Promoting Information Literacy in Higher Education Through Digital Curation

This article argues that digital curation—the art and science of searching, analysing, selecting, and organising content—can be used to promote the development of digital information literacy skills among higher education students. Rather than relying on institutionally approved journal articles that have been pre-ordained as suitable for a given purpose, digital curation tools allow students to evaluate the quality of Web based-based content and then present it in an attractive form, all of which contributes to the cultivation of their digital literacy skills. We draw on a case study in which first- year information and communications technology (ICT) students used the digital curation platform Scoop.it to curate an annotated collection of resources pertaining to a particular topic.

The notion of curation has undergone a significant transformation in the wake of an increasingly digital society. To "curate," traditionally referred to as "taking care," has morphed into a process of cataloguing, accessing, and representing artefacts. In the digital age, curation is a way of sifting, organising, and making sense of the plethora of information; it has become an important life skill without which one cannot fully participate in digital life. Moreover, the ready availability of information, made possible by the ubiquity of Internet technology, makes digital curation an essential skill for the twenty-first 21st century learner. In answer to this need, we are seeing the emergence of suites of digital tools, dubbed "'curation"' tools, that meet the perceived need to locate, select, and synthesise Web content into open, user-organised collections. With information overload, a distinctive feature of the Internet, the ability to sift through the noise and dross to select high- quality, relevant content—selected on the basis of authority, currency, and fitness-for-purpose—is indeed a valuable skill. To examine this issue, we performed a case study in which a group of first- year Information and Communication Technology (ICT) students curated Web- based resources to inform an assessment task. We argue that curation platforms, such as Scoop.it, can be effective at cultivating the digital information literacy skills of higher education students.

Digital Curation

Traditionally, curation is a practice most commonly associated with the Art world—something reserved for the curators of art exhibitions and museums. However, in today's world, digital curation tools, such as Scoop.it, make it possible for the amateur curator to collect and arrange content pertaining to a particular topic in a professional way. While definitions of curation in the context of the online environment have been proposed (Scime; Wheeler; Rosenbaum), these have not been aligned to the building of core digital information literacy competencies. The digital curator must give due consideration to the materials they choose to include in a digital collection, which necessitates engaging in a certain amount of metacognitive-cognitive reasoning. For the purpose of this article, the following definition of digital curation is proposed:

> "Curation can be summarised as an active process whereby content/artefacts are purposely selected to be preserved for future access. In the digital environment, additional elements can be leveraged, such as the inclusion of social media to disseminate collected content, the ability for other users to suggest content or leave comments and the critical evaluation and selection of the aggregated content". (Antonio, Martin, and Stagg).

This definition exemplifies the digital information literacy skills at work in the curation of digital content. It can be further broken down to elucidate the core competencies involved: "Curation can be summarised as an active process whereby content/artefacts are purposely selected." (Antonio, Martin and Stagg). The user, who curates a particular topic, actively chooses the content they want to appear in their collection. The content must be relevant, up-to-date, and from reputable sources or databases. Achieving this requires a degree of information literacy both in terms of justifying the content that is selected and, conversely, that which is not. The second part of the definition is: "In the digital environment, additional elements can be leveraged, such as the inclusion of social media to disseminate collected content, the ability for other users to suggest content or leave comments." (Antonio, Martin and Stagg). The digital curator is engaged and

immersed in Web 2.0 technologies, ranging from the curation tools themselves to social media platforms such as Facebook and Twitter. The use of these tools thus requires at least basic digital literacy skills, which can potentially be further developed through continued engagement with them. Finally, curation involves the "human-mediated automation of content collection." (Antonio, Martin and Stagg). The curator must accept or reject the content generated by the search algorithm, which necessitates a level of metacognitive-cognitive analysis to determine the value of a piece of content.

While there are countless tools laying claim to the digital curation label, including Pinterest, Storify, and Pearltreess, Scoop.it was selected for this study, as the authors consider that it adheres most closely to the stated definition of curation. Scoop.it requires the user to define the sources from which content will be suggested and to make an informed decision about which pieces of content are appropriate for the collection they are creating. This requires the curator to critically evaluate the relevance, currency, and validity (information literacy) of the suggested materials. Additionally, users can include content from other Scoop.it pages, which is referred to as "re-scooping". Scoop.it therefore relies on an active editorial role undertaken by the user in the selection, or rejection, of content. That is, the owner of a particular collection makes the final decision regarding what will appear on their Scoop.it page. The content is then displayed visually with the collection growing as new content is added. The successful use of Scoop.it depends on the curator's ability to interpret and critically assess digital information. This study is thus built on the premise that the metacognitive processes inherent in the discovery of traditional, non-Web based information are transferable to the digital environment and Scoop.it can, as such, be utilised for the cultivation of digital information literacy skills.

