

## **Studying doctoral education: using Activity Theory to shape methodological tools**

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The study reported here, one part of a larger study on doctoral education, describes a pilot study that used Activity Theory to shape a methodological tool for better understanding the tensions inherent in the doctoral experience. As doctoral students may function within a range of activity systems, we designed data collection protocols based on Activity Theory to examine their experience. This paper describes these protocols, the results of a piloting of these protocols, and discusses the strengths and limitations of using Activity Theory in this way.

**Keywords:** doctoral education; Activity Theory; higher education

### **The doctoral experience**

The problem of attrition in doctoral programmes is well documented (e.g. Golde, 2000), yet specific factors leading to attrition are less well understood. This gap has led us to a study of the contexts in which doctoral students engage to better understand the experiences that produce tension, and perhaps a decision to leave, with a view to suggesting alternate ways of helping doctoral students achieve their goals. We understand the doctoral experience in terms of the North American notion of the doctorate. In this structure, students are not yet considered academics and must go through a series of formal stages as part of a doctoral programme: following required courses, writing comprehensive examinations, defending those examinations, defending a dissertation proposal, and finally writing and defending a dissertation. In fact, in the Canadian context, those enrolled in a PhD programme are considered doctoral 'students' until completion of written comprehensive examinations, and only then become doctoral 'candidates.'

These multiple stages of the doctoral experience suggest certain complications. For example, extended time to completion is frequently an issue for students, institutions and funding councils. Doctoral students and candidates may struggle with conflicting roles, as they may be working at the same time as research or teaching assistants, holding other jobs to finance their studies, or meeting commitments to family. In progressing toward achieving their goal of completing a PhD, it is clear that doctoral students/candidates participate in complex and varied contexts. They negotiate interactions with their professors, fellow students and supervisors, participate in the activities of an academic department, work within the structure of a university, and

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maintain family and social relationships outside academia. Clearly, sustaining effective and relatively positive experiences within these many contexts can involve tensions. For us, the desire to explore the doctoral situation implies developing a deep understanding of the dynamics and tensions within the contexts in which doctoral students function, thereby necessitating the establishment of a conception and a methodology that inherently attend to tensions. This paper reports the results of a pilot study in which we used Activity Theory (AT) to develop protocols for data collection within a research project focused on doctoral education. The following theoretical framework establishes the rationale for setting up the pilot study within AT. We then describe the methodological steps we followed in the pilot study, leading to an assessment of the potential of AT to shape a methodological tool.

### **Tensions associated with establishing identity in multiple contexts**

The development of an identity can be considered a function of an individual's engagement within social settings which embody the cultural histories and values of these settings (Smagorinsky, Cook, Moore, Jackson, & Fry, 2004). Thus, as doctoral students/candidates work toward completing their degrees and developing future careers, they are not only meeting the requirements of a doctoral programme but are at the same time learning who they are within an academic context; by participating in the academic culture of a disciplinary department, a faculty and a university as a whole, they are shaping a sense of how to engage and potentially contribute within these cultures. In other words, while identity development in doctoral students can be represented in their experience of increased expertise in a discipline and potential for making a contribution to a field of study, 'doctoral pedagogy is as much about the production of identity ... as it is the production of knowledge' (Green, 2005, p. 162). One's academic identity influences academic work and is also altered by it (McAlpine & Hopwood, 2006).

If a doctoral student is an aspiring member of an academic discipline, s/he desires affiliation and participation in a chosen field or discipline. Literature on situated learning (e.g. Lave & Wenger, 1991) implies that the interactions of a doctoral student within a community such as an academic department involve not only individual interactions, but also interactions in larger groups in the department. In fact, this participation involves a doctoral student engaging in and manoeuvring across multiple intersecting departmental, disciplinary and institutional contexts (McAlpine & Norton, 2006). Doctoral students' interactions within these varied cultures influence identity development and at times include or induce conflict and tension since the contexts can provide competing or contradictory influences (Lundell & Beach, 2003).

