Programming in the Digital Humanities

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Abstract

This article presents a selection of findings from a survey-based study on the role of software development and programming in the Digital Humanities, disseminated to researchers, teachers, and practitioners from across the community.

1 Introduction

Digital Humanities remains something of an embryonic field, with precise definitions of its multifaceted aspects still very much open to debate. The role of software development in our construction of 'the digital humanist' has proved particularly problematic, with scholars divided on the extent to which Digital Humanities scholars should be actively engaged in programming. Using both quantitative and qualitative methods, this article seeks to present a diverse range of perspectives from within the Digital Humanities community, all of which address the question so famously posed by Stephen Ramsay: 'Do you have to know how to code?' (Ramsay, 2011). By surveying active members of our community, this article presents findings on development practices within Digital Humanities scholarship. In taking such an approach, we are not seeking to offer a novel definition of the field, but rather, present some objective findings on relevant attitudes in relation to development within Digital Humanities projects, and how such technical activities are being approached. In essence, this survey might be seen as a community response to Ramsay's provocation.

2 Methodology and Key Findings

Our survey, which comprises a series of quantitative and qualitative questions, has a total of ninety-six participants, all of which identify as being actively engaged in digital scholarship. The purpose of these questions is to establish, firstly, the level to which Digital Humanities scholars are actively programming, and secondly, how they view the importance of such activities. Questions are divided between two general types: those which ask respondents to give their views on the relevant issues, and those which challenge users to explain their understanding of generic technical details. The purpose of the latter is to help discern if Digital Humanities scholars can demonstrate an appreciation of some of the fundamentals associated with programming. Considering the population of interest, all of our respondents were either participants at the Digital Humanities Summer Institute, or active subscribers to the Humanist mailing list. We do believe that this is a valid data set, as drawing from these groups allows for a controlled sample of respondents, all of which have, through their connection to the aforementioned communities,

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some awareness of the field. Future studies might benefit from an increase in the volume of demographics gathered, as well as a broader population. The key findings to emerge are as follows:

2.1 Age

Filtering respondents by age presents an interesting correlation between the scholarly practices and what are often perceived as 'generational differences'. The commonly held notion of the digital native suggests that a new generation of scholars is transforming the academy as a result of their increasing familiarity with technology. Our results demonstrate that this is a misplaced assumption, with the responses from our 25–35, 35–50, and 50+ age range offering some interesting points of comparison. Surprisingly, only two respondents are in the 18–25 age range. In particular, when asked if 'software development is an element of Digital Humanities scholarship', the majority of respondents over 50 years 'strongly agree' (see Fig. 1). This contrasts with the other two groups, the majority of which only 'agree' with the aforementioned statement.

When asked to indicate 'the type of development practices with which they are most frequently engaged' (see Fig. 2), the majority of the 50+ age group state that they do most of the programming themselves, while the majority of the remaining groups either contribute an equal amount to collaborative developments, or have other individuals do the bulk of the project's coding.

Our findings suggest that the sense that established 'senior' scholars are more entrenched in traditional views is naïve. The general expectation is that younger scholars, as a result of their perceived familiarity with technology, are more inclined to execute the technical aspects of projects themselves. Our findings demonstrate that the opposite is the case, with the 50+ age group being the most technologically self-sufficient.

There are some interesting interpretations on academic culture to be teased out here. These findings could arguably be the product of younger scholars having been trained in interdisciplinary environments, and thus having a genuine appetite for collaboration, with the older generation indicating that they prefer a 'traditional', more isolated approach to research. Alternatively, younger scholars may not be as technically proficient as many commentators suggest. The 'new nativity' of Marshall McLuhan's digital adepts, as Alan Liu puts it (Liu 2008), may be 'born again', but their technological conviction should not be confused for technical proficiency. Technological ubiquity has led to a new generation of scholars who are increasingly familiar with consumer electronics and intuitive graphical interfaces, but our results suggest that these scholars are avoiding more complex technical challenges. The new generation of scholars comes equipped with an arsenal of gadgetry, the majority of which are operated using an intuitive interface. There is a marked distinction between 'using'

