***Usability****: making digital scholarly outputs easier to use and more effective in meeting the needs and requirements of the users.*

3 It might be noted that there are some similarities between the EDUA framework and FAIR data principles, which were published concurrently to the research by the author. It could certainly be argued that the four dimensions of the FAIR (Findable, Accessible, Interoperable, Re-usable) could serve as a framework of 'seams'. However, FAIR's data-centric approach is more relevant to questions of distribution within the digital ecosystem, while the EDUA framework has a more human-centric approach that also encompasses more qualitative concerns regarding learning and engagement. RIDE has published criteria for FAIR data with digital editions (Gengnagel et al. 2022).

> ***Accessibility**: minimising or removing the barriers to content access for users that might exist due to technological, economic, disability, linguistic, socio-political or cultural reasons.*
>
> (Kelly 2017, 133)

Engagement

Engagement is perhaps the most elusive of the four aspects to examine. We have seen from the discussion above that there is at least an interest and ambition among the creators of digital editions to engage more with the wider public. But how can that attention be attracted and how can it be sustained? In many digital editions one is confronted with a deluge of textual content and highly granular editorial information. Making a curated selection of interesting or thematic content available in the form of a (digital) exhibition, as argued by van Mierlo (2022), is one way to siphon off engaging materials to connect with more users. The *Brulez Digital Exhibit*[4] project was an attempt to create such a form of engagement for a nonscholarly audience. This presented a selection of materials from an ongoing genetic editing project on the Flemish writer Raymond Brulez in the form of a digital exhibit that is available both online and on a touchscreen interface in the museum where the writer's manuscripts are archived. Such an experiment in engagement incites us to think about a number of the settings and contexts of seamless learning such as space/location, time, physical and digital combinations and accessibility through multiple devices or channels.

Reading editions have often been presented as a logical solution to reach nonscholarly audiences. These can be as simple as a PDF file, or as interactive as a social reading edition such as the *The Readers' Thoreau*,[5] which allows teachers to set up class groups to perform

4 *Brulez Digital Exhibit*: https://brulez.uantwerpen.be/#/sheherazade-of-literatuur-als-losprijs

5 *The Readers' Thoreau*: https://commons.digitalthoreau.org/.

social annotation on the texts. This asks us to consider the contexts of individual versus social learning, while the manner in which the text is presented encourages us to think about the differences between readers and users. One of the main synonyms often used for 'engagement' is 'participation'. There are various participatory experiments with social editing and public humanities/crowdsourced transcription projects – such as with *Infinite Ulysses*,[6] the *Devonshire MS*,[7] *Transcribe Bentham*[8] or *Letters of 1916*.[9] These approaches also raise the question of the changing roles in editing, in some cases with users also acting as editors. There are many more ways to think about broadening engagement for digital editions, be they technology oriented, such as taking advantage of affordances offered by virtual reality or gamification, for example, or by adapting materials to other platforms such as MOOCs (Massive Open Online Courses). In short, if we want to improve learning across contexts, settings, or multiple target audiences then we need to take advantage of some of the many potentials that the digital medium makes possible for engagement.

Discoverability

If you build it, will they find it? The information-seeking behaviours of users are diverse and complex, but this is an important consideration, particularly with the ambition of reaching wider audiences. In a survey conducted in 2014 I asked respondents to identify how they discovered digital editions, to which the response was quite diverse, but the top-ranking route was through academic citations and the second most common was word of mouth (Kelly 2015, 131). At a core level, digital editions need to ensure that they are findable through

6 *Infinite Ulysses*: http://infiniteulysses.com/.

7 *A Social Edition of the Devonshire MS*: https://en.wikibooks.org/wiki/The_Devonshire_Manuscript.

8 *Transcribe Bentham*: https://www.ucl.ac.uk/bentham-project/transcribe-bentham.