The complexities inherent in the doctoral experience are therefore evident. Identity development happens in a dynamic fashion through participation in a multitude of contexts and these different contexts imply a variety of influential factors. Extensive interactions accompanied in varying degrees by conflict or tension are frequently part of a doctoral student's life.

### **Activity Theory**

To better document and comprehend the complexities inherent in the doctoral experience, we looked to AT (Engeström, 1987; Engeström, Mietinen, & Punamäki,

1999) as a way to examine what doctoral students do, with whom they interact, the tensions they experience and how their interactions influence their developing sense of identity. AT seemed potentially powerful as it has previously been used to develop an understanding of complex roles and relationships in education. Smagorinsky et al. (2004) used AT in a study of school teachers that explored their development as professionals. Others have found AT useful in studying gender and science education (John-Steiner, 1999), educational psychology (Leadbetter, 2005) and professional learning in higher education (Knight, Tait, & Yorke, 2006). Roth (2004) has argued for the educational usefulness of AT in understanding social processes as individuals produce and reproduce themselves as a member of a community through the distribution, exchange and consumption occurring in the interactions constituting human activity. In this sense, identity is a derivative and an integral aspect of an activity system, which ‘presupposes the existence of the subject who, regulated by emotions, engages with an object of motive-directed activity, and who becomes aware of itself as self’ (Roth, 2007, p. 56). To our knowledge, however, AT has been largely used in a conceptual way although some recent work uses it developmentally with research participants, resulting in the revelation of clear possibilities for modifying practice (Edwards & Daniels, 2004). We therefore viewed AT as having interesting potential for accessing the complex interactions engaged in by doctoral students that might induce tensions and for pointing to ways of improving practices within doctoral programmes. We particularly wanted to examine how AT might effectively be used to develop data collection protocols. Our thinking was that if it were to be used for analysis, then the analysis would likely be more robust if we also used it to structure data collection. The study reported here describes our use of it in this way.

AT focuses on the achievement of a long-term goal – an outcome – through mediational means of tools such as language, concepts or signs, within a community governed by rules and division of labour (Engeström, 1987). The long-term goal of completing a PhD involves work toward the achievement of that outcome, through a central, conscious and goal-directed action, requiring engagement in a multitude or network of activity systems. Each activity system, as depicted in Figure 1, has components that interact in the achievement of an objective, or purpose for the specific activity system.

One of the subsystems of an activity system – the central triangle in the diagram – involves the interaction of subject and community in pursuit of an object or purpose, as seen in the triangle that links these three. Our work in this study resides primarily within this subsystem: the doctoral student’s movement toward an object in interaction with a community. The doctoral student (*subject*), functioning in contexts (within an academic department, within a faculty, within a university) that can each be considered an *activity system*, progresses toward goals or objects that lead to a PhD as the ultimate outcome. An example of such an object for a doctoral student might be the writing of an academic paper for a course. In working toward this object, the student uses mediational tools. In this case, tools might include library resources, including human assistance, or a computer. The student’s paper is written within a community that is part of an activity system, such as a course required for the PhD, where students (the doctoral student included) and the professor engage in discussion that might shape the paper. The object of completing the paper then becomes an object not only for the student, but an object that relates to this community. The professor contributes input and feedback, the student researches and writes, other