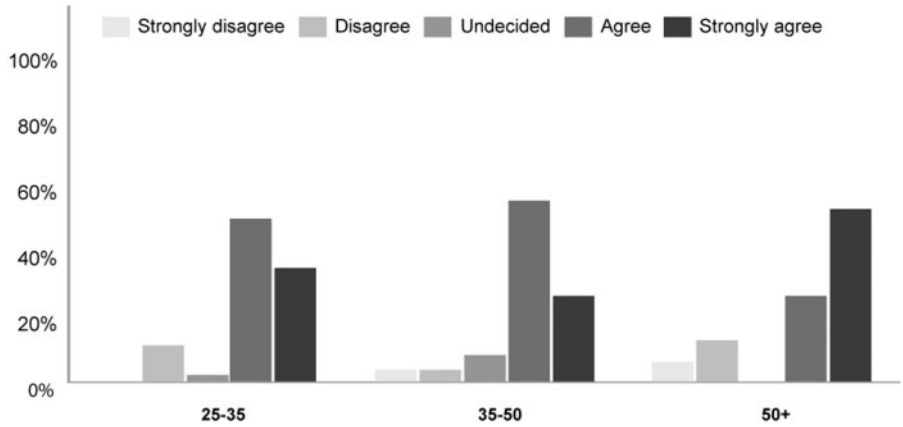

Fig. 1 Software development is an element of Digital Humanities scholarship

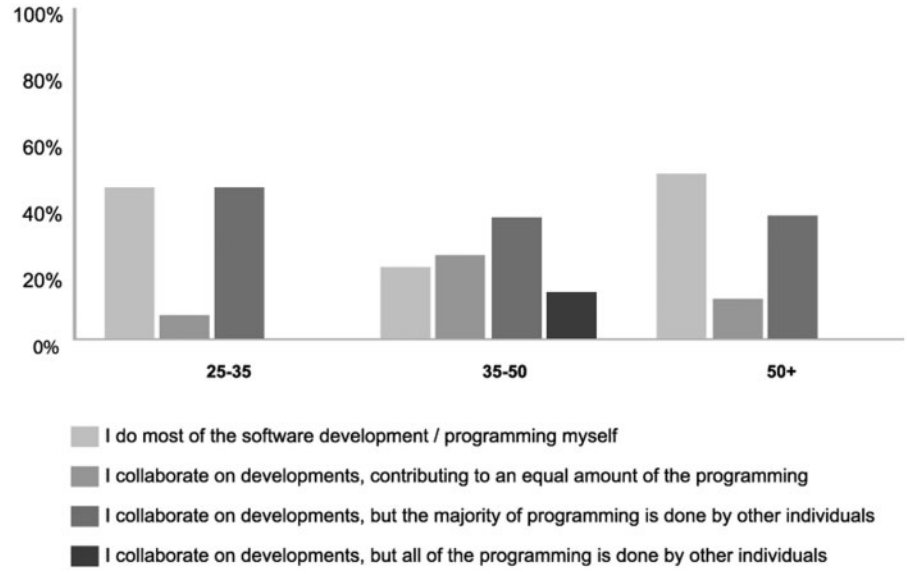

Fig. 2 Development practices (by age)

technology and 'understanding' technology, a distinction which, while often blurred, is emphasized by our findings. This is supported by a later question, which finds that, of the 25–35 age group, the majority of respondents admit to not considering themselves technically proficient. These results might also be representative of a changing academic culture, whereby students are demanding increasing support from their institutions. In the relevant qualitative portions, it is clear that this age group connected 'learning' to 'privilege', in the sense that technical expertise are reserved for scholars with access to appropriate support from their universities. The older groups, conversely, cite the need for scholars to pursue independent development of their technical skills.

2.2 Gender

There are few distinctions between respondents when separated by gender, the only significant finding being in relation to the use of software development as an element of one's work. Considerably, more males claim that software development is an aspect of their day-to-day, and furthermore, self-identify as being technically proficient. This survey, of course, is no indication that this is actually the case, although there are a higher proportion of male respondents possessing formal qualifications in technical subjects. It would be worthwhile comparing these results with data from wider technical disciplines and industries, to see if they are merely a symptom of a wider academic context, and the problem of women being underrepresented in the STEM disciplines. This is a whole other debate, which is already on-going and fruitful (Bailey, 2011; Nowviskie, 2012; Posner, 2012). In explaining this discrepancy, one might also point to literature which contends that women tend to underestimate their technical competencies (Henwood *et al.*, 2000).