9 *Letters of 1916:* https://letters1916.ie/.

relevant search interfaces. This is something that can not be taken for granted, even for such a technologically oriented resource as the digital edition. During my PhD research I even found a case of a very well-known digital edition that was not discoverable on its own institutional library search engine at the time. Of course, it should be noted that the inconsistent digital edition cataloguing practices across libraries that were mentioned earlier only serve to exacerbate these issues, and that the scholarly community will only find resolutions to these problems by working more closely with librarians.

It is furthermore important to also take into consideration the nonhuman users of editions, in particular by making good metadata machine-readable so that it is available for scraping by data agglomerators such as Europeana, which in turn creates the potential of a bigger audience. In this respect, Baillot and Busch have even gone so far as to list 'algorithms designed to harvest open data' as one of the target audiences they envisioned for their *Briefe und Texte aus dem intellektuellen Berlin 1800–1830* (2021, 179). Franzini's *Catalogue of Digital Editions* takes steps towards facilitating the discoverability of editions listed in the catalogue by making metadata available to the German Datenbank-Infosystem (DBIS) and indexing in OpenAire.

Usability

Usability is a central concern to enabling learning in digital contexts, and a large portion of this is rooted in interface design. The usability dimension has some overlaps with the dimensions of engagement (such as maintaining the attention of users) as well as accessibility (such as consideration for devices) of the EDUA framework. Additionally, if an attractive user interface is presented, this will be more engaging, and if the interface is poorly designed it can create a number of accessibility issues, or risk having the learner become disengaged. Interfaces, by definition, are a place of interaction or a meeting point between two parties, and this is critical for considering the setting and context of learning interactions. A digital editions interface could be regarded as a subtle but crucial place where the

editor can present and represent their scholarly argument to their audience, such as about the edition's source materials (see Bleeker and Kelly 2018; Andrews and Zundert 2018; Dillen 2018)

Still, Kirschenbaum has pointed out 'interfaces can at times seem little loved' (2004). And indeed, for many digital scholarly projects, interface design is a secondary consideration after the core scholarly work is done. This is problematic because leaving this consideration too late in the process of developing a digital resource makes it more difficult to get it right. This can be addressed through adopting more user-led or user-informed approaches to design, such as user studies on prototypes and usability studies. A study in 2010 showed that less than one-third of DH tools had performed any kind of usability studies (Schreibman and Hanlon 2010, para 35). In a scenario in which editors develop separate satellite spin-off publications or tools for learning purposes, user-led design approaches become crucial for ensuring their effectivity.

To highlight the importance of this general issue in the design of digital scholarly editions, an entire conference was dedicated to this topic in Graz in 2016, called *Digital Scholarly Editions as Interfaces*. In the book publication that emerged from the conference, the organisers highlighted that regarding digital editions as interfaces means understanding them as a connection point between historical documents and the user, be that user a human being or a machine (Bleier et al., 2018). This demonstrates both the centrality of usability and interfaces as the connecting point or context for learning, and also highlights a further overlap with the discoverability dimension. At the same time, it is good to keep in mind that when we regard interfaces as a possible connection point with machines (in other words: through the development of APIs), this also implies their potential to facilitate learning through creating access to data for other tools (such as Old Bailey Online's API connecting with Voyant tools[10]), leading us to the next and final dimension of this framework.

10 *Old Bailey Online*: https://www.oldbaileyonline.org/.

Accessibility

The final dimension, accessibility, focuses on removing or minimising the digital barriers that might affect access, which in turn affects learning and public engagement possibilities. There are many contexts that affect accessibility including: technological, socio-economic, disabilities, cultural, linguistic or socio-political. No design can take all of these into account but it is important to be conscious of the barriers that the target audience potentially face. The use of the term 'accessibility' in scholarly editing tends to refer to efforts to make data and source from editions more available to users, rather than making editions available to different types of users (Martinez et al. 2019, 42). Educational technology has seen the development of many tools that deal with issues like disability, some of which could be adapted for digital editions, or more simply the guidelines of the W3C on accessibility issues can help digital publications become fundamentally better and more utilised.

