Examining Graduateness through Narratives

Sebastian Dziallas
School of Computing
University of Kent
Canterbury, CT2 7NF, England
sd485@kent.ac.uk

ABSTRACT
Graduateness as a concept describes attributes that all graduates should have developed by the time they leave university. In my work, I take a different view and explore graduateness as constructed through graduates' individual narratives.

Categories and Subject Descriptors
K.3.2 [**Computers and Education**]: Computer and Information Science Education – *computer science education.*

Keywords
Qualitative Research, Narrative Methodology, Graduateness

1. PROGRAM CONTEXT
I am currently in my second year of the computer science PhD program at the University of Kent and will enter my third year in September. At this point, I have conducted hour-long interviews with 35 graduates from the School of Computing and begun analysis of interviews with a subset of participants who completed a "year in industry". Going forward and into the fall, I plan to explore the entire set of interviews for themes and trajectories.

2. CONTEXT AND MOTIVATION
The effects of higher education are often described in terms of students' individual development and specific socio-economic outcomes. Part of the discussion surrounding graduate outcomes is the term *graduateness* which is used predominantly in the UK to describe a set of generic skills that all graduates should (or will) have attained by the time they graduate. [4] But graduates from different institutions and in different disciplines do not necessarily develop the same kind of attributes. For instance, in computer science, graduates have to be able to adopt to changing disciplinary knowledge and work environments post-graduation.

Definitions of graduateness have in the past focussed on specific knowledge and skills, such as problem-solving and communication skills. In this work, I intend to expand the definition of graduateness to include other aspects of practice, such as graduates' own interpretation of what it means to engage in disciplinary activities.

3. BACKGROUND & RELATED WORK
My previous submission to the Doctoral Consortium focussed on

the narrative methodology I employ in my research. [2] Here, I want to instead consider relevant work within the wider ICER community.

Begel and Simon, for instance, explore the experiences of recent graduates who are in their first positions as software developers. [1] Through direct observations of participants at work and reflections (which participants recorded as video diary entries), they identify issues recent graduates face in working as part of larger teams and on legacy codebases. They also suggest instructional techniques educators at university may use to alleviate these issues.

In contrast, McCartney and Sanders focus on students' development at university. They conducted yearly interviews with 12 undergraduate students in computing as part of a longitudinal study to explore their professional identities. In their work, they describe the cases of two participants in detail and examine the way *critical incidents* that occurred during their time at university affected their experience. [8] These incidents fall into two distinct categories: events relating to coursework and to work and employment beyond university.

The work of McCartney and Sanders, as well as that of other researchers working to explore student development in (and as a result of) university, centers on identity. Sfard and Prusak provide a perspective that explicitly connects learning to a person's identity. They propose a framework consisting of *actual* and *designated* identities and argue that learning "closes the gap" between the two. [11] For them, identities can be equated with the collective stories about a person. For Mary Juzwik, who draws on and proposes a revision to their work, it is instead the *life story* – on which I rely in my work – that forms a person's identity and reflects their own, continually evolving view of who they think they really are. [6]

4. PROBLEMS, GOALS, AND METHODS
The overall goals of my study have not changed significantly over the past year. [2] I am still looking to explore how graduates from the School of Computing at the University of Kent make sense of their computing education within their wider learning trajectories (and what this reveals about their graduateness). And methodologically, I still rely on life story approaches developed by McAdams and others. [7] Elliot Mishler writes that "[u]nderstanding identity formation through analysis of life stories requires a critical vantage point that contextualizes the individual life course – culturally, socially, and historically." [9] I have already worked to explore the historical context (within the computing discipline) of my participants' life course through my work on the development of the ACM curriculum reports. [3] Culturally and socially, I follow Phil Hammack, who uses the term *master narrative* to describe cultural scripts against which we position stories of our individual experiences. [5]

One aspect of my research that has evolved over the past year and that I want to focus on here is the approach I plan to take in presenting and analyzing my work. My approach is inspired by Elliot Mishler's work on the identity of craft workers. In his book *Storylines*, he use a case-centered method to focus on specific aspects of his participants' narratives (such as how they originally became involved in craft work). He explores "similarities and differences among intra-individual or intra-case patterns of change," rather than across groups of individuals. [9] In my work, I plan to adopt a similar approach that allows me to highlight nuances in individual cases beyond surface similarities.

This approach stands in contrast to predominantly quantitative approaches. I am not concerned with how *much* graduateness a graduate has "achieved" on a quantifiable scale by the time they leave university. Indeed, such a metric would not be able to describe the idiosyncrasies of my participants' lived experiences.

