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Teaching digital fiction: integrating experimental writing and current technologies

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ABSTRACT   Today's creative writers are immersed in a multiplicative, multimodal—digital —universe. It requires "multiliteracies", all in a constantly and rapidly evolving technological environment, which are not yet fundamentally integrated into the basic literacy skills entrenched in school learning. How can creative writing instructors in higher education best prepare their students for the real-world contexts of their creative practice? One approach is to integrate the creative writing workshop with a focus on digital and interactive design. This paper outlines a module incorporating multiple literacies into a creative writing course, Playable Fiction, noting the affordances, limitations, and benefits of teaching workshops for writing digital fiction ("born-digital" fiction, composed for and read on digital devices). The researcher took an ethnographical approach to the question, designing a module to encourage creative writing students to experiment with digital fiction, and observing the effects on the students' attitudes and their coursework. Included is a discussion of the benefits to students of developing multiliteracies and considerations for teaching, including issues of technical know-how and the lack of infrastructural support. Finally, the paper describes the model class taught to second-year and third-year undergraduates in the 'Games Design and Professional Writing' programs at Bangor University, in the UK, including marking recommendations and reading list advice.

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Introduction

The prevailing notion of creative writing workshops in higher education—that our creative writing students are all going to become short fiction writers and novelists—is not only shortsighted, it is backwards-facing. Today's creative writers are immersed in a multiplicative, multimodal—digital—universe. To ignore the many different modes and methods of narrative storytelling they have at their fingertips is to render our classrooms as backwaters, excluding "significant student knowledge from the learning environment" (Ryan et al., 2010, p. 477). In this paper I outline a module in which I incorporate multiple literacies into a creative writing course, Playable Fiction, noting the affordances, limitations, and benefits of teaching workshops for writing digital fiction[1]. For creative writers, digital fiction workshops offer a multiliteracies approach (Cazden et al., 1996; Cope and Kalantzis, 2009) that develops digital literacy, reflective practice, and audience awareness, as well as organically opening students up to fresh and even experimental techniques and perspectives in their writing practice.

As undergraduate creative writing instructors, our aims and learning objectives for our students have necessarily changed from the 20th century. As tuition costs rise, we are being asked more and more not only to develop critical thinking skills and, more specifically, creative writing skills in our students, but to help them gain vocational and transferable skills as well (Bok, 2009; Carr, 2009). In the 21st century, those include multimodal communication, which plays an increasingly important role in everyday life, the workplace, academia, citizenship, and even issues of agency and the self (Cope and Kalantzis, 2009; Archer and Breuer, 2016). Higher education, however, has been slow to engage in multimodal literary practices (Goodfellow, 2011, p. 136), for whatever reason: lack of holistic teaching approaches in the academy; the quickly changing literary landscape; or insecurities about new technologies and practices. Arlene Archer and Esther Breuer make an eloquent case for embracing these multimodal and digital challenges in higher education:

> …a multimodal approach has the potential to provide a healthy antidote to monolingual and logocentric approaches to meaning-making, enabling a metacognitive view of semiosis as occurring across languages and modes, as well as a successful way of enabling access to dominant and powerful forms (2016, p. 14).

The future of writing is multiplicative: multimodal, collaborative, participatory, and distributed (Short and Kauffman, 2000; Clark, 2010; Jacobs, 2012). It is imperative that we engage our creative writing students with all of the sign systems available to them for meaning-making in digital contexts; not only will teaching digital fiction help them to be better writers with wider career opportunities, but it will also to enable them to develop some of the skills that are expected of them as 21st century citizens (Dogan and Robin, 2008, p. 902).

While many instructors are reluctant to embrace the "digital" element of writing fiction, the form itself grew out of experimental and avant-garde literatures: OuLiPo, literary cubism, temporal contortionism, and both Modernism and postmodernism, standing on the shoulders of Jorge Luis Borges, John Barth, Italo Calvino, Samuel Beckett, Virginia Woolf, and James Joyce, to name a few (Ciccoricco, 2012, p. 472). Its early forms are early video games: text adventures (a genre that is alive and well, now often called "interactive fiction"), which dominated the 1980s game industry (Briceno et al., 2000). As games moved toward visual graphics and first-person avatars, hypertext fictions began to circulate, with Michael Joyce's *afternoon* (1987) generally noted as the first, preceding even the Internet (Ensslin and Skains, 2017). Digital writers proceeded to turn every software platform

and distribution system to their own ends, including HTML, Macromedia/Adobe Flash, JavaScript, game engines, and mobile applications. Collectively, the narrative-focused, multimodal, *digital* works they create are termed "digital fiction" (a form of electronic literature):

> fiction written for and read on a computer screen that pursues its verbal, discursive and/or conceptual complexity through the digital medium, and would lose something of its esthetic and semiotic function if it were removed from that medium (Bell et al., 2010, p. np).

As a still emerging and evolving form of narrative storytelling, digital fiction offers creative writers an opportunity to create and develop literacies in the "visual and digital media they consume and produce in mass quantities on a daily basis" (Hergenrader, 2015, p. 46). This paper offers a model for teaching digital fiction workshops for undergraduate instructors. The following sections establish the benefits to students of immersing them in this multimodal form, as they develop crucial multiliteracies in the creative writing classroom. Considerations for teaching are discussed, including issues of technical know-how and the lack of infrastructural support for these types of texts. Finally, I describe the model class I teach to second-year and third-year undergraduates in the Professional Writing program at Bangor University, in the UK, including marking recommendations and reading list advice.

The benefits of teaching digital fiction for creative writers

Twenty-first century writers face a wild and varied landscape unlike any previously known. Prior to written culture, crafting fiction involved memorization, appropriation, transformation, and recitation: an oral tradition that, while rich, was limited by the bounds of memory, language, and time. The era of print—a technological revolution itself—extended these boundaries, but introduced new boundaries in form, sequence, copyright, and commerciality. Moreover, print writers craft fiction using what has become an endemic or 'neutral' skill: communicating through written language. Comparatively, if print writing is a road well-traveled, the digital writing landscape is a barely explored wilderness. It requires "multiliteracies" (Cope and Kalantzis, 2009): writing; awareness of various film, music, Internet, and game conventions; awareness of cultural signs and references; video, image, and sound manipulation; HTML coding; and potentially much, much more, all in a constantly and rapidly evolving technological environment. These skills—with the exception of writing, reading, and hopefully some cultural dialogue—are not yet fundamentally integrated into the basic literacy skills entrenched in school learning. Nor can we expect our undergraduate students to undertake to learn them in the didactic teaching model that has dominated Western pedagogy for so long, by taking individual classes in computer programming, graphic design, sound design, web design, filmmaking, animation, and creative writing.