Taking a more global outlook on who the audience might be, and where they are geographically located, requires us to consider potential economic and technological barriers, or digital divides, faced by users outside of wealthier western world contexts. The idea of minimal computing and minimal editions is one such way that scholarly editors are exploring how to overcome this type of barrier.[11] As far back as 2005, Kathryn Wymer published some principles on making editions more accessible and these hold as much validity today: '1. Accessible design can benefit all users, and more widely useful projects are likely to be adopted by other teachers and scholars. 2. In many jurisdictions, accessible design is a legal obligation. 3. Ensuring accessibility does not have to be a cumbersome or difficult process.' (Wymer 2005). Finally, making digital editions data available for re-use opens up possibilities for others to make their own learning tools. For this to be possible, it is vital to adopt open access principles and make the policies and licences explicitly visible.

11 See GO:DH special interest group: http://go-dh.github.io/mincomp/.

Conclusion

This chapter has put forward a vision or future imaginary on how digital editions could take greater advantage of the potential of their technological medium in order to better enable learning and public outreach. It has adapted the seamless learning approach into a form that is suitable for digital editions by amalgamating it with an existing conceptual model for the dissemination of digital editions. It posits that the four dimensions of the EDUA framework can be viewed as four types of 'seams' to the diffusion of digital editions for learning purposes and suggests that by adopting 'seamless' approaches that digital editing projects could reach more diverse audiences and have a wider impact. It is hoped that this framework for 'seamless editions' can aid the discussion in the digital editing community towards forming a future vision on how to address various challenges and enable new and diverse approaches to learning and public engagement that might become performative.

References

Andrews, T. L. and Van Zundert, J. J. 2018. 'What Are You Trying to Say? The Interface as an Integral Element of Argument.' In *Digital Scholarly Editions as Interfaces,* edited by Bleier, R., Bürgermeister, M., Klug, H. W., Neuber, F. and Schneider, G. BoD. https://kups.ub.uni-koeln.de/9085/.

Baillot, A. and Busch, A. 2021. 'Editing for Man and Machine. Digital Scholarly Editions and their Users.' *Variants* 15–16. https://doi.org/10.4000/variants.1220.

Bleeker, E. and Kelly, A. 2018. 'Interfacing Literary Genesis.' In *Digital Scholarly Editions as Interfaces,* edited by Bleier, R., Bürgermeister, M., Klug, H. W., Neuber, F. and Schneider, G. BoD. https://kups.ub.uni-koeln.de/9117/.

Bleier, R., Bürgermeister, M., Klug, H. W., Neuber, F. and Schneider, G., eds. 2018. *Digital Scholarly Editions as Interfaces*. BoD. https://kups.ub.uni-koeln.de/9094/1/01_bleier_klug.pdf.

Bleier, R. 2021. 'How to cite this digital edition.' *Digital Humanities Quarterly* 15 (3) http://digitalhumanities.org:8081/dhq/vol/15/3/000561/000561.html.

Boot, P., Cappellotto, A., Dillen, W., Fischer, F., Kelly, A., Mertgens, A., Sichani, A.-M., Spadini, E. and Van Hulle, D., eds. 2017. *Advances in Digital Scholarly Editing: Papers presented at the DiXiT conferences in The Hague, Cologne, and Antwerp*. Sidestone Press. https://www.sidestone.com/books/advances-in-digital-scholarly-editing.

Borup, M., Brown, N., Konrad, K. and van Lente, H. 2006. 'The sociology of expectations in science and technology.' *Technology Analysis & Strategic Management* 18 (3–4): 285–98. https://doi.org/10.1080/09537320600777002.

Chan, T.-W., Roschelle, J., Hsi, S., Kinshuk, Sharples, M., Brown, T., Patton, C. et al. 2006. 'One-to-one technology-enhanced learning: An opportunity for global research collaboration.' *Research and Practice in Technology Enhanced Learning* 01 (01): 3–29. https://doi.org/10.1142/S1793206806000032.

