

Literature, Law, and Learning: Excursions from Computer Science

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ABSTRACT

With the goal of identifying success factors for interdisciplinary collaboration, this paper describes three such collaborations by a computer scientist with: a digital culture researcher from a literary background; an IT law professor; and an education specialist with a background in modern languages. Success factors are discussed for each collaboration and four success factors are suggested: shared context between researchers; strong communication; shared context between disciplines; typology of collaboration.

Categories and Subject Descriptors

H.5.4 [Information Interfaces and Presentation]:
Hypertext/Hypermedia

K.3.1 [Computers and Education]: Computer Uses in Education

General Terms

Design, Human Factors, Theory.

Keywords

Interdisciplinarity; computer science; digital culture; literature; law; education; modern languages; communication; web science; collaboration.

1. INTRODUCTION

This paper describes three experiences of interdisciplinary collaboration, in which a computer scientist worked with experts in the contexts of 1) research into digital culture, 2) IT law and 3) education. The typology of collaborations varied, including 1) design and execution of an experiment to understand experience of computer systems, 2) organising and running a shared panel, and 3) collaboration to analyse experimental data. These experiences span different research fields and activity types.

Section 2 describes the three experiences and Section 3 discusses factors that may have influenced the success of each collaboration. Finally, Section 4 presents initial conclusions.

2. COLLABORATIONS

2.1 Literature

The first collaboration was between a computer scientist and a digital culture researcher from a literary background. The

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collaboration consisted of provision of a computer science method for understanding experiences of computer systems, joint execution of the method and sense-making of the results.

This work responded to two research needs: the computer scientist sought real-world case studies trialling a method for experience analysis [2], while the digital culture researcher wanted to better understand the motivations and experiences of people using playful geosocial services. The two researchers proceeded thus:

- 1) Recruitment of self-identified expert users of two services of interest (Gowalla, a FourSquare-like geosocial network with which users can ‘check in’ to a location; geocaching, a collaboratively organised scavenger hunt),
- 2) Applying the experience analysis method with these expert users during two focus groups,
- 3) A sense-making meta-analysis phase, in which the two analyses from step 2 were analysed in conjunction with one another and other frameworks to gain fresh insight.

No issues arose during this successful collaboration, which led to a workshop publication [4].

2.2 Law

The second collaboration was between a computer scientist and an academic lawyer from an IT law background. The collaboration consisted of working together to arrange a panel on the topic of locational technologies and their implications for privacy, legislation and interaction design [1]. The four panellists came from law and computer science backgrounds.

The audience gave positive feedback; the panel was successful. One issue arose, however: although the panel was organised months in advance, a day before it was due to take place it became clear that the computer scientist and lawyer had different understandings of what a panel is. In law, relatively little time within a panel is allocated for questions and answers (typically 15 minutes of a 75 minute panel¹), with most of the time split between panellists who present papers. By contrast, many computer science panels see panellists speaking for five to ten minutes to give their position before opening to the audience for a discussion that can take more than half of the allocated time.

In the event, the panel was run in the law style, with 40 minutes for the panellists to speak in turn and 10 minutes for questions and answers.

2.3 Learning

The third collaboration was between a computer scientist and a modern languages specialist working in the area of education, specifically modern language learning. In this collaboration, the

¹ See comments at:

clarehooper.wordpress.com/2011/06/29/multidisciplinary-fun/

two researchers worked with a corpus of data from an evaluation of an instrumented kitchen designed to teach English speakers French. The corpus contained sensor logs, audio and video recordings and responses to questionnaires from 23 pairs of participants using the kitchen to prepare pear clafouti, a French dessert. The researchers worked together to understand how best to analyse this data, eventually choosing to use Conversation Analysis (CA) to analyse learning interactions based on progress towards recipe completion and language learning: CA is a multi-disciplinary qualitative technique used to analyse spoken interactions [5].

This successful collaboration led to a conference publication [3]. In contrast to the collaboration with the literary researcher, the researchers had to work hard to understand the methods from one another's backgrounds. For example, the computer scientist needed time to understand CA, while the linguist found it difficult to use TAMS Analyzer, the tool used to assign codes to the transcribed text of kitchen interactions.

3. SUCCESS FACTORS

The first of the three collaborations is notable for the ease with which the work proceeded: no issues arose. It is of note that the two researchers, although from different disciplines, had the shared context of a cross-disciplinary conference series that both were familiar with. It seems likely that this shared cross-disciplinary context, which prepared both researchers for the collaboration, is a success factor.

An issue arose in the second collaboration around different meanings associated with 'panels'. The lawyer later noted that academic law mostly involves developing an argument or critique (rather than describing a phenomenon, application or result), and that panels typically involve presentation of an academic law *paper*, not (as in computer science) presentation of the *position* of the panellist. The researchers organised the panel ahead of time from different geographic locations, and this distance, which probably hindered communication precisely how the panel would unfold, suggests that co-location or some other way to facilitate communication is a success factor.

The third collaboration was notable for the hard work required by the researchers to understand not only one another's methods and communication conventions, but entire epistemological backgrounds. The researchers invested a good deal of time into face-to-face communication to build mutual understanding, and it is likely that this face-to-face communication was a significant success factor.

It seems likely that the relationship between different disciplinary fields also affects success. For example, collaboration between a computer scientist and a network scientist may be easier than between a network scientist and an artist due to the greater shared context (e.g. technologies, methods, epistemologies) experienced in the first scenario. However, no strong impact on collaboration due to the nature of the fields is evident in the above three examples.

The form of collaboration may also impact success: organising a panel or other event is a different kind of activity to running an experiment or analysing a corpus of data. Again, the small number of experiences collected here does not include enough information

to signpost what kind of impact the typology of an interdisciplinary collaboration has on its success.

Table 1 distils these success factors.

Success Factor	Evidence
Shared context between researchers	Case study 1 (positive impact from factor)
Strong communication (i.e. from setting expectations, defining outcomes, or co-location)	Case study 2 (negative impact from absence of factor) Case study 3 (positive impact from factor)
Shared context between disciplines	Hypothesised only
A particular typology of collaboration	Hypothesised only

Table 1. Success factors for interdisciplinary collaboration

4. CONCLUSIONS

This paper has described three interdisciplinary collaborations, involving a computer scientist working with experts in literature, law and education. The typology of these collaborations was as diverse as the disciplinary fields, ranging from event organisation and data analysis to the planning, execution and analysis of two experiments. Four success factors have been suggested based on the collaborations: two of these are hypothesised, meaning that future work may involve investigation into these factors. Another area of future work is success factors for interdisciplinary collaborations between research and practice.

5. ACKNOWLEDGMENTS

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