The current creative writing landscape calls for a more integrated approach, one that recognizes the wide variety of professional options for our students once they graduate. Less than 10% of creative writing students go on to stereotypical "writing" careers (fiction writing, publishing, translating); far more go into arts/design/media careers (17.7%) and marketing/public relations/sales (11.3%)—not to mention the significant numbers who enter professions such as education, health, business, information technology, and law (Logan and Prichard, 2016; What can I do with a creative writing degree? 2018). These fields—creative writing included—increasingly call for multiliterate professionals;

we are failing to prepare our students properly for their careers if we restrict our teaching to the Raymond Carver "minimalist" prose and poetry workshop model (Koehler, 2015).

In defining the Multiliteracies Pedagogical Framework, Bill Cope and Mary Kalantzis argue for teaching *design* rather than the rules of language, grammar, and canon (2009). Like multimodality, a design-focused approach engages students in multiliteracies holistically, encouraging them to practice a *process* of development for their work that closely resembles the draft-workshop-revise creative writing process we have taught for decades. It reaches further, however, asking students to: develop awareness of all the methods of communication at their disposal; analyze their audience, market, and communication media; choose communication methods and modes that best suit their message and audience; construct texts that make the best use of these options—and, at their best, create a text that not only adds these media and modes together, but combines them in such a way that their meanings, when (re-)constructed by the reader, are multiplicative (Lemke, 1998), the whole more than the sum of its parts. This is the goal of multiliteracies pedagogy, onboarding students with interpretive strategies and flexible skillsets that not only enhance and progress the art of narrative fiction creation, but also outfit them with transferable skills valuable in modern careers across all professions.

While most students are certainly immersed in digital media, from social media and text messaging to web comics and gaming, most undergraduate students are largely unfamiliar with digital fiction as a creative writing endeavor. They may be familiar with the fringes of digital fiction that are part of the mainstream, such as walking simulators, YouTube mashups, and mobile app versions of classic texts (along with a range of virally/socially shared texts Leonardo Flores terms "3rd generation e-lit" [2018]); they rarely conceive of these texts, however, as falling under the banner of creative writing, even if they have dabbled in composing some themselves. Thus, the simple transition of the writing space from word processor (and, typically, some work in pen and paper) to HTML composer introduces a simple but significant change to their writing practice, an element of "trouble", as Howard Garfinkel (1967) terms it, that brings their habitual practices and habits into relief, allowing for greater introspection, reflection, and experimentation.

The shift in the writing space brings with it a multimodal practice. Whereas prose comes with a relatively rigid presentation mode (codex, black text, white/cream page, left-to-right, top-to-bottom, first page to last), the nature of the digital medium opens a multitude of communicative potentialities. Their narratives can include multilinear plotlines relying on reader interactivity; they may incorporate color, image, sound, video, movement, music, and gameplay. Composing digitally increases the opportunity for writers to use these additional modes to convey narrative metaphor, character, and setting (Chisholm and Trent, 2013; Skains, 2017): "each sign system makes available different potentials for meaning" (Short and Kauffman, 2000, p. 44). Further, the digital writer is faced with technological and mechanical challenges in the construction of their texts, regardless of their level of experience, resulting in a "heightened awareness of the act of construction and an output that breaks from the writer's familiar style…[encouraging] the kind of intentional thinking that is just as useful in traditional writing" (Reed, 2015, p. 143). The digital medium engages writers in a metacognitive approach to the creation of narrative, pushing their writing practice to previously underexplored heights.

Also inherent in digital composition is a shifted focus to the reader (or generally, the reader-player). Many writers, particularly student writers, write mainly for themselves or for assessments; I've found it difficult for most to "put their work out there": to submit for publishing, to share with friends and family, or even to submit to my department's end-of-year "showcase", even when urged by their tutors[2]. Writing digital fiction requires them to do more than just write: it requires them to *design* (Cope and Kalantzis, 2009), to create a text and an interface that function in harmony for the desired reader experience. They have to consider what word, color, image, and/or sound choices might lead their reader to click one link over another—and what it may mean to the reader in terms of narrative interpretation when they do. They have to consider dead ends and broken links, timing of image downloads and volume (and potential for irritation) of background music. In digital texts, "the balance of agency in meaning construction has shifted in favor of the viewer" (Cope and Kalantzis, 2009, p. 181). This shift requires digital writers to focus on the audience experience of their texts from the very first stages of composition, rather than merely at the end when they want to send query letters out and need to identify their work's genre and market for potential agents and editors.

If digital writers are engaging multiplicatively in their texts for the sake of their audience, they are certainly more engaged in the text overall. Perhaps because of the unfamiliarity of the composition space, or perhaps because of the novelty of doing something new, I find my digital writers working up drafts earlier in the semester, rarely leaving their creative assessment to the night before (as happens so frequently on other modules). It is a repeating refrain in the literature on use of digital storytelling in classrooms, from elementary school students to higher education: students working in digital media have significantly increased levels of engagement in their coursework (Hull et al., 2010; Ryan et al., 2010; Letter, 2015; Williams, 2016). My own students have successfully negotiated, as a class, higher word counts for their digital work, so they can do more and push their digital fictions further. Students are interested in doing something new with their writing, in playing with technology, in being *original*. Likewise, they are excited to create texts that resonate with their peers, with the digitally-integrated spaces they engage in outside of academic realms (Williams, 2016, p. 127). They gain confidence in creating something new and interesting in the technological world they most connect to. They read Jennifer Egan's short fiction and lament they'll never be good enough to publish in *The New Yorker*; they read her same work as a Twitter novel and think, *hey, I can do that, and it will be* fun.

Given these perceptions in our students, it is important that we as creative writing tutors maintain environments that encourage creative writers to express themselves in variety of ways to suit different orientations, styles, and audiences.

> It is both fascinating and important to consider how the opportunity to multiplicatively combine and design image, color, and text on a page, thereby exercising one's artfulness and imagination as communicator and creator, can expand meaning-making strategies, opportunities, and motivations for youthful authors (Hull et al., 2010, p. 347).

Multimodality is a democratizing force (Hull and Nelson, 2005, p. 253): it enables writers to play to different strengths, whether their own communicative or artistic strengths, or the strengths of a chosen medium or genre. It allows students of different backgrounds, cultures, linguistic levels, areas of interest, fandoms, genre preferences, and communication styles to compose texts in a wide variety of methods—a multiplicity that we as instructors could never strictly delineate and define (and *should not*, in the interests of developing multiliteracies in our students). It allows us as instructors to engage students not only in the genres and forms we want them to learn, but to engage them in genres and forms they already navigate on a daily basis (Williams, 2016, p. 122).