Dilger, B., Gommers, L. and Rapp, C. 2019. 'The Learning Problems Behind the Seams in Seamless Learning.' In *Seamless Learning: Perspectives, Challenges and Opportunities*, edited by Looi, C.-K., Wong, L.-H., Glahn, C. and Cai, S. Springer Singapore. https://doi.org/10.1007/978-981-13-3071-1.

Dillen, Wt. 2018. 'The Editor in the Interface: Guiding the User through Texts and Images.' In *Digital Scholarly Editions as Interfaces*, edited by Bleier, R., Bürgermeister, M., Klug, H. W., Neuber, F. and Schneider, G. BoD. https://kups.ub.uni-koeln.de/9111/.

Franzini, G., Andorfer, P. and Zaytseva, K. 2016–. *Catalogue of Digital Editions: The Web Application*. Accessed 10 October 2022. https://dig-ed-cat.acdh.oeaw.ac.at/.

Franzini, G., Terras, M. and Mahony, S. 2019. 'Digital Editions of Text.' *Journal on Computing and Cultural Heritage* 12 (1): 1–23. https://doi.org/10.1145/3230671.

Gengnagel, T., Neuber, F., Schulz, D. and Sahle, P. 2022. 'Criteria for reviewing the application of FAIR principles in digital scholarly editions. Version 1.1.' *RIDE – A review journal for digital editions and resources*. Accessed 12 October 2022. https://ride.i-d-e.de/fair-criteria-editions/.

Jasanoff, S. 2015. 'Future Imperfect: Science, Technology, and the Imaginations of Modernity.' In *Dreamscapes of Modernity: Sociotechnical Imaginaries and the Fabrication of Power*, edited by Jasanoff, S. and Kim, S.-H. University of Chicago Press. https://doi.org/10.7208/chicago/9780226276663.003.0001.

Kelly, A. 2015. 'Tablet Computers for the Dissemination of Digital Scholarly

Editions.' *Manuscrítica: Revista De Crítica Genética* 28 (setembro): 123–40.
Kelly, A. 2017. *Disseminating digital scholarly editions of textual cultural heritage*. PhD diss., University of Antwerp. https://repository.uantwerpen.be/docman/irua/f8ec8a/155818.pdf.
Kirschenbaum, M. G. 2004. '"So the Colors Cover the Wires": Interface, Aesthetics, and Usability.' In *A Companion to Digital Humanities*, edited by Schreibman, S., Siemens, R. and Unsworth, J. Blackwell Publishing Ltd.
Mager, A. and Katzenbach,. 2021. 'Future imaginaries in the making and governing of digital technology: Multiple, contested, commodified.' *New Media & Society* 23 (2): 223–36. https://doi.org/10.1177/1461444820929321.
Martinez, M., Dillen, W., Bleeker, E., Sichani, A.-M. and Kelly, A. 2019. 'Refining Our Conceptions of "access" in Digital Scholarly Editing: Reflections on a Qualitative Survey on Inclusive Design and Dissemination.' *Variants* 14: 41–74. https://doi.org/10.4000/variants.1070.
Nussli, N. and Oh, K. 2021. 'Culturally Responsive Pedagogy, Universal Design for Learning, Ubiquitous Learning, and Seamless Learning: How These Paradigms Inform the Intentional Design of Learner-Centered Online Learning Environments.' In *Handbook of Research on Teaching With Virtual Environments and AI*, edited by Panconesi G. and Guida, M. IGI Global.
Oomen, J., Hoffman, J. and Hajer, M. A. 2022. 'Techniques of futuring: On how imagined futures become socially performative.' *European Journal of Social Theory* 25 (2): 252–70. https://doi.org/10.1177/1368431020988826.
O'Sullivan, J., Long, C. P. and Mattson, M. 2016. 'Dissemination as Cultivation: Scholarly Communications in a Digital Age.' In *Doing Digital Humanities: Practice, Training, Research* edited by Crompton, C., Lane, R. J. and Siemens, R. Routledge. https://doi.org/10.4324/9781315707860.
Papadopoulos, C. and Schreibman, S. 2019. 'Towards 3D Scholarly Editions: The Battle of Mount Street Bridge.' *Digital Humanities Quarterly* 13 (1). http://digitalhumanities.org:8081/dhq/vol/13/1/000415/000415.html.
Price, K. M. 2009. 'Edition, Project, Database, Archive, Thematic Research Collection: What's in a Name?' *Digital Humanities Quarterly* 3 (3). http://www.digitalhumanities.org/dhq/vol/3/3/000053/000053.html.
Pierazzo, E. 2015. *Digital Scholarly Editing: Theories, Models and Methods*. Ashgate Publishing.
Robinson, P. 2010. 'Electronic Editions for Everyone.' In *Text and Genre in Reconstruction: Effects of Digitalization on Ideas, Behaviours, Products*

