Persistence, self-doubt, and curiosity: Surveying code literacy in Digital Humanities

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"Do humanities students need to know how to code?" Less than a decade ago this was a sincerely provocative question not just in the humanities but even within digital humanities (cf. Kirschenbaum, 2009; Ramsay 2013a, 2013b). At present digital humanists seem to agree that knowing how to code is relevant, if not essential for DH research (cf. inter alia Klein 2020). The community ponders if coding can be called "the new literacy".[1] This prompts the question: what do we mean by "code literacy"? Is it knowing how to add markup to texts, being proficient in a general purpose programming language, knowing how to apply statistics in R, or rather having a high-level understanding of data structures? To date, various researchers have tackled this question, presenting valuable insights that are often based on their own experiences with teaching digital humanities courses or with working in a digital humanities context (e.g. Van Zundert, Antonijević, and Andrews 2020). However, a broadly informed evidence-based examination of the meaning and status of code literacy in the humanities remained a desideratum. With the, to our knowledge, largest ever survey on code literacy and related questions in the field, we hope to fill this gap. In our paper we present a number of preliminary findings from this survey. An exhaustive analysis augmented with qualitative interviews with respondents will be presented in a follow up research article.

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[1] See also Callaway et al. (2020) for an overview of the topics discussed within the DH community over the past ten years; paragraphs 3,6, and 13 discuss the topic of "code". A search engine query for "code" AND "literacy" will provide a good insight into how widespread this discourse is meanwhile (also outside of digital humanities).

The "Code literacy" survey ran from October 15th, 2020 to January 31st, 2021. It was widely distributed to international (digital) humanities mailing lists, research institutes, universities, and via several influential social media accounts. Within these three-and-a-half months, 399 complete responses were retrieved.[2] The survey was designed using a post-positivist approach, mindful of the inevitable effect of our own biases (Ryan 2006). For example, respondents were first asked to define code literacy and to answer several questions with their own definition in mind, before we provided them with our definition. The survey was set up accordingly: after providing some personal background, respondents were invited to answer four sets of questions. Each set addressed issues that related to one of our following research questions:

1. What are the definitions and interpretations of code literacy across humanities disciplines?
2. How important is code literacy as part of digital humanities scholarship?
3. How can we effectively approach the teaching and training of code literacy?
4. How can scholars (be supported to) incorporate code literacy in their research practice and methods?

The survey reveals a large diversity as to the current position, background, and career stage of the respondents. This information allows among others for a cross tabular analysis regarding background, education, and opinions about code literacy. The largest part of the respondents (64%) currently considered themselves to be part of the academic world; 42% of them had been so for nine years or more. Many reported a background in Language and/or Literary Studies (35%) or History (35%).

When asked about the role of code literacy in their current work or studies, over half of the respondents stated that being code literate was "very important" (20%) to "crucial" (34%). Less than half of the respondents were "dissatisfied" (19%) or "slightly dissatisfied" (26%) with their level of code literacy. Respondents noted that they were able to read code written by others, but wished to be able to write code as well. Some reasons given for being unsatisfied were a lack of

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[2] The survey responses were collected anonymously. As one of our aims was to create a reliable data set, an aggregated version of the survey data set will be published according to the Open Science protocol in Zenodo, so that others can reuse our data set or survey questions, and/or replicate our analysis.

resources (personnel, time, space, or freedom) to properly start learning or catching up on coding skills. While almost all respondents (90%) stated that they wanted to expand their coding skills, the largest barrier to expanding code literacy is indeed "not having enough time (58%)". More than half of the respondents found that code literacy should be a requirement for DH research. With almost all respondents (94%) agreeing that code literacy should be part of the DH curriculum, the issue of whether you need to be able to code as a digital humanist would seem to be settled.

The 399 definitions provided by the respondents give us great insight in the breadth and depth of code literacy, combining many aspects of theory on code, the practices of creating, using and communicating about code, and how it relates to DH research. Moreover, analyzing and ordering the mentioned aspects provides us with definitions that suggest a curriculum of code literacy with different learning paths for those who wish to improve their code literacy. The practical contributions of this survey are twofold: based on our findings, we can provide the community with a community-inferred vocabulary to discuss code literacy, and work toward the construction of a scale of proficiency to help shape future DH curricula. However, as we will explain in our presentation, our data also shows that what should be taught under the label of "code literacy" remains a topic of debate.

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