This democratization occurs not only between tutors and students, whose mediatized environments can be enormously different

(given factors such as age, education, political affiliation, social networks, etc.), but also between students of different backgrounds. The divides between student experiences and capabilities are factors of culture, education history, and, mostly, socio-economic background (Cope and Kalantzis, 2009; Letter, 2015). At university level, most of our students are generally of a level, thanks to admissions procedures. As more and more (UK) universities, however, seek to expand admissions through international admissions, we find ourselves teaching increasing numbers of ethnically, culturally, and linguistically diverse students, as well as English as a Second Language (ESL) students. The latter in particular face significant communication and learning gaps, as they "must *simultaneously* learn both language and subject matter knowledge in a new sociocultural context" (Early and Marshall, 2008, p. 378, emphasis original). Multiple studies have shown that multimodal analysis and assessment strategies not only connected better with these students, but also enabled more nuanced understandings of abstract concepts and theories (Early and Marshall, 2008; Skinner and Hagood, 2008; Ryan et al. 2010), as well as offering "psychological refuge" from the constant pressure and self-doubt that accompanies learning through an unfamiliar tongue (Choi and Yi, 2015, p. 15).

Likewise, digitally-enabled multimodal practices offer students the opportunity for knowledge exchange on both cultural and informational fronts. The medium's multimodality encourages expression through metaphoric and symbolic semiotics, which vary across cultures and backgrounds. By sharing works incorporating these various signs, not only amongst a classroom-based peer group but online as well, students "experience cross-cultural perspectives involving 'cosmopolitan habits of mind'—the ability to recognize and negotiate differences between competing global cultural perspectives" (Beach, 2012, p. 449; cf. Hull et al. 2010). In addition to this cultural sharing, students also engage in co-teaching (Short and Kauffman, 2000, p. 56) as they turn to one another for operational or technical help with the software. Because an instructor leading a full class in unfamiliar skills development will necessarily have their attention divided, the students become active participants in trouble-shooting, teaching themselves how to solve a problem or accomplish a goal (through trial-and-error, tutorials, or web searches), then teach one another (Ryan et al. 2010; Beach, 2012; Letter, 2015). They become independent learners, "[participating] in the learning commons to share ideas and alternative perspectives for addressing problems leading to…an essential 21st-century digital literacy" (Beach, 2012, p. 451).

Considerations for teachers

Multiliteracies, including digital literacy, are not yet standard pedagogical aims; we cannot expect our students to enter our classrooms possessing the necessary literacies to construct digital fiction in the same way we can for prose fiction. Even moreso, *instructors* are unlikely to possess these multiliteracies as a rule. I once had a workshop leader preclude science fiction submissions in her class—not necessarily because she looked down on the genre, but because, in her argument, she was not familiar enough with it to be able to comment on it or mark it. For teaching digital fiction, the problem is multiplied by the fact that not only may the instructors feel inadequate to teach it (Clancy, 2015), their students are unlikely to have much familiarity with it, either. With administrative pressures such as student evaluations, external examiners, Teaching Excellence Framework (TEF) and the National Student Survey (NSS) in the UK, university instructors are understandably reluctant to embark on a situation wherein the blind may be leading the blind, as it were. Yet the numerous instances where digital storytelling and other multimodal methods have been employed in classrooms (Ryan et al. 2010; Choi and Yi, 2015; Clancy, 2015; Letter, 2015;

Williams, 2016)—even by instructors at least initially unfamiliar with the technology—demonstrate that these concerns can be mediated, and the benefits outweigh any stumbles that might occur.

Regarding students and the literacies they bring in to the classroom, many instructors overestimate their students' capabilities. The "digital divide" places age-based expectations on so-called "digital natives" that do not actually bear out; as Amy Letter points out, "[t]he only divide that has proven genuine is a socioeconomic one" (2015, p. 179). As digital interfaces have evolved toward consumer accessibility, users actually have less incentive to get into the guts of the digital media they participate in on a daily basis; most of the creative activity in any community comes from a relatively small proportion of "super-users". In the area of digital fiction, particularly, given the form has not (yet) significantly entered the mainstream, students are generally largely unfamiliar with it. Thus the good news: our students are unlikely to enter our digital writing classrooms knowing more than we do about digital fiction. And the bad news: our students are not entering into our digital writing classrooms already armed with the skills they need to create digital fiction, despite our expectations of them as "digital natives".

If we are to implement a multiliteracies approach in creative writing workshops, incorporating digital fiction and writing, then mitigating approaches to close the gaps in instructor and student knowledge are required. The first of these is the multiliteracies approach itself: by embracing a teaching model that is open, flexible, and iterative, the classroom becomes a cooperative teaching and learning space. The instructor is not expected to be a pinnacle of knowledge; rather, they serve as a guide and mentor for the student to develop that knowledge through their own activities (Cope and Kalantzis, 2009; Letter, 2015). If the students are engaged, interested in creating a work that they can compare to those on a reading list or even from their own digital interactions outside the classroom, "we can have them engaged in a digital writing process that focuses first on the writer, then on the writing, and lastly on the technology" (Hicks, 2009, p. 8). The process of learning the technology for creative purposes teaches critical problem-solving skills, develops the task-switching required for working in digital environments, and can even serve as a form of artistic restraint, inspiring new directions for their work (Letter, 2015).

What is required of the digital writing instructor, then, is not extensive knowledge of digital fiction softwares, but rather to serve a more Miyagi-like role: to ask analytical questions and pose creative challenges that encourage the students think more deeply about their work and approach it from relevant and fresh perspectives (Ryan et al., 2010). A first-person example: as a graduate teaching assistant in a media department, I was chosen to lead workshops on digital media modules merely because I had audited them the previous year; I barely managed to keep a week ahead of my students in terms of the skills I was teaching. Workshop sessions were a nightmare of trouble-shooting students' issues with their work; if I could not suss the issue in-class, I worked on it on my own time and delivered the solution to the student in the next session. I spent many (unpaid) hours chasing down these issues, feeling inadequate and frustrated. In contrast, in my most recent Playable Fiction module, many of my students integrated elements into their digital fictions that I still have no idea how to do, and spent no time in learning. Instead, I created an expectation that their works only had to have the bare basics of digital fiction (hyperlinks); further functionality was via their own skills and intrepitude. As a result, they googled and followed tutorials and tested things out and shared amongst themselves. These students gained far greater abilities than my earlier students did, not only with the softwares, but also in problem-solving and cooperation.

Outside of the spheres of instructor and student literacies, a further constraint on the digital writing workshop remains: university infrastructure. As discussed above, digital fiction is intangible, evanescent, and appears in a wide array of forms, under just as many nomenclatures. Digital writers use any and every software platform available to them, from expensive professional creative suites to ubiquitous programs like PowerPoint. It is a form that cannot yet be cataloged and accessed via a library: as most is not commercial, it cannot be purchased; likewise, without commercial publishing streams, digital fiction is dispersed throughout the web, with no central distribution hub. Without these centralizing forces, digital fiction is difficult to track and archive: there is, as yet, no cataloging system such as ISBNs, and continually updating digital technology renders many works unreadable in devastatingly short periods. While groups such as the Electronic Literature Organization and the Electronic Literature Lab[3] are establishing archives and collections, these remain a small fraction of the wealth of digital fiction that exists, and rarely include the more "popular" forms that students are more likely to connect to in their introduction to digital fiction. Currently, the onus is on each individual instructor to construct and maintain an active reading list of digital fictions for students to engage with (suggestions for doing so are below).