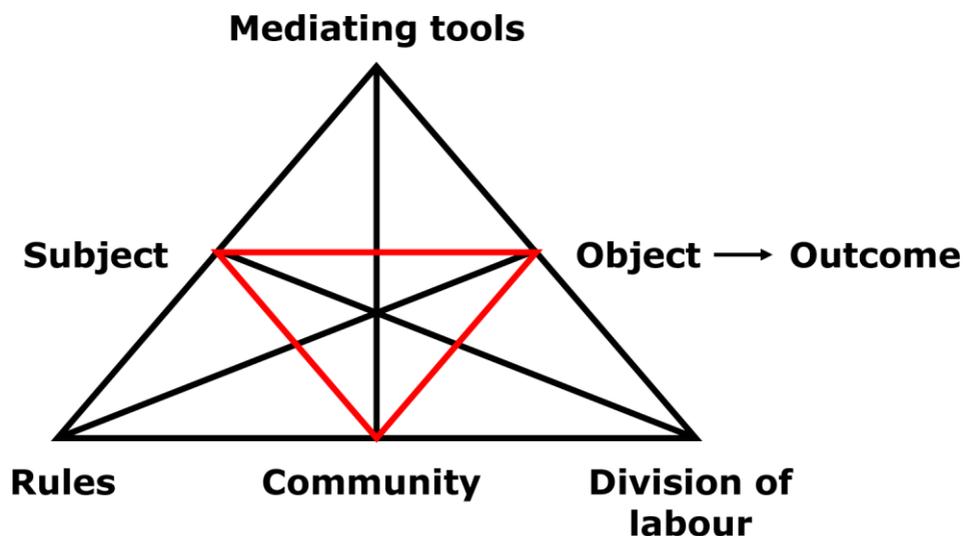


Figure 1. An activity system (based on Engeström, 1987).

students may participate in discussion, and so there is a division of labour governed by the rules and expectations that apply to academic discourse and the structure of academic courses.

An additional aspect of an activity system important to our interest is dynamism: 'it is inherently a dynamic structure, continuously undergoing change in its parts, in its relations, and as a whole' (Roth, 2004, p. 4). The dynamic nature of activity systems – the constant change in interactions and in individual and group elements – presupposes tension and contradiction within the system (Engeström, 1987). These inner contradictions exist among the components of an activity system, and can even involve relationships among the individual, the community within the system and the larger society. The contradictions and tensions exert an influence on the participants in the system and on the tasks therein. Furthermore, doctoral students engage in multiple activities – networks of systems – and there may be tensions experienced in moving across these different systems since each has different objects, different divisions of labour, etc.

We recognise that doctoral students engage daily in multiple activity systems which may change in their degree of importance for the student from one day to the next. Doctoral students live within these inherently structural tensions, whether they are always aware of them or not. Figure 2 shows our understanding of the multiplicity of the systems in which a doctoral student might interact. A doctoral student, representing the subject, could be perceived as centred within a series of interacting activity systems. For example, as Figure 2 indicates, a student doing PhD work might at the same time teach a course, be a member of a research group, participate in an academic department as a member of a disciplinary community, be a presenter at conferences and be responsible for family (children, spouse or partner, older parents). In participating in all these activity systems, tensions may occur. Within each activity system, the student interacts with a variety of others whose roles and tasks may be more or less clearly defined. In Figure 2, examples of tensions are depicted as lightning bolts. There may be tension existing across the student's participation at a scholarly conference in terms of time