Digital Information Literacy

According to the Laboratory for Innovative Technology in Education at the University of Houston (2013), "digital information literacy" refers to the ability to effectively analyse and evaluate evidence; to analyse and evaluate alternate points of view; to synthesise and

make connections between information and arguments; and to reflect critically, interpret, and draw conclusions based on analysis. Research suggests that the digital information literacy skills of higher education students are inadequate (White; Antonio, Tuffley and Martin) and that further training in how to assess the value, credibility, and reliability of information is required. According to the CIBER's Information Behaviour report (2008), students' often believe that they are information literate (based on their ability to check the validity of sources) and yet, in reality, their methods may not be sufficiently rigorous to qualify. Students may not be adequately equipped with the information literacy skills required to retrieve and critically evaluate sources outside of those that are institutionally provided, such as textbooks and assigned readings.

Moreover, a report by the Committee of Inquiry (Hughes) addresses both the digital divide among students and the responsibility of the higher education sector to ensure that students are equipped with the information literacy skills required to search, authenticate, and critically evaluate material from multiple sources. Throughout history, educators have been teaching traditional literacy skills—reading, writing, finding information in libraries—to students. However, in an increasingly digital society, where a wealth of information is available online, higher education institutions need to teach students how to apply these metacognitive skills—searching, retrieving, authenticating, critically evaluating, and attributing material—to the online environment.

Many institutions continue to adhere to the age-old practice of exclusive use of peer-reviewed sources for assessment tasks (Antonio and Tuffley). We argue that this is an unnecessary limitation; when students are denied access to non- peer-reviewed Web - based resources, they are not developing the skills they need to determine the credibility of digital information. While it is not suggested that the solution is to simply allow students to use Wikipedia as their primary reference point, we acknowledge that printed texts and journal articles are not the only source of credible, authoritative information. The current study is thus built on the premise that students need opportunities to help

them develop their digital information literacy skills and, in order to do this, they must interact with and utilise Web -based content. The desirability of using curation tools for developing students' digital information literacy skills thus forms the foundation of this article.

Method

For the purpose of this study, a group of 258 first- year students enrolled in a Communications for ICT course curated digital content for the research component of an assessment task. These ICT students were selected, firstly, because a level of proficiency with digital technology was assumed and, secondly, because previous course evaluations indicated a desire on the part of the students for technology to be integrated into the course, as a traditional essay was deemed unsuitable for ICT students.

The assignment consisted of two parts: a written essay about an emerging technology and an annotated bibliography. The students were required to create a Scoop.it presentation on a particular area of technology and curate content that would assist the essay-writing component of the task. On completion of the assessment task, the students submitted their Scoop.it URL to the course lecturer and were invited to complete an anonymous online survey. The survey consisted of 20 questions—eight addressed demographic factors, three were open- ended (qualitative), and nine multiple choice items specifically assessed the students' beliefs about whether or not the digital curation task had helped them develop their digital information literacy skills. The analysis below pertains to these nine multiple -choice items.

Results and Discussion

Of the 258 students who completed the assessment task, 89 participated in the survey. The students were asked: "What were the primary benefits of using the curation tool Scoop.it?" The students were permitted to select multiple responses for this item: 69% of participants said the primary benefit of using Scoop.it was "Engaging with my topic",

while 62% said “Learning how to use a new tool”; and 53% said “Learning how to assess the value of Web- based content” was the primary benefit of the curation task. This suggests that the process of digital curation as described in this project could, potentially, be used to enhance students’ digital information literacy skills.

It is noteworthy that the participants in this study were not given any specific instructions on how to assess online information before doing the assignment. They were presented with a one-page summary of what constitutes an annotated bibliography; however, a specific set of guidelines for the types of processes that could be considered indicative of digital information literacy skills was not provided. This might have included the date, for currency; author credentials; cross-checking with other sources etc. It is therefore remarkable that more than 50% of respondents believed that the act of curation had positively impacted their performance on this assessment task and enhanced their ability to critically assess the value of Web -based content. This strongly suggests that the simple act of being exposed to online information, and using it in a purposeful way (in this case to research an emerging technology), can aid the development of critical thinking skills.

The students were asked to indicate the extent to which they agreed or disagreed with a series of eight statements, each of which addressed a specific component of digital information literacy. Responses were presented on a Likert scale ranging from strongly agree to strongly disagree. The students’ responses for strongly agree and agree and strongly disagree and disagree were conflated.

Statement 1: ***The use of Scoop.it helped me develop my critical thinking skills.***

44% of respondents agreed that the curation tool Scoop.it had helped them develop their critical thinking skills and 30% disagreed.