As for platforms to use for creating digital fiction, these also have a quality of evanescence, depending on their cost, uptake, and, most importantly, continued development and support. Many that I employed in my digital media modules in the last few years have come and gone. On the upside, developers are continually introducing new platforms that make content creation ever cheaper (usually free) and ever easier; on the downside, technology is moving swifter than ever, as are user trends and habits. Even if a tech or platform remains, often our students perceive it as outdated and uninteresting (see their shift away from Facebook toward Instagram and SnapChat—which, by the time this article publishes, will likely be antiquated). Again, the onus is unfortunately on the individual instructor to find a platform that works best for their aims and students, and to seek out new ones on a regular basis (again, suggestions are below).

"Playable Fiction" as a model

In this section, I outline the digital fiction workshop that I teach regularly, offering it as a model (though not *the* model; many iterations are possible, of course). It is worth noting that I created this module for dual purposes: (1) to introduce a digital fiction workshop into my department's undergraduate program, which had none at that stage, and (2) to conduct ethnographic research into the effects of digital composition on creative writers' practice (Skains et al. 2016; paper in preparation). The structure of the module and its assessments are predicated upon this latter purpose.

Playable Fiction is a 12-week taught undergraduate module, taught in the spring semester of even-numbered years. It is designed as an exercise in experimental writing, aiming to "interrogate and analyze the effects of experimenting with unconventional/unnatural forms on conventional or commercial writing practices"[4]. As such, the first five weeks of the module focus on reading and writing Twine storygames; weeks 6–9 see the students transmediating their own storygames into prose; and the final three weeks are spent analyzing the process and narratives for insight into how writing in digital form affects the creative writer's practice. The three assessments consist of a 2000-word "storygame"[5], a 3000-word prose adaptation of the storygame, and a 2000-word analysis of the creative writing process. The module's weekly meetings are split into a 1-hour lecture (incorporating theory from narratology, interactivity, and the

evolution of narrative and play), a 1-hour study group session (collaborative discussion and exercises are given and recorded, usually relating the lecture discussion to their creative works), and a 1-hour seminar/workshop in a computer lab (for creative exercises, beta-testing, and workshopping). Creative readings include Twine games, hypertexts, interactive fiction, and print ergodic texts (e.g., Mark Danielewski's 2000 *House of Leaves*) (Aarseth 1997). Students complete weekly activities based on critical discussion questions and writing exercises, directed toward completion of their three assessments, and record them in research logs (Evernote notebooks shared with the instructor).

The digital fiction software I employ on this module is Twine (http://twinery.org). I have covered the history of this program elsewhere (Ensslin and Skains, 2017); the short version is that Chris Klimas created it expressly to compose digital fiction—unlike many other platforms that were appropriated from multimedia authoring tools—and indie game developer Anna Anthropy embraced it and promoted it (2012). The result was that a significant proportion of indie game developers who were under-represented in the games industry (LGBTQ+, women, religious and ethnic minorities) took up the platform for personal and portfolio development. Rather than letting it fade away into obscurity (as he nearly did), Klimas released Twine 2.0, which runs in any Internet browser and requires no download. As the Twine community grew, so too did its resources: it boasts extensive online tutorials, which grow all the time. It remains one of the simplest digital composition tools I have encountered to date, with the greatest capability for adding complexity and functionality (thanks to its JavaScript foundation). It outputs as HTML files, easily saved and easily published, with all the accessibility of the World Wide Web. At its most basic, it requires only two elements: passages and links. Passages form the text the reader will see, and links connect them together (see Figs. 1–3).

I have had elderly students create basic hypertext fictions using Twine 2.0 within 30 min, and teenagers create multimedia games over the course of a week. In their five weeks with the program, undergraduates on Playable Fiction go from complete unfamiliarity with it, to submitting a fully functional digital fiction:

1. Week 1: Introduction to Twine. Read a few Twine games, play with the software. Create a simple story, such as a joke or recent event, to get familiar with creating links and passages.
2. Week 2: Share and play your simple Twine games. Create a storygame "bible", and "wireframe" your storygame (see Heussner et al., 2015).
3. Week 3: Share and discuss storygame bibles. Draft storygame.
4. Week 4: Beta-test storygame. Revise per feedback.
5. Week 5: Beta-test storygame. Revise per feedback. Submit final storygame in Week 6.

As noted, this module is designed as an experiment into practice; as such, digital writing occurs only in these five to six weeks. Without research constraints on a module, instructors can expand the workshop to include the full course of the term, incorporating further beta-tests, additional digital fictions, and alternative writing exercises.