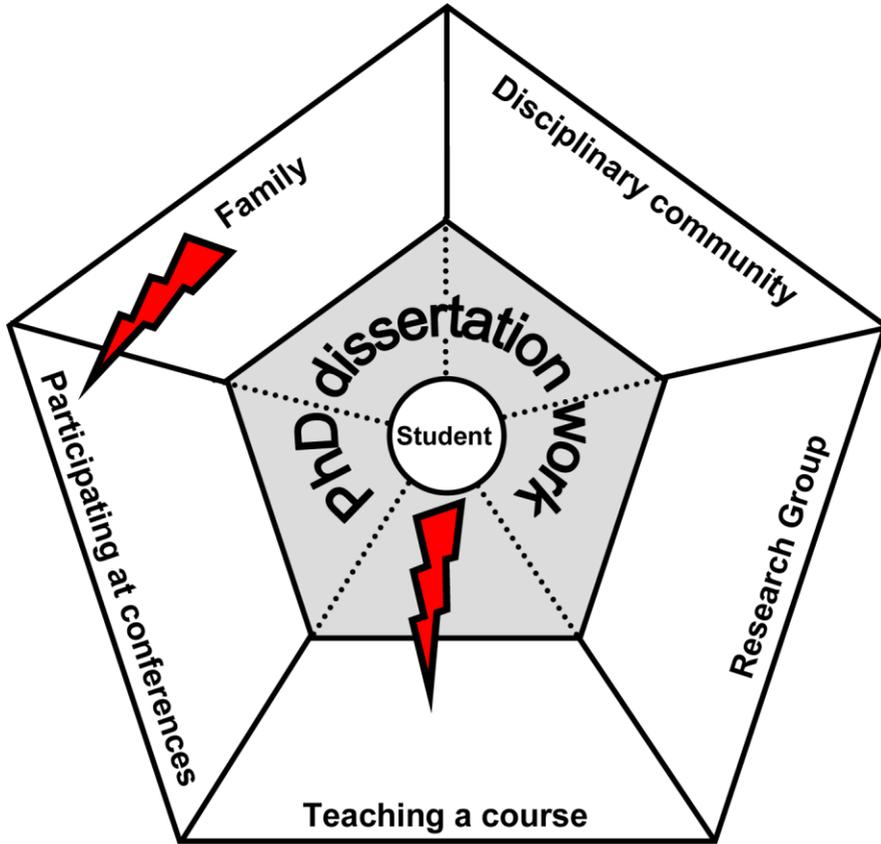


Figure 2. Multiple activity systems and tensions in the doctoral student experience.

management, novice status in relation to other attendees, familial obligations or financing. Another illustration of students' experience of tension within a system could be within the teaching of a course. Students might need to balance the demands of marking assignments and providing feedback in a timely manner while at the same time focusing on work more closely related to the dissertation.

It can be seen, therefore, that conceptually AT's characteristics find resonance in the nature of the doctoral experience on a number of counts: the doctoral experience is dynamic, contributing as it does to the development of a sense of identity; doctoral students participate in multiple activity systems and in doing so may experience contradictions or tensions. And there is potentially a transformational dimension as students may try to influence the context around them and at the same time are influenced themselves. It is clear that a doctoral student's sense of identity may change as a result of progression (or not) toward intended goals. We are interested in the range of activities engaged in by doctoral students and the different roles and purposes included in their engagement. We are particularly interested in the competing demands and tensions of this varied engagement that influence the student's sense of developing an academic identity. This interest pointed to AT as a powerful methodological tool with the potential to contribute to our understanding of doctoral experiences.

### **Methodology for the pilot study**

Using AT to draw on doctoral students' experiences of different systems and their interactions within them, and to get at the tensions between individual agency and the larger context, we designed protocols for eliciting information from doctoral students and professors. We used the key concepts of AT as a basis for the construction of each protocol. These protocols included weekly student logs, student interviews, and professor interviews.

The pilot study reported here involved weekly logging by students of their activities, requiring them to address a series of items related to their experience. The logs represent 'textual snapshots' of the doctoral experience, particularly in relation to the doctoral student as subject working toward different objects within different communities in which different roles are fulfilled. Responses in the pilot were used to assess the extent to which AT captured the tensions of the doctoral experience. In addition, we also collected formative feedback to make adjustments to the protocols for the logs since this was a pilot.

The weekly logs constructed on the basis of AT were intended for doctoral students to record their experience: the everyday engagement in multiple systems, the relative importance of these systems, the contribution they make to a student's sense of academic identity. We see the logs as a way to understand the complexities of the doctoral student's lived experience and the tensions associated with it, yet at the same time the routine or even mundane nature of this experience (Blackler, 1993), a way also to understand the achieving of individual objects as positive or not in the development of academic identity.

### **Methodological steps**

The following steps comprised our methodological procedure. Each is discussed below:

- (1) Matching the key concepts of AT with doctoral students' situations.
- (2) Constructing a protocol in language accessible to participants.
- (3) Piloting the protocol.
- (4) Collecting feedback on the protocol and using responses to refine the questions.
- (5) Reviewing initial responses to assess the potential of this approach.

#### ***Matching the key concepts of AT with doctoral students' situations***

The intent was to draw on the key concepts of AT to explore the diversity, richness and complexity as well as the ordinariness and repetitiveness in how doctoral students experience academic work within the totality of their lives. We saw the logs as a way of tracking, over time, the full range of doctoral students' activities – the number and range of their activities, the individuals involved, and the tensions experienced within and across systems as well as identity development. The matching of AT concepts with doctoral experience has been elaborated earlier in this paper.