My approach is also different from traditional qualitative methods of analysis, such as grounded theory, where researchers aim to establish common themes through multiple readings of data, develop coding schemes in the process, and, in some cases, ultimately quantify these themes. Such work generally relies on individual text segments which are coded and presented. However, in the context of my work, this approach is problematic for two reasons. First, by sharing their life story a person is making a series of identity claims. These identity claims are open to interpretation by the audience. Removing them from the context of the interview then affects our interpretation as researchers. As Mishler writes, it removes limits on interpretation and "allows us to do too much with too little." [9] Second, traditional qualitative methods do not always preserve the wider trajectories in the participant's narrative. But one of the goals of my work is to explore students' conception of their learning experiences within their wider learning trajectories: I am not concerned with a generic construction of graduateness which all graduates develop regardless of their individual experience and instead view graduateness as a construct that emerges longitudinally and in reflection. Thus, these trajectories are of particular interest to me. As Scutt and Hobson observe: "Allowing individual narratives space further allows us to recognize that if something is happening among a group of people, the same thing is not happening to each person. This is a vital insight for educational research." [10]

In terms of analytical frameworks, I currently plan to engage with the work by Shove et al. [12] They divide *practice* into three components: materials, competence, and meanings. For them, materials are "things" (including tangible artefacts, but also technologies); competence refers to skills and knowledge; and meaning broadly describes the "social and symbolic significance of participation," which includes the sense we make of our experiences. Practices are constituted when all three aspects are linked. Within this framing, I am interested in how the different elements evolve in graduates' narratives and in the role of meaning in relation to the other elements.

5. DISSERTATION STATUS
In addition to the work I completed during my first year (reviewing work on narrative methodologies and exploring the changing context of a computing education over time) I have now collected data. And in a publication currently under review I have, together with my supervisor, analyzed aspects of graduateness through the lens of the year in industry experience. Preliminary

findings suggest that narratives provide a fruitful means of examining graduates' own construction of their graduateness.

I expect that the methodology, the historical context of computing curricula, and the examination of the year in industry will each become a chapter in my dissertation. As I continue over the summer with the analysis of the interviews I conducted, I expect that further aspects of graduateness will emerge.

6. EXPECTED CONTRIBUTIONS
The contributions of this work are twofold. First, it provides insight into graduates' conception of graduateness and the wider effects of a specific computer science department on their lives beyond short-term outcomes. It may also indicate specific (and otherwise unapparent) aspects of practice that can be distilled into guidelines and recommendations for other departments. Second, the narrative methodology I use here may prove useful not only in this work, but also in other computing education research efforts.

7. REFERENCES
[1] Begel, A. and Simon, B. 2008. Novice Software Developers, All over Again. *Proceedings of the Fourth International Workshop on Computing Education Research* (New York, NY, USA, 2008), 3–14.

[2] Dziallas, S. 2015. Characterizing Graduateness in Computing Education. *Proceedings of the Eleventh Annual International Conference on International Computing Education Research* (New York, NY, USA, 2015), 257–258.

[3] Dziallas, S. and Fincher, S. 2015. ACM Curriculum Reports: A Pedagogic Perspective. *Proceedings of the Eleventh Annual International Conference on International Computing Education Research* (New York, NY, USA, 2015), 81–89.

[4] Glover, D. et al. 2002. Graduateness and Employability: student perceptions of the personal outcomes of university education. *Research in Post-Compulsory Education*. 7, 3 (Oct. 2002), 293–306.

[5] Hammack, P.L. 2008. Narrative and the Cultural Psychology of Identity. *Personality and Social Psychology Review*. 12, 3 (Aug. 2008), 222–247.

[6] Juzwik, M.M. 2006. Situating Narrative-Minded Research: A Commentary on Anna Sfard and Anna Prusak's "Telling Identities." *Educational Researcher*. 35, 9 (2006), 13–21.

[7] McAdams, D.P. 1997. *The stories we live by: personal myths and the making of the self*. Guilford Press.

[8] McCartney, R. and Sanders, K. 2015. School/Work: Development of Computing Students' Professional Identity at University. *Proceedings of the Eleventh Annual International Conference on International Computing Education Research* (New York, NY, USA, 2015), 151–159.

[9] Mishler, E.G. 2004. *Storylines: Craftartists' Narratives of Identity*. Harvard University Press.

[10] Scutt, C. and Hobson, J. 2013. The stories we need: anthropology, philosophy, narrative and higher education research. *Higher Education Research & Development*. 32, 1 (Feb. 2013), 17–29.

[11] Sfard, A. and Prusak, A. 2005. Telling Identities: In Search of an Analytic Tool for Investigating Learning as a Culturally Shaped Activity. *Educational Researcher*. 34, 4 (May 2005), 14–22.

[12] Shove, E. et al. 2012. *The Dynamics of Social Practice: Everyday Life and how it Changes*. SAGE Publications.