One additional consideration to incorporate into any digital media module is that of intellectual property and copyright. Most students are immersed in their everyday lives in a culture of sharing and remix (Williams, 2016, p. 120); the creation and sharing of memes and videos rarely entails proper attribution for creators of the various source materials. Yet proper assignment of intellectual property rights is a desirable learning outcome in academic settings. Integration of copyright discussions into digital writing classrooms is good practice, particularly as these students may move into professions where they are using digital materials, and need to use
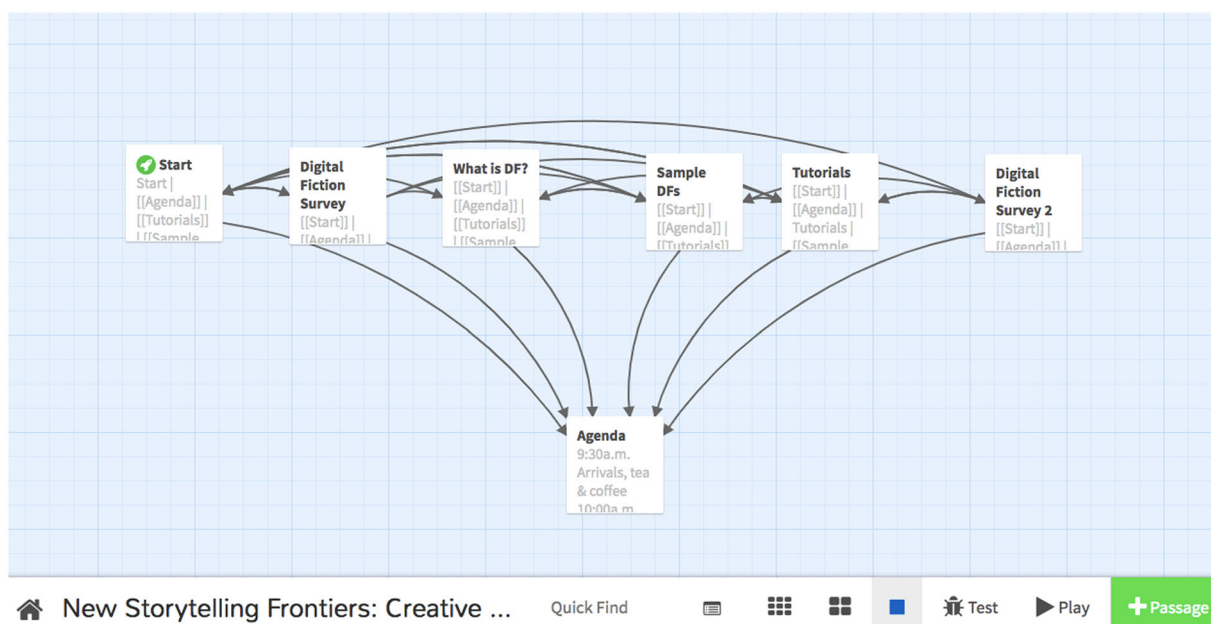
Fig. 1 The Twine interface: Passages are represented as white boxes; links are represented as arrows between boxes
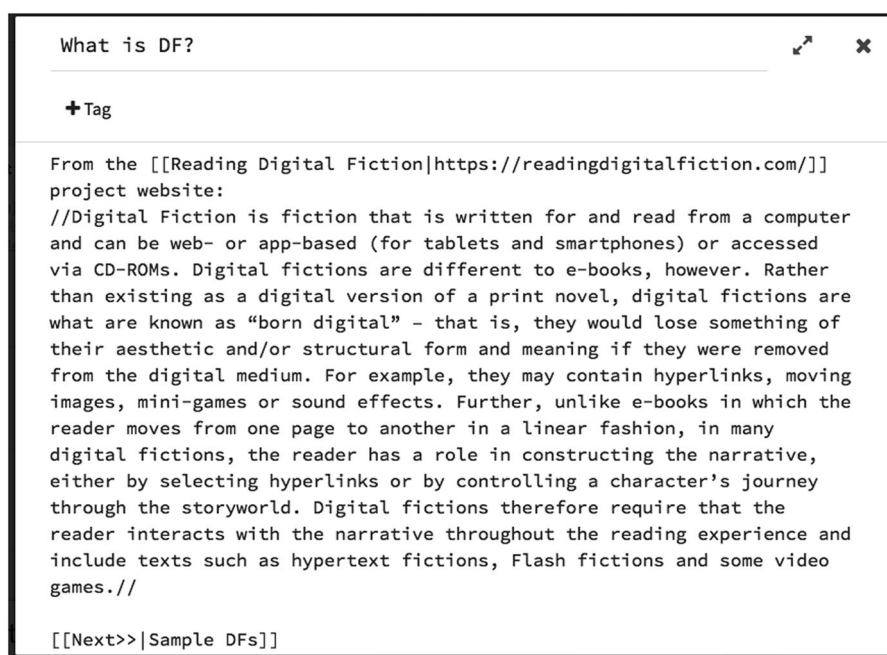

Fig. 2 A Twine passage: users write their text in these passages. Links are created in this Twine "Story Format" by placing two square brackets around the text to be linked

them appropriately, such as media creation, marketing, or creating web content. While using various materials for educational and/or transformative purposes typically constitutes "fair use", students should develop a habit of checking the rights assigned to properties they access, save, and incorporate into their works, and using and attributing them appropriately.

Marking digital fiction writing
Unlike my old workshop leader, I embrace an open philosophy when it comes to student submissions; my concerns as a teacher are not that my students write what *I* know. Rather, I deem a work successful if it is meeting the needs of its (intended) audience.

Students come to creative writing for many different purposes; the ones who seek out my classes are often those who, like Anna Anthropy and her community, feel shunted by the "literary" expectations of the Carver-modeled creative writing workshops (which often preclude writing outside of "literary fiction" and poetry) that dominate higher education programs. Frequently, my students are interested in or have already written fanfiction, comics, genre fiction, and scripts; most are also immersed in digital inter-activity in some form, whether blogging, social media, or games. Attempting to dissuade them from these pursuits is not only disingenuous, it is detrimental to their futures as writers, whatever career path that may take.
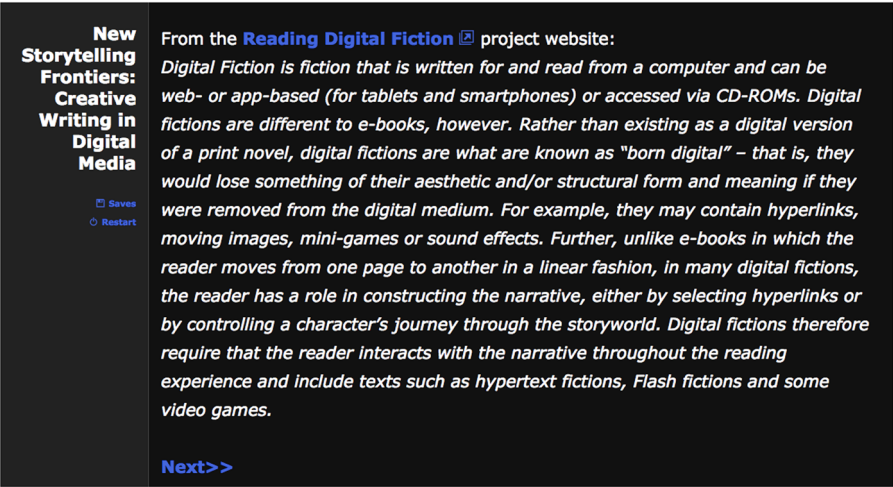
Fig. 3 The passage from Fig. 2 as displayed for a reader in an Internet browser

Thus my marking model emphasizes the *process* of writing and design, rather than focusing solely on the end product. This is in line with Cope and Kalantzis' Multiliteracies Pedagogy, which delineates a teaching model that guides students through the processes of *experiencing* (both the known and the new); *conceptualizing* (naming concepts and weaving them into interpretive frameworks); *analyzing* (both for functionality and for power relationships); and *applying* this experience, knowledge, and understanding to work (both appropriately for real world contexts, and creatively for innovation and new perspectives) (2009, pp. 184–5). Shelley Tracey presents a very similar emphasis on process in her Model for Creative Reflection, with its four phases of *preparation* (enacting "threshold activities" that cross-reference between known and new experiences); *play* (encouraging creative thinking, interpretative approaches for new ideas); *exploration* (purposefully putting these interpretations into a new project); and *synthesis* (in which "experience and learning are synthesized into new understandings") (2007, p. 5).

I have transitioned my marking (on all modules, including Playable Fiction) from a model in which only the final creative artifact is marked, to one in which all of the activities leading up to that artifact are part of the marking scheme. This scheme is based in Linda Nilson's Specifications Grading model (2014), which provides a useful framework for focusing on processes and activities rather than a single final project (without making the marking into an odious task). In my application, the final artifact is the *minimum* required element of any assessment: if a student submits *only* this element, regardless of how outstanding it may be, the highest mark it can receive is a D + (working on a letter-grade system in which A is the highest band and D is the minimum pass level). All of the weekly exercises I assign leading up to that artifact constitute pass/fail exercises that pop their scores up with each one that is successfully completed and presented—on time—in class (i.e., the exercises as noted above: [1] simple storygame, [2] storygame bible, [3] draft storygame, [4] beta-testing results and feedback, [5] revised draft). I design my contact time so that I review their exercises while they are doing in-class activities such as group work or creative exploration, eliminating the need for extra time spent marking outside of contact hours—a consideration sorely needed in these times of increasing faculty workloads and student numbers.

