

At the Boundary of CSCW, OS and STS - How to approach research questions emerging in the area of FLOSS?

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The modularity of FLOSS and the way(s) it is produced provide a stimulating and exciting space to discuss software development, collaboration, and wider ICT issues within a multidisciplinary context. The importance of multidisciplinary research in pursuing FLOSS studies has been well-recognised in both academia and industry alike. Publications in books or scientific journals are observed to offer discussions from different disciplines and perspectives. At the Linux or related open source conferences, social, legal and economic issues are raised along with technical ones. The emergence of FLOSS studies allows a variety of approaches, experiences and epistemologies to interact with one another.

Although multidisciplinary has been proposed to tackle the diversity, hybridity and unavoidable complexity emerging in the FLOSS development, most existing approaches remain static and linear, not capable enough of capturing and analysing changing, emergent and dynamic processes of technological development. Besides, multidisciplinary also requires researchers and practitioners to be more erudite and knowledgeable of discussions in various disciplines. Such rising challenges also reflect a wider concern in academia when facing the more and more competing and complex world. Common questions include: How should academic react to this call for multidisciplinary research? How should academic pursue collaborative research? How can we engage and integrate different theories and methodologies in various disciplines to conceptualise and provide policy-oriented suggestions to FLOSS?

In this talk, I will firstly brief what current FLOSS studies have achieved with the (conceptual and analytical) tools from social sciences (economics, philosophy, sociology). Then, I will talk about the challenges and new opportunities we social scientists face at the moment, with a particular focus on practice-based CSCW, OS and STS. This talk is anticipated to provide a comprehensive review of the interdisciplinary approaches, to formulate theoretical assumptions, and to design empirical studies.

Having said that, the challenge I would particularly like to address in this talk is a methodological one. Current FLOSS studies from the many social sciences perspectives have been mainly led by quantitatively oriented research. Statistical data collected from large-scaled surveys such as the EU FLOSS survey¹ (Ghosh & Glott, 2002), the FLOSS-US survey² (David et al. 2003), and the FLOSS-JP survey³ (Hiyane et al. 2004) has proved to be important to our understanding of the FLOSS development. Results from these surveys are quoted in scholarly papers, industrial or governmental policy documents. And one of the most popular issues explored in these surveys is mapping

1 <http://www.infonomics.nl/FLOSS/index.htm>

2 <http://www.stanford.edu/group/floss-us/>

3 <http://oss.mri.co.jp/floss-jp/index-en.html>

motivations of participating in the FLOSS development.

In recent years, FLOSS becomes an intensely researched environment. A lot of participants (particularly Debian Developers) are suffering from survey-fatigue. "People no longer treat it as an honour to be asked their opinion, but instead are more likely to see it as a nuisance". The falling response rates have made doing an accountable qualitative survey research more difficult.

Furthermore, like most quantitative research, although the survey data helps to get an essential demography and frequencies of activities in the FLOSS field, the epistemological and ontological assumptions behind the design of the questionnaires contribute little to explain some qualitative issues in the FLOSS field (e.g. interactions between users and developers across communities, power relationships in communities, dynamics in community-based decision making processes, changing motivations, mobility and shifting identity, etc.). A major reason of this is because survey questionnaires are heavily based on (and almost unquestioningly re/presented by) a static and (or) dogmatic discourse (e.g. on 'freedom' and on 'hacker culture') advocated mainly by a homogeneous group of people (most of whom are male protagonists and coders) in FLOSS. The data collected therefore only reflects a one-sided explanation of the FLOSS phenomenon. The reliability of quantitative data should be challenged because of such biased, stereotyped (but widely accepted) proposition of the design of survey questionnaires. Even if I consider continuing to conduct large-scaled surveys to be crucial for the reason that accumulated longitudinal data would help get a sense of socio-technical change in the FLOSS field, current quantitative methods still cannot provide a more qualitative analysis of dynamic and emergent processes stimulated by heterogeneity and inequality.

One might argue that there have already been plenty of researchers conducting FLOSS studies using qualitative methods such as interview, case study, and ethnographic observation. These qualitative studies to some extent balance the situation mentioned earlier, and contribute to our understanding of dynamics in FLOSS development processes. However, a lot of them are still derived from the propositions informed by monolithic discourses on voluntarism/gift culture or coding-oriented expert-driven software production. And the interview acceptance rate does not look more promising than questionnaire response rate.

Being aware of this, I argue that both qualitative and quantitative research in current FLOSS studies require an epistemological and ontological turn to adopt STS-inspired, practice-based, participatory and reflective methodologies. The solution we need is no longer just about adopting a combination of qualitative and quantitative approaches since both the numerical measurement and discursive explanation can be dubious; both data collection processes can be time-consuming and energy-demanding. This is no longer about which method is superior as we usually fall into a qualitative-quantitative dichotomy. This, as I will argue emphatically, is about a shift of methodological paradigm in the ordering of fast technological innovation and sophisticated communications between diverse actors and actants (artefacts) across multiple cultural, organisational, and technical boundaries.

Whilst terabytes of data are generated through online human communication, human-computer and machine-machine interactions (this is parallel to what Savage and Burrows (2006) term

'transactional data'), the pressing question is how can we utilise, analyse and make sense of this huge amount of data without investing too many resources into data collection. Facing the rapid mobilities and emergence in today's techno-society (e.g. new technological innovation, quick adoption/abandon of new/old technologies), how can we go beyond traditional methods to achieve theoretical and methodological breakthroughs?

I see an opportunity for FLOSS scholars to achieve this. The openness of the FLOSS field has stimulated unprecedented complexity and dynamics that require multidisciplinary to comprehend. It is exactly these extreme complexities and dynamics that motivate us to make the shift in a more proactive way, to reposition ourselves as boundary knowledge workers, rather than solely academic sociologists or economists. Doing FLOSS studies is practising cross-boundary activities in both online and offline environments. We interact with not only a variety of people (interviewees, respondents, informants, fellow researchers), but also a variety of technologies (FLOSS tools) and theories (in CSCW, OS and STS). We need to educate ourselves with multiple arrays of discourses, arguments and skills so as to make contact with diverse actors in this field, to develop a sense of empathy towards different social and technical practices, to be informed of emergent terms, technologies, languages and groups. We need to reflect on what we have learned, contemplating how our research practices and identities have been altered, and turn/translate this into scholarly languages (no matter in OS, STS, or CSCW etc.) that will in turn revolutionise existing theories, and possibly the way(s) FLOSS is produced.

Author's Bio:

Yuwei Lin, Taiwanese, holds a PhD in Sociology from the University of York. Her PhD research investigated the heterogeneity and contingency in the Free/Libre Open Source Software (FLOSS) social world, which is based on a constellation of hacking practices, from the sociological perspective. Her principal research interests centre on free/libre open source software (FLOSS) studies, science and technology studies (STS), digital culture and virtual communities, human computer interaction (HCI), digital divide, and gender and ICT. Her research is mainly based on qualitative research methodologies and methods including on-line and off-line ethnographic observation, in-depth interview, and narrative analysis. Yuwei works as Research Associate at the ESRC National Centre for e-Social Science at the University of Manchester. Apart from her academic career, Yuwei also actively participates in the practical world of FLOSS. She covers Linux-related events for the Linux Magazine <<http://www.linux-magazine.com>>, and speaks at various Linux-related conferences. For more information about Yuwei please visit her website at <<http://www.ylin.org>>.