#### ***Constructing a protocol in language accessible to participants***

The most recent version of the protocol is included in Appendix 1. The protocols needed to be phrased in language familiar to the participants. In phrasing items in this way,

the ‘tools’ of AT became ‘resources’, and ‘division of labour’ was rendered as ‘tasks’ or ‘roles’. In the protocols, some items were constructed as completion items, others required selection from a list, and others were open-ended. Nine items were constructed, with three preliminary items leading into these nine. The preliminary items reflected our interest in understanding what doctoral students actually do, recognising that they have multiple roles within and beyond their doctoral work. We want to situate their experience of the PhD within those roles. In other words, we see some of the tensions of the PhD as a reconciling of competing roles. Items 1 and 2 are intended to develop a longitudinal sense of students’ assessment of and emotional response to the doctoral experience. They imply a student’s awareness of progress toward the goal. Items 3 and 4 are designed to indicate who is contributing to a student’s sense of progress and the extent to which others beyond the supervisor are critical to a student’s sense of community, of belonging, of identity. In other words, they should elicit the network of activity systems within which a student functions as well as the roles within these systems. Items 5 and 6 are designed to elicit the factors that contribute to a student’s growing sense of identity. Items 7 and 8 target the difficulties and challenges inherent in the doctoral experience possibly related to factors such as lack of status, competing demands, and lack of resources. They draw on the notion of the tensions involved in functioning within and across overlapping or distinct activity systems. Item 9 is constructed to solicit feedback from participants on the protocol.

### ***Piloting the protocols***

Twenty participants completed the logs once a week and provided feedback on the appropriateness of the items, clarity of the items and suggestions for additional items. A total of 78 weekly logs were collected. The pilot study ended after two months when no further suggestions for change were forthcoming; we continued to use the logs for a seven-month period.

### ***Collecting feedback on the protocol and using responses to refine the items***

Items were refined on the basis of the participants’ written comments made both during the process and also subsequent to the analysis of the logs. The version of the log included in Appendix 1 reflects participants’ suggested changes to earlier versions. Details about the feedback are included in the Findings and discussion section.

### ***Reviewing initial responses to assess the potential of this approach***

We were interested in the applicability of AT to the construction of protocols for data collection and subsequent analysis and monitored our results to verify its usefulness. Overall we found AT sufficiently robust as a tool to permit the gathering of important information about the doctoral experience. The potential of AT in this regard and some reservations on its use will be reported more fully in the Findings and discussion section.

## **Findings and discussion**

This section reviews and discusses the findings of the study in two areas: (1) feedback provided by the participants on the construction of the log items as a basis for refining

the protocol, and (2) the review of the initial responses to assess the use of AT to shape a methodological tool.

### ***Feedback on the logs***

Items asking about the clarity of the questions and their appropriateness, and the time required to complete the task, were included in all logs across the seven-month data collection period. In all instances, attempts were made to modify the questions in order to respond to participant feedback. During the first month, eight participants offered suggestions for changes, only two participants after the second month, and no further comments about question appropriateness or clarity were made (in fact, many used this section in later months to offer positive feedback on the incorporation of suggestions and increased clarity). Each of these suggestions referred to different aspects of the log with little overlap. Suggestions were editorial in nature referring to either word choice in questions (clarity), or to the scope of particular questions. The average time for completion ranged from five to 30 minutes. In terms of the suggestions for changes, some participants felt somewhat limited by the log items in conveying the extent of their experience: they wanted to elaborate more and explain in greater detail the nature of this experience. One aspect of this desire to extend their comments was evident from the suggestion of several participants that the logs cover the entire week, not just Monday to Friday; they felt many of their activities over the weekend were related to their PhD work in one way or another. An early version of Item 2 used the word 'worried', which was changed to 'dissatisfied' as a result of participant comments. Participants were also concerned that items permit them to comment on activities that are academic in nature (e.g. the writing of a paper for a course, submitting a fellowship proposal), not directly related to the PhD dissertation, yet useful preparation for becoming an academic. They wanted also to indicate not only the difficulties they encountered, but how they overcame them; activities they should have focused on but did not; and whether they received help when they wanted or needed it. We acknowledge that these types of complex experiences are difficult to fully capture in these 'tracking' types of questions and that further exploration via other methods is required for more in-depth insight. Nonetheless, we view the log questionnaire in its current format as appropriate in terms of language, scope, and goal of tracking events, given the limited number of requests for changes. Similarly, the reported completion times from five to 30 minutes suggest that the task is not onerous and requires a limited amount of effort on the part of already time-constrained participants. The revised version of the log appears in Appendix 1.