One amendment I have made to Nilson's model is to the pass/fail binary. Instead, I use a system of marks 0–3, as shown in Table 1, ranging from "not submitted" (0) to "satisfactory-plus" (3) for exemplary, A-level work. Students who consistently

Table 1 Exercise scoring standards

Score	Exercise standards
0	Not submitted
1	Unsatisfactory: exercise submitted, but lacks professional polish, and may be limited in terms of informed approaches. Lacking evidence of revision for purpose
2	Satisfactory: exercise submitted, shows evidence of informed thinking and revision for purpose
3	Satisfactory-plus: exercise shows evidence of innovative thinking and revision for purpose, and its discussion synthesizes theory/ practical references covered on the module

receive 2 s on their work will earn a B-band mark on their overall assessment; students who consistently receive 3s, including on the final artifact, will earn an A-band mark. I give all students Nilson's recommended "tokens" (usually 2–3 per module), which they can trade in to me in order to resubmit an exercise for a higher score, to submit an exercise late, or even for more creative uses such as negotiating a higher word count allowance on creative assessments.

As this paper is focused on the Playable Fiction module as a model of teaching digital fiction writing, and not a model of specifications grading[6], it does not have the scope to analyze and evaluate this approach fully. Suffice it to note that the results of this implementation have been very positive: student engagement has increased, in terms of attendance and completion of weekly exercises. The final artifacts the students submit, for those who have engaged in the entire process, demonstrate more cohesion and polish on average than those I received under the previous marking model. Student evaluations are generally very positive: students like knowing *exactly* what they have to do to earn the mark they want, and they like the opportunities presented by the tokens to improve upon previous work. The few negative evaluations are typically from non-attenders who are otherwise good writers, and have previously coasted on their abilities, rather than their engagement with individual modules and learning outcomes. As creative writers, most students appreciate the incentive to engage with their writing practice on a more regular basis; they know it is a necessary part of improving their writing, but most have not yet developed sufficient self-discipline or time management skills to maintain a steady practice. For myself as an instructor, the benefits are that I see the students' work more

frequently, and can gauge much earlier if they (either as a group or as individuals) are struggling. I spend less time outside of contact hours marking work; as the students are getting regular measures of their work's standards and participating in far more peer feedback, their final artifact is not so heavily weighted, and thus needs less of my feedback. Finally, from an institutional standpoint, students' average performance on these modules has increased: students who work hard through the *process* almost always achieve a B-band mark, rather than the lower scores they might receive based on only one piece of work. Thus scores improve without need for artificial grade inflation or marking on a "curve".

A final note on marking for instructors unsure of where the lines between "unsatisfactory", "satisfactory", and "satisfactory-plus" may fall in works of digital fiction. An excellent starting place for marking rubrics is Troy Hicks' MMAPS heuristic, which he presents thoroughly in *The Digital Writing Workshop* (2009, pp. 57–8). The text is aimed at primary and secondary school educators, but the concepts are applicable to undergraduate classrooms, particularly the heuristic, which places the marking evaluation on choices the student has made in terms of Media, communication Mode, meeting the Audience's needs, demonstration and accomplishment of the text's Purpose, and how the work addresses both the writ*er*'s and the writ*ing*'s Situation (MMAPS). This heuristic allows the instructor to evaluate a work not by their own standards, but by the standards of the work itself: how successful it is in defining and meeting its creator's and audience's needs. Mapping these criteria against the learning outcomes defined on an individual module provides a robust marking rubric that can be adaptable to any instructor's level of knowledge and familiarity with their students' chosen genres, audiences, and purposes.

Resources for teaching digital fiction writing

As discussed above, I (currently) recommend Twine as a software platform for creating digital fiction, particularly for the uninitiated. Twine has numerous qualities recommending it: it is free and open source, qualities not only in keeping with Internet culture and Creative Commons, but which make it cost-effective

for any classroom regardless of budget. Twine 2.0 is browser-based, which makes it absolutely platform-independent, so no matter what machines are available to instructors or students, as long as they have internet access, they will be able to run it (it also has a desktop version for those without reliable internet connections). It has extensive online tutorials and communities, enabling students to seek out instructions for functionality they want, rather than relying on instructor know-how. It is extremely simple to use in its most basic functions (passages and hyperlinks), but its JavaScript foundation presents almost unlimited possibilities for media interactivity for the more advanced (a factor in the indie games scene's approbation of it). Further, both the working files and the output files are HTML, making them easily sharable and readable on any machine (a relief for instructors like me, who prefer one platform or OS, while having to teach on another).

Nonetheless, Twine might not be for everyone. At its core, it is a hypertext machine, and not all digital fictions must be hypertexts. Because it is so user-friendly, little to no programming is required, leaving out a very useful literacy for today's students. Depending on instructor preferences, program and module learning outcomes, and various other factors, other platforms may be more appropriate. Twine is certainly not the only tool available or already in use in classrooms; Table 2 outlines those that are (currently) most prominent, with a few of their features and considerations[7].

Those most commonly used in undergraduate classrooms to create digital fiction (and games) include Inform7 (Reed, 2015), Quest (Ballentine, 2015), and Adobe Animate/Flash; the latter is frequently used for wider purposes, including animation, games development, and interactive websites, as it is an industry standard. Its costs, however, and high level of skill required, not to mention its deprecation on most mobile operating systems and many Internet browsers, put it at the bottom of the list for most digital fiction scenarios. Adobe Flash was the height of technology for digital fiction in the 2000s; once Apple announced it would not be supporting Flash on its platforms, however, digital writers turned to more open platforms based on HTML/CSS/JavaScript and HTML5. So while many students aiming for careers in media development may benefit from skills on this program, as a basic

Table 2 Currently available digital fiction softwares

Software	Location	Cost	Platform	Ease of use	Skill level required	Digital fiction type(s)	Output type	Available support
Twine	http://twinery.org/	Free	Any (browser-based)	+++	None to low	Hypertext Hyperfiction	HTML	Online tutorials; YouTube videos; community forums
Texture	https://texturewriter.com/	Free	Any (browser-based)	+++	None to low	Hypertext Hyperfiction	HTML	Online tutorial; Public Library of works
ChoiceScript	https://www.choiceofgames.com/make-your-own-games/choicescript-intro/	Free	Any (browser-based; Firefox recommended)	++	Low	Multiple choice storygame	HTML	Online tutorials; community forums
Inform7	http://inform7.com/	Free	Mac OS; Windows; Linux	+	Medium to high	Interactive fiction / text adventure game	Glulx; Z-machine (require interpreters)	Extensive manual; online tutorials; published guides; community forums
TADS	http://www.tads.org/tads3.htm	Free	Mac OS; Windows; Linux	+	Medium to high	Interactive fiction / text adventure game	TADS (requires interpreter)	Manuals; online tutorials; published guides; community forums
Adrift	http://www.adrift.co/	Free	Windows	+	Medium to high	Interactive fiction / text adventure game	ADRIFT (requires interpreter)	Manual; online tutorials; community forums
Quest	http://textadventures.co.uk/quest	Free	Windows; any (browser-based)	++	Low to medium	Interactive fiction / text adventure game	HTML	Online tutorials; community forums
Ren'Py	https://www.renpy.org/	Free	Mac OS; Windows; Linux	+	Medium	Visual novel	Program files for each platform	Manual; tutorials; community forums
Adobe Animate CC (formerly Flash)	https://www.adobe.com/uk/products/animate.html	£20/mo	Mac OS; Windows	−	High	Hyperfiction Games	SWF (requires Flash player)	Manual; online tutorials; community forums

tool for digital fiction it is not worth the high cost, steep learning curve, and frequently buggy functionality in university IT infrastructures.