2.3 Collaboration

When all respondents are taken as a single set, the key theme to emerge from both the qualitative and quantitative data is 'collaboration'. Most significant in this respect is the way in which respondents with technical expertise express a conscious desire to understand the requirements of Humanities scholars (see Fig. 3), while Humanities scholars acknowledge that they have a responsibility to develop the understanding and vocabulary necessary to communicate with colleagues from technical disciplines (see

Fig. 4). Admittedly, this is somewhat surprising, as we had expected collaborators with differing skill sets to express a vested interest in their own areas. These results are arguably a product of the sample population, which is comprised of scholars who consider themselves to be working within the Digital Humanities community. However, what it demonstrates, nonetheless, is that there is a genuine desire for collaboration within the discipline, and that this desire is supported by an awareness of the differing expertise, requirements, and mindsets that need to be accommodated throughout the collaborative process.

2.4 Leadership and project management

It is clear from the activities of respondents that Humanities scholars are managing digital projects. Of those respondents that stated they had worked on a digital initiative, the majority did so in a project management capacity (see Fig. 5).

The negative reading of this particular finding would be that Humanities scholars interested in pursuing computational methodologies and practices are overly reliant on support from the technical disciplines. We do not believe this to be the case, and see this is a positive finding, as it suggests that technology is being used to support the agendas of the Arts and Humanities, rather than dictating what such agendas might be. Humanities scholars might not be directly contributing to the development of projects from a technical perspective, but they are ensuring that the deliverables are aligned with a vision that supports the cultural and humanistic purpose of this interdisciplinary field. A certain level of technical competency is still required if Humanities scholars are to have credibility in the eyes of, as well as an ability to communicate with, their collaborators, but these results suggest that this is indeed the case, and that scholars from traditionally non-tech nical disciplines are taking a leadership role in digital projects.

2.5 On building

Of the scholars surveyed, only a small 52.1% majority of respondents claim that programming is an aspect of their work. Within this group, the qualitative data suggests that there is considerable disagreement as to what constitutes 'programming'. Many of the respondents outline activities such as markup languages, particularly HTML and XML, as opposed to more sophisticated dynamic programming languages. When asked in a later question to explain the distinction between these languages, a significant level of ambiguity is evident. This could simply be a reflection of the activities of the Digital Humanities community, where markup languages are prominent. Alternatively, it could be a reflection of the collaborative nature of the field, with Humanities scholars passing off the technical aspects of projects to other parties. Either way, these findings do present something of a worrying trend, in that the minimum requirement for scholars working in this field should be

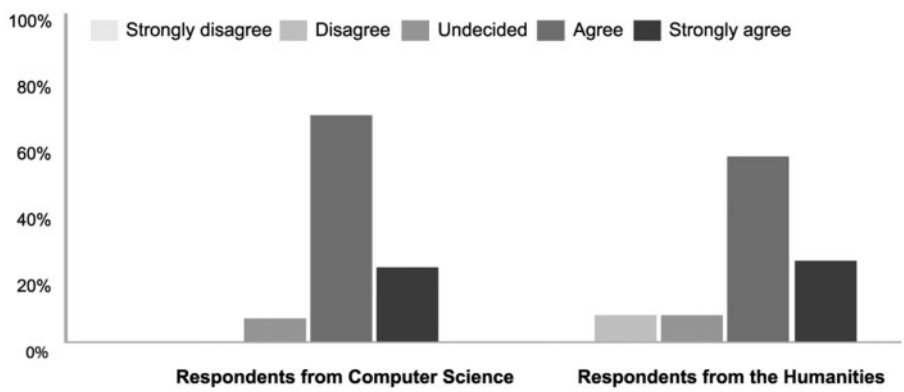

Fig. 3 Technical experts have a responsibility to gain familiarity with Humanities scholarship