Statement 2: ***As a result of using Scoop.it, I feel I can make judgments about the value of digital content.***

43% of respondents agreed and compared to 22% who disagreed that the curation tool

Scoop.it had helped them make judgments about the value of digital content.

Statement 3: ***As a result of using Scoop.it, I feel I can synthesise and organise ideas and information.***

58% of respondents agreed that curation via Scoop.it helped them synthesise and organise ideas and information, while and 14% disagreed.

Statement 4: ***As a result of using Scoop.it, I feel I can make judgments about the currency of information*****.**

43% of respondents agreed and 21% disagreed that using Scoop.it had assisted them in their ability to make judgments about the currency of information.

Statement 5: ***As a result of using Scoop.it, I feel I can analyse content in depth*****.**

37% of respondents agreed that the curation task had helped them analyse content in-depth. In contrast, 21% disagreed.

Statements 1 to 5 each address a specific component of digital information literacy—the ability to think critically; to make judgments about the value of content; to synthesise and organise ideas and information; to make judgments about the currency of the information; and to analyse content in depth. In response to each of these five components, a greater percentage of students agreed than disagreed that the Scoop.it task helped them develop their digital information literacy skills. By its very nature, Scoop.it generates content based on the key-word parameters entered by the user when creating a given topic. The user is then responsible from for trawling through and evaluating this content in order to make an informed decision about what content they wish to appear on their Scoop.it page. As such, it is perhaps not particularly surprising that the students in this study indicated that the practice of curating content helped them develop their digital information literacy skills. It would, however, be interesting to explore whether or not these students were confident in their abilities prior to undertaking the Scoop.it task, as previous research (CIBER) suggests. Without this information, it is difficult to draw

conclusions about the success, or otherwise, of the curation task for cultivating the digital information literacy skills of higher education students.

Statement 6: ***As a result of using Scoop.it, I feel able to cite Web-based information.***

48% of respondents agreed that using Scoop.it had assisted them in citing Web-based information, while and 24% disagreed.

Statement 7: ***As a result of using Scoop.it, I feel confident in my ability to use Web - based content in my assignments.***

52% of respondents believed that using Scoop.it to curate resources had positively contributed to their confidence in using web-based content for their assignments, compared to 17% who disagreed.

The results of statements 6 and 7 indicate that further instruction in using and citing non-peer-reviewed online resources may be required; however, this will not be possible if higher education institutions continue to mandate the exclusive use of journal articles and textbooks, to the exclusion of other non-peer- reviewed Web-based information, such as blogs and wikis. More than half of the students were more confident using digital information following the Scoop.it task, which suggests that the opportunity to engage with the alternate sources of information generated by the Scoop.it platform (such as blogs and wikis and digital newspapers) encouraged the students to think critically about how such sources can be incorporated into academic writing.

Statement 8: ***As a result of using Scoop.it, I feel I can distinguish between good and bad Web-based content.***

While 38% of students who responded to the survey said that using Scoop.it to curate content had enabled them to distinguish between high- and low- quality information, 25% did not believe that this was the case, and an additional 37% were neither confident nor unconfident about distinguishing between good and bad Web-based content. In keeping with previous research (White), the results of this case study suggest that, while many

students believed that the Scoop.it task encouraged them to think critically about the quality of non- peer-reviewed digital resources, they are were not necessarily confident in their ability to distinguish good from poor content. The implication, as Hughes contends, is that there is a need for educators to ensure that higher education students are equipped with these metacognitive-cognitive skills prior to leaving university, as it is imperative that we produce graduates who can function in an increasingly digital society.

Conclusion

The rising tide of digital information in the twenty-first 21st century necessitates the development of new approaches to making sense of the information found on the World Wide Web. Such is the exponentially expanding volume of this information on the Web—so-called 'big data'—, that, unless a new breed of tools for sifting and arranging information is made available to those who use the Web for information- gathering, their capacity to deal with the volume will be overwhelmed. The new breed of digital curation tools, such as Scoop.it, are a rational response to this emerging issue.

We have made the case that, by using digital curation tools to make sense of data, users are able to discern, at least to some extent, the quality and reliability of information. While this is not a substitute for peer-reviewed, academically rigorous sources, digital curation tools arguably have a supplementary role in an educational context— Perhaps as a preliminary method for gathering general information about a topic area before diving deeper with peer-reviewed articles in the second pass. This dual perspective may prove to be a beneficial approach, as it has the virtue of considering both the breadth and depth of a topic.

Even without formal instruction on assessing the value of Web content, no less than 53% of participants felt the primary benefit of using the digital curation tool was assessing the value of such content. This result strongly indicates the potential benefits of combining digital curation tools with formal, content- evaluation instruction. This represents a promising avenue for future research.

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