and Institutions, edited by McCarty, W. Open Book Publishers. https://books.openedition.org/obp/656?lang=en.

Sahle, P. 2016. 'What Is a Digital Scholarly Edition?' In *Digital Scholarly Editing: Theories and Practices*, edited by Pierazzo, E. and Driscoll, M. J. Open Book Publishers. https://doi.org/10.11647/OBP.0095.

Schreibman, S. and Hanlon, A. M. 2010. 'Determining Value for Digital Humanities Tools: Report on a Survey of Tool Developers.' *Digital Humanities Quarterly* 4 (2). http://www.digitalhumanities.org/dhq/vol/4/2/000083/000083.html.

Sharples, M., McAndrew, P., Weller, M., Ferguson, R., FitzGerald, E., Hirst, T., Mor, Y., Gaved, M. and Whitelock, D. 2012. *Innovating Pedagogy 2012*. The Open University. https://iet.open.ac.uk/file/innovating-pedagogy-2012.pdf.

Shillingsburg, P. L. 2006. *From Gutenberg to Google: Electronic Representations of Literary Texts*. Cambridge University Press.

So, H. J., Kim, I. S. and Looi, C. K. 2008. 'Seamless mobile learning: Possibilities and challenges arising from the Singapore experience.' *Educational Technology International* 9(2): 97–121.

Vanhoutte, E. 2013. 'A Bag of Words. Social Perspectives on Scholarly Editing.' Accessed in October 2023. https://www.slideshare.net/slideshow/a-bag-of-words-social-perspectives-on-scholarly-editing-paper-social-digital-scholarly-editing-saskatoon-12072013/24186987.

Van Mierlo, W. 2022. 'The Scholarly Edition as Digital Experience: Reading, Editing, Curating.' *Textual Cultures* 15 (1): 117–25. https://www.jstor.org/stable/48687518.

Van Zundert, J. and Boot, P. 2015. 'The Scholarly Digital Edition 2.0.' *Bibliothek und Wissenschaft* 44: 141–52.

Van Zundert, J. 2016. 'Barely Beyond the Book?' In *Theories and Practices: Digital Scholarly Editing*, edited by Driscoll, M. J. and Pierazzo, E. Open Book Publishers.

Wong, L.-H. and Looi, C. K. 2011. 'What seams do we remove in mobile assisted seamless learning? A critical review of the literature.' *Computers & Education* 57(4): 2364–81. https://doi.org/10.1016/j.compedu.2011.06.007.

Wong, L.-H. 2015. 'A Brief History of Mobile Seamless Learning.' In *Seamless Learning in the Age of Mobile Connectivity*, edited by Wong, L.-H., Milrad, M. and Specht, M. Springer Singapore.

Wymer, K. 2005. 'Why accessibility matters to the Digital Medievalist.' *Digital Medievalist* 1(1). https://doi.org/10.16995/dm.9.