### ***Reviewing initial responses to assess the use of AT to shape a methodological tool***

The contents of the logs reveal a number of interesting aspects of the doctoral experience and the challenges doctoral students face as they engage in academic practice.<sup>1</sup>

Participants reported a vast number of academic activities on a weekly basis, including reading, writing, meetings, teaching, library searches, reflecting, research assistant and teaching assistant duties, and editing. These activities fall within an extensive range of activity systems that one doctoral student might engage in. Apart from those mentioned in Figure 2, we noted many other activity systems, some

situated within the university and others extending beyond it. Examples include taking required courses, working at a research site, completing comprehensive exams, writing grant proposals, and pursuing career opportunities/job searches.

As participants in various activity systems, students also reported on significant events that allowed a sense of their development as academics, essentially their growing sense of identity as academics. These included events related to progress, validation, or positive feedback (e.g. presenting at a conference, getting a job offer); professor feedback; completing something (submitting a paper, sending out job applications) or sharing with another student or larger community (research issues, contributing a chapter, attending a thesis defence). Participants felt these events were significant because they provided role models, allowed their contributions to be valued, permitted a vision of the future or a sense of accomplishment, marked a milestone, or offered collegiality.

However, the tensions experienced by doctoral students were apparent in the participants' responses. A major tension reported throughout the logs is the issue of insufficient time for dealing with the tasks required to progress toward the goals. Participants repeatedly articulated their frustrations in this respect, mentioning work they would like to have been doing (primarily reading and writing of academic texts related to their PhD studies) but were prevented from doing by lack of time or interference of other activities (e.g. jobs, family distractions).

In terms of the challenges they encountered and their attempts to meet the challenges, participants frequently mentioned that they did the best they could, accepted the situation as inevitable, or kept on going despite the limitations imposed on them.

Participants' comments about doing their best and accepting problematic situations as they arise suggest that there is a sense of inevitability to the tensions encountered. It appears almost as if doctoral students see no real ways to avoid the tensions, but recognise a need to accept their presence as unchangeable. In essence, this recognition suggests that the tensions are reproduced over and over again in the doctoral experience.

## **Conclusion**

With respect to the construction of the logs, it appears that the items did successfully elicit important information from the participants, as their feedback comments were mostly editorial in nature. Their comments did remind us of the importance of attending to their personal lives in our study of their doctoral experiences.

Our attempt to use AT to develop a protocol in the form of a weekly log for data collection has elucidated for us in detail a broad range of activities engaged in by doctoral students. It has permitted a view of the multiple systems in which doctoral students must function and the inherent tensions within those systems as they work within a variety of communities to achieve a variety of objects. Overall, recognising the individual student as the centre of multiple activity systems has also clearly shown the tensions that prevail across as well as within systems and that keep being reproduced in the doctoral experience. At the same time, in certain respects the use of AT in the construction of the logs does not permit a full picture of the doctoral experience. The logs permit delimiting the various forms of tensions inherent in the everyday processes of the doctoral experience; however, they do not reveal the causes or origins of these tensions. The absence of this information necessitates some interpretation of

the participants' comments. Furthermore, the logs do not reveal the issues of power that may underlie the doctoral experience and that may only be hinted at in participant responses but not explored. Clearly, therefore, the logs by themselves are not sufficient to provide complete clarity on the doctoral experience.