In terms of reading lists for students, there are many options, but as yet no definitive guides for selection. The AHRC-funded Reading Digital Fiction project has published a "Resources for Readers" page (https://readingdigitalfiction.com/resources-for-readers/) (2016) that offers a few suggestions for starter readings in various digital fiction forms and genres, and includes a link to a "Beginner's Guide". The Electronic Literature Organization maintains a three-volume collection of e-lit (also including digital poetry) accessible at http://collection.eliterature.org/. While this collection continues to grow, it is a "mirror of a specific moment in time occurring across continents, languages, and platforms" (Boluk et al., 2016, p. np); as such, it lends itself to browsing rather than offering an easily searchable and filterable database for selection of works. The Interactive Fiction Database (http://ifdb.tads.org/), on the other hand, is just that: a database of mostly parser-based and hypertext interactive fictions (built with Inform7, TADS, and Twine), though it is open to all forms of digital fiction. It includes a tagging and review system that better enable searching and selecting items for reading lists. Its limitations are in its community: it is far more populated by those creating puzzle-based games, interactive fictions, and Twine games than other forms of digital fiction. Nonetheless it is a solid option for seeking out texts to read. Other options include lists of winners and nominees for digital fiction prizes such as the New Media Writing Prize (http://newmediawritingprize.co.uk/) and the Opening Up Digital Fiction Competition (http://openingup.wonderboxpublishing.com). Branching further out, itch.io is a publishing site for indie games, many of which are constructed with Twine and cross boundaries between games and digital fiction, as do "walking simulator" games that are frequently published through Steam.

Conclusion

There is a general attitude around digital media that they are "killing" the book, or that they herald "a movement *away* from the traditional text-based methods of teaching and executing creative writing. The shift is unsettling for many instructors" (Clancy, 2015, p. 165, emphasis original). Yet Donna Alvermann urges us to let go of this worry over the (perceived) loss of print culture, lest we risk short-changing the education and lives of our students (2009, p. 23). Engaging in multimodal, digital creativity is just the sort of multiliteracies education we should be striving for—not the least of which is because it inevitably leads our creative writing students back to written text (Hicks, 2009; Clancy, 2015; Koehler, 2015) that enables continued renewal of print fiction, while also inspiring them to explore new territory and experiment with fresh techniques and perspectives.

Shifting our own pedagogical perspective to appreciate the meaning-making opportunities that have expanded beyond the page, thanks to digital media, enables a focus on design-centered narrative storytelling. It emphasizes attention to the reader and their experience, to the modes and methods of conveying meaning, and generates a naturally iterative and reflective practice. The Playable Fiction model described in this paper offers a holistic, multiliteracies approach to the creative writing workshop. It strengthens students' communication, writing, and storytelling skills, as well as giving them a framework to deepen their creative practice. A marking scheme that centers on process rather than final artifact engenders a reflective, creative, developmental atmosphere that improves student work while relieving pressure on them to have a single high-earning performance.

These adaptations offer positive approaches to teaching creative writing, particularly given current pressures higher education instructors face. We are asked not only to engage our students in a basic learning process, to help them meet the learning outcomes of individual modules and programs, but also to earn positive feedback on module evaluations, to consistently return excellent NSS and TEF results, to maintain high levels of retention, to graduate students with competitive degree results, and to imbue our students with qualities that ensure job and career success. All the while facing higher workloads, more job insecurity, and greater pressures in other aspects of our roles. The model offered here is not a total solution to these pressures, of course, but it can alleviate some issues, such as the pressure to (sometimes artificially) inflate student marks, to offer the same level of instruction to more and more students (thus increasing time spent marking), and to better engage students in their modules—and, indeed, their own learning process.

Notes

1 This paper focuses on digital fiction, as opposed to electronically published prose fiction (such as ebooks), as the creative writing practice that leads to electronically published prose fiction is not fundamentally different from that leading to printed prose fiction.

2 Many, however, are more than happy to post fanfiction online. It is worth noting, however, that most fanfiction is posted under anonymizing pseudonyms.

3 Respectively, https://eliterature.org/electronic-literature-archives/ and http://dtc-wsuv.org/wp/ell/.

4 The fully validated module description can be found at https://www.bangor.ac.uk/ar/gazettes/module?gazyr=201718&module=UXS-2412&lang=.

5 I initially set the storygame to 1500 words; students overwhelmingly begged for more space to explore these texts, so it was rounded up to 2000. As the second assessment is a transmediation rather than a new assessment, most of those 3000 words are taken from the first assessment.

6 I maintain a full breakdown of my specifications grading module model, including links to sample module documents, here: http://lyleskains.blogspot.com/2018/09/my-take-on-specifications-grading-or.html.

7 Any list of digital technologies is obsolete almost as soon as it is composed; to produce one for a journal article is almost folly. Once this table is out of date (so…now), readers may turn to the online version I maintain for digital writers, where you may also make suggestions for additions or edits: http://wonderboxpublishing.com/news_reviews/df-resources/.