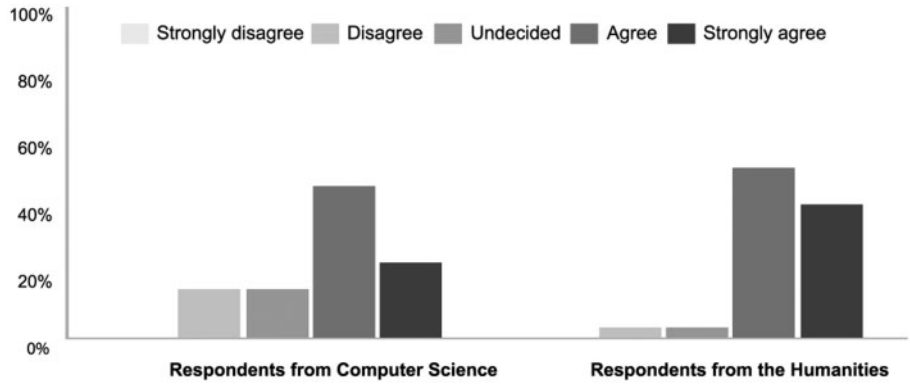

Fig. 4 Humanists have a responsibility to improve their technical understanding

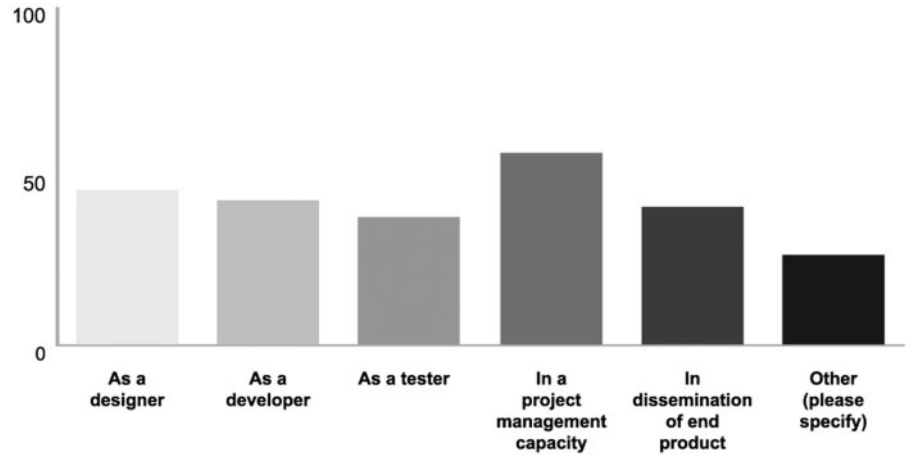

Fig. 5 The activities with which respondents are most frequently engaged

that they at least have an understanding of the difference between a markup language like XML, and a more sophisticated programming language such as Python. One could interpret these results as a negative response to another famous provocation, this time put forward by John Unsworth (2002).

3 Conclusions

While our sample size is insufficient to make any conclusive statements on cultural differences, there did appear to be a minor distinction between North American and European participants, the latter placing more weight in the importance of artistic skill sets to digital projects. Generally, however, all of our respondents, both with Humanities and technical backgrounds, see the Humanities as being more important than 'the digital'. Yet, across the qualitative data, there is a clear acknowledgement that collaborators from the technical disciplines need to be treated more like stakeholders than enablers. This correlates with an earlier survey (Schreibman and Hanlon, 2010), in which the 'majority of respondents (94%) considered tool development a scholarly activity'. This is promising, in that it suggests that Digital Humanities scholars not only see value in the creation of tools and resources, but that they value the contributions of developers who can make that happen.

Overall, there is one clear trend to emerge from these findings—collaboration is central to our field. Whatever this field may be, and whatever it may become, its existence will always be dictated by the scholars which comprise our community. How much coding these scholars need to know may still be a matter for debate, and there are numerous considerations that this limited survey has not accounted for, but, from this initial report, it would seem clear that Ramsay's question has an answer: You do not 'have' to code, as long as you can work—effectively—with someone who does.

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