However, the interplay of different protocols all conceptualised within the AT framework can provide a richer picture of the doctoral experience. In the larger study of which this pilot is a part, interviews with students who have completed a number of logs probe more deeply the details of the experience which are not necessarily evident in the broad view of the situation gained from the logs. In using AT in the construction of the logs, we have drawn on the central triangle of subject/community/object. Early piloting of the student interviews suggests we can pick up on other aspects of the AT structure such as division of labour and mediating tools. We have been using the initial results from the logs as a source for expanding the discussion in the interviews and look forward in this way to exploring more completely the multiple activity systems and embedded tensions of the doctoral experience.

This pilot study suggests a new use for AT in the development of data collection protocols. In terms of examining the doctoral experience, it has provided a way of accessing the regularities of the lived experience of doctoral students and the tensions that accompany this experience. Putting the subject at the centre of a range of activity systems has highlighted the multiple roles of the individual within these systems. Ultimately, continuing to use AT as a basis for protocol development could considerably expand our understanding of the doctoral experience and make the tensions more apparent to both students and academics.

### Note

1. Detailed reports of the findings (e.g. McAlpine & Jazvac-Martek, 2008; McAlpine, Jazvac-Martek, & Hopwood, 2007) are available at <http://doc-work.mcgill.ca>.

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**Appendix 1. Weekly log****Your PhD Experience Matters: Weekly Student Logs for the Week of \_\_\_\_\_*****Introductory items***

This week, I spent approximately \_\_\_\_\_ hours on academic work that ultimately contributes to my PhD

The following (e.g. reading, reflecting, writing a paper, research meeting) are the activities that contributed to this investment of time: \_\_\_\_\_

This week I also (Choose all that apply)

- worked full-time
- worked part-time on research for my supervisor (not related to my PhD)
- worked part-time on research for another professor (not related to my PhD)
- worked part-time
- worked as a teaching assistant
- worked as an instructor/lecturer/teacher
- attended departmental, faculty or university committee meetings
- attended presentations, workshops or lectures happening in the faculty or university
- acted as caregiver (for children, spouse, parents, etc.)
- contributed to volunteer organisations
- went out/met with family or friends
- other:

Optional: Please feel free to add any comments/elaborations related to how you spent your time:

***Items 1–9***

1. Overall, this week, I feel that I \_\_\_\_\_ on/with my PhD.
    - made good progress
    - made progress
    - made no progress
    - encountered difficulties
    - went backwards
  2. Overall, this week, I felt \_\_\_\_\_ with/about the progress of my PhD.
    - very happy
    - happy
    - satisfied
    - unconcerned
    - unsatisfied
    - unhappy
  3. This week, I drew on the following resources. (Choose as many as apply.)
    - students in my research group/team
    - other student(s)
    - supervisor
    - committee member(s)
    - graduate program director
    - other professor(s)
    - library staff
    - EGSS representative (Education Graduate Students' Society)
    - PGSS representative (Post Graduate Students' Society)
    - GPSO staff (Graduate and Postdoctoral Studies Office)
    - family/friends
    - other (please specify) \_\_\_\_\_
  4. This week, with regard to my supervisor(s), I feel that I ... (Choose as many as apply).
    - didn't need any help - needed help
    - didn't want any help - wanted help
- 4a. If you needed or wanted help, did you get that help?

4b. If “no”, can you explain why?

5. This week, the individual (see #3) who was important (positively or negatively) to my PhD progress was...

This person was important because...

6. This week, the most significant event influencing my feeling of being an academic or my belonging to an academic community was...

It was important because...

7. What things, if any, do you feel you should have or wanted to focus on this week but couldn't?

7a. Why was this?

8. Please indicate any difficulties you encountered this week (e.g. writing block, intellectual dead-end, funding, lack of space/time, difficulty getting papers/resources, etc.).

8a. What did you do to try and overcome them?

8b. What would have made the work you tried to accomplish easier this week?

9. Please add any more details or thoughts which you might like to share with the research project, in particular,

a. questions we should have asked; b. lack of clarity in any of the questions; c. amount of time it took to complete this log.

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