References

Aarseth E (1997) Cybertext: reflections on ergodic literature. Johns Hopkins University Press, Baltimore

Alvermann DE (2009) Sociocultural constructions of adolescence and young people's literacies. In: Christenbury L, Bomer R, Smagorinsky P (eds) Handbook of adolescent literacy research. The Guilford Press, New York, p 14–28

Anthropy A (2012) Rise of the videogame zinesters: how freaks, normals, amateurs, artists, dreamers, drop-outs, queers, housewives, and people like you are taking back an art form: Anna anthropy. Seven Stories Press, New York

Archer A, Breuer E (2016) Introduction: a multimodal response to changing communication landscapes in higher education. In: Breuer E, Archer A (eds) Multimodality in Higher Education. Brill, Leiden, p 1–17

Ballentine BD (2015) Textual adventures: writing and game development in the undergraduate classroom. Comput Compos 37:31–43

Beach R (2012) Constructing digital learning commons in the literacy classroom. J Adolesc Adult Lit 55(5):448–451

Bell A et al. (2010) A [S]creed for Digital Fiction. Electronic book review. http://www.electronicbookreview.com/thread/electropoetics/DFINative. Accessed 18 Feb 2013

Bell A et al. (2016) Resources for readers. Reading Digital Fiction. https://readingdigitalfiction.com/resources-for-readers/ Accessed 24 Sep 2018

Bok D (2009) Universities in the marketplace: the commercialization of higher education. Princeton University Press, Princeton, New Jersey

Boluk S et al. (2016) About: editorial statement, electronic literature collection–Vol. 3. Electronic Literature Collection. http://collection.eliterature.org/3/ Accessed 24 Sep 2018

Briceno H et al. (2000) Down from the top of its game: the story of Infocom, Inc. MIT

Carr D (2009) Revisiting the liberal and vocational dimensions of university education. Br J Educ Stud 57(1):1–17

Cazden C et al. (1996) A pedagogy of multiliteracies: designing social futures. Harv Educ Rev; Camb 66(1):60

Chisholm JS, Trent B (2013) Digital storytelling in a place-based composition course. J Adolesc Adult Lit 57(4):307–318

Choi J, Yi Y (2015) Teachers' integration of multimodality into classroom practices for english language learners. TESOL J 7(2):304-327

Ciccoricco D (2012) Digital fiction: networked narratives. In: Bray J, Gibbons A, McHale B (eds) The Routledge companion to experimental literature. Routledge, London, p 469–482

Clancy C (2015) The text is where it's at: digital storytelling assignments that teach lessons in creative writing. In: Clark MD, Hergenrader T, Rein J (eds) Creative writing in the digital age: theory, practice, and pedagogy. Bloomsbury, London, p 165–176

Clark JE (2010) The digital imperative: making the case for a 21st-century pedagogy. Computers Composit 27:27–35

Cope B, Kalantzis M (2009) "Multiliteracies": new literacies, new learning. Pedagog Int J 4(3):164–195

Danielewski MZ (2000) House of leaves. Pantheon Books, New York

Dogan B, Robin B (2008) Implementation of digital storytelling in the classroom by teachers trained in a digital storytelling workshop. In: McFerrin K et al. (eds) Proceedings of SITE 2008--Society for Information Technology and Teacher Education International Conference. Association for the Advancement of Computing in Education (AACE), Las Vegas, p 902–907

Early M, Marshall S (2008) Adolescent ESL students' interpretation and appreciation of literary texts: a case study of multimodality. Can Mod Lang Rev 64 (3):377–397

Ensslin A, Skains RL (2017) Hypertext: storyspace to twine. In: Tabbi J (ed) The Bloomsbury handbook of electronic literature. Bloomsbury, London, p 293–307

Flores L (2018) ELO18 panel: towards E-Lit's #1 Hit. Leonardo Flores, PhD. http://leonardoflores.net/blog/elo18-panel-towards-e-lits-1-hit/. Accessed 24 Sep 2018

Garfinkel H (1967) Studies in ethnomethodology. Prentice-Hall, Inc, Englewood Cliffs

Goodfellow R (2011) Literacy, literacies and the digital in higher education. Teach High Educ 16(1):131–144

Hergenrader T (2015) Game spaces: videogames as story-generating systems for creative writers. In: Clark MD, Hergenrader T, Rein J (eds) Creative writing in the digital age: theory, practice, and pedagogy. Bloomsbury, London, p 45–60

Heussner T et al. (2015) The game narrative toolbox. Focal Press, Oxon

Hicks T (2009) The digital writing workshop. Heinemann, Portsmouth

Hull GA, Nelson ME (2005) Locating the semiotic power of multimodality. Writ Commun 22(2):224–261

Hull GA, Stornaiuolo A, Sahni U (2010) Cultural citizenship and cosmopolitan practice: global youth communicate online. Engl Educ 42(4):331–367

Jacobs GE (2012) The proverbial rock and hard place: the realities and risks of teaching in a world of multiliteracies, participatory culture, and mandates. J Adolesc Adult Lit 56(2):98–102

Joyce M (1987) Afternoon: a story. Eastgate Systems, Watertown

Koehler A (2015) Screening subjects: workshop pedagogy, media ecologies, and (new) student subjectivities. In: Clark MD, Hergenrader T, Rein J (eds) Creative writing in the digital age: theory, practice, and pedagogy. Bloomsbury, London, p 17–28

Lemke JL (1998) Metamedia literacy: transforming meanings and media. In: Reinking D (ed) Handbook of literacy and technology: transformations in a post-typographic world. Lawrence Erlbaum Associates, Inc., Publishers, Mahwah, p 283–302

Letter A (2015) Creative writing for new media. In: Clark MD, Hergenrader T, Rein J (eds) Creative writing in the digital age: theory, practice, and pedagogy. Bloomsbury, London, p 177–189

Logan E, Prichard E (2016) What do graduates do? HEFCU: Graduate Prospects Ltd. https://www.hecsu.ac.uk/assets/assets/documents/What_do_graduates_do_2016.pdf. Accessed 23 Sep 2018

Nilson LB (2014) Specifications grading: restoring rigor, motivating students, and saving faculty time. Reprint edition. Stylus Publishing, Sterling, Virginia

Reed AA (2015) Telling stories with maps and rules: using the interactive fiction language "Inform 7" in a creative writing workshop. In: Clark MD, Hergenrader T, Rein J (eds) Creative writing in the digital age: theory, practice, and pedagogy. Bloomsbury, London, p 141–151

Ryan J, Scott A, Walsh M (2010) Pedagogy in the multimodal classroom: an analysis of the challenges and opportunities for teachers. Teach Teach 16 (4):477–489

Short KG, Kauffman G (2000) Exploring sign systems within an inquiry system. In: Gallego MA, Hollingsworth S (eds) What counts as literacy: challenging the school standard.. Teachers College Press (Language and literacy series), New York

Skains RL et al. (2016) Gaming the composition: an ethnographic study on composing ergodic fiction. In: International Society for the Empirical Study of Literature, Chicago, 6-9 July 2016

Skains RL (2017) The materiality of the intangible: literary metaphor in multimodal texts. Convergence https://doi.org/10.1177/1354856517703965

Skinner EN, Hagood MC (2008) Developing literate identities with english language learners through digital storytelling. Read Matrix 8(2):12–38

Tracey S (2007) Creative reflection, creative practice: expressing the inexpressible. In creativity or conformity? Building cultures of creativity in higher education, 8-10 Jan 2007. Cardiff: University of Wales Institute, Cardiff; Higher Education Academy

What can I do with a creative writing degree? (2018) Prospects.ac.uk. https://www.prospects.ac.uk/careers-advice/what-can-i-do-with-my-degree/creative-writing. Accessed 23 Sep 2018

Williams BT (2016) Genre inside/genre outside: how university students approach composing multimodal texts. In: Breuer E, Archer A(eds) Multimodality in higher education. Brill, Leiden, p 114–135

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