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# Intentions, concepts and conceptions of research supervision: a consideration of three disciplines

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**ABSTRACT**

This interview-based study with thirty doctoral supervisors in the UK focused on the diverse goals and intentions behind their supervisory activities, from which we derived a six-dimensional model of concepts of supervision. We explored how strongly each of these concepts featured in supervisors' intentions and whether this varied by discipline. Most of the intentions underlying the activities supervisors employed pertained to the concepts 'Enculturation' and 'Functional'; far fewer pertained to the concepts 'Emancipation', 'Critical Thinking', 'Care' and 'Preparation for Work and Life'. When supervisors were asked to identify the intentions behind their supervision practice more generally, not in direct reference to their activities, the functional perspective was less prominent. Some differences were observed between as well as within disciplines. The study confirms and extends previous research on concepts of graduate supervision and illustrates how supervisors' personal views, their 'conceptions', of supervision can be described in relation to the six concepts.

## Introduction

Over the past two decades, graduate supervision has evolved into a significant area of research in higher education, a phenomenon that is associated with two main factors: first, internationally, governments have highlighted the need for higher education to contribute strongly to the knowledge economy through innovation and research training (e.g. David, Evans, and Hickey 2006; Hancock, Hughes, and Walsh 2017; The Conference Board of Canada 2018); second, it has been recognised that the practice of supervision has a strong effect on student success (Amundsen and McAlpine 2009; Cullen et al. 1994; Galt 2013; Ives and Rowley 2005; McCallin and Nayar 2012; Sadlak 2004), including timely degree completion, students' perceived level of preparedness upon graduation and their satisfaction with the supervision process. The study reported here is intended to inform both theory and practice by addressing three specific gaps in our present understanding of graduate supervision.

## First gap: a limited understanding of why supervisors do what they do

Supporting previous observations made by Cullen et al. (1994) and Pearson and Brew (2002), Akerlind and McAlpine (2017, 1687) argue that guidance and research on

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supervision does not sufficiently 'attend to the why of supervision, that is the purpose or intention underlying what supervisors do'. They further state that while there have been studies on how supervisors perceive the nature and purpose of supervision, for example Wright, Murray, and Geale (2007) and Halse (2011), it was important to also look at how supervisors view the purpose of doctoral studies. In line with these observations we explored both the purpose of doctoral studies as perceived by supervisors, and the varied intentions by which they approach their supervision practices, deriving from these a model of concepts of supervision.

## Second gap: a limited understanding of the range of possible perspectives on supervision practice

Several interview studies have been conducted with doctoral supervisors with the goal to deepen our understanding of graduate supervision beyond the tasks and procedures required to carry out the role. For example, Lepp et al. (2013) identified three different conceptions supervisors have of doctoral studies, while Bøgelund (2015) identified three different perspectives on knowledge production and how they may influence supervision. Upon analysing data from open-ended interviews with supervisors on the increasingly complex context of supervision, Halse and Malfroy (2010) theorised effective supervision as serious professional work requiring five types of knowledge or qualities of supervisors: contextual expertise, techne, habits of mind, scholarly expertise and the ability to build learning alliances with students. While each of these studies contributed important insights, the data were not grounded in the practice of supervision itself, but in views supervisors hold on related issues (specifically on doctoral studies, knowledge production, and the increasingly complex context of supervision). A different approach was taken by Lee (2008), whose interview study with supervisors focused principally on their experiences of supervision practice, including what they do in supervision meetings. Lee (2008) identified five different perspectives (which she called 'concepts') by which doctoral supervision may be understood. She labelled these as Functional (The intent is to help manage the project); Enculturation (The focus is on encouraging the student to become a member of the disciplinary community), Critical Thinking (The focus is on encouraging the student to question and analyse his or her work), Emancipation (The focus is on encouraging the student to question and develop him or herself), and Care or Relationship/building (The focus is on enthusing and inspiring the student and making him or her feel cared for).

What is appealing about Lee's (2008) model is that it is grounded in the practice of supervision itself; a limitation is that it is based on only 12 interviews. More recently, Lee (2018, 880) suggested that her five-dimensional framework 'has subsequently been refined and developed both through further research and by working with hundreds of supervisors in workshops in mainland Europe, Africa, Australia, UK, Eire, Scandinavia and the Middle East'. These new developments certainly strengthen the model; nonetheless, a remaining question is whether these same concepts can be identified also in studies with a different research design. Working with a mid-sized sample and focusing specifically on the varied intentions by which supervisors engage in a range of supervisory activities they consider important, we arrive inductively at a model of concepts of

supervision that is rooted in supervisors' actual experience, which we then compared to Lee's (2008) framework.

## Third gap: a limited understanding of the extent to which different perspectives or concepts of supervision are associated with disciplinary context

Disciplinary differences with regards to supervisory cultures, models, policies and procedures are well established (e.g. Chiang 2003; Donald, Saroyan, and Denison 1995; Holdaway, Deblois, and Winchester 1995; Wisker and Claesson 2013). Previous studies also indicated some disciplinary differences in conceptions of research (e.g. Brew et al. 2016) and conceptions of teaching (e.g. Samuelowicz and Bain 2001; Stark et al. 1988). However, little is known about if, and if so, how discipline might matter in how supervisors think about graduate supervision, the latter being related to both research and teaching. To shed some light on this question, we describe in this study some of the similarities and differences we observed in the intentions guiding the supervision practice of academics from three different disciplines.

## Definition of terms and research questions

While there is no single way in how the terms intentions, concepts and conceptions are used in the literature, in this article we distinguish between these as follows. *Intentions* of supervision refer to the specific reasons behind the particular activities supervisors employ when working with students. *Concepts* of supervision represent a limited range of distinctive ideas or perspectives on supervision. Lee's (2008) study, for example, revealed five different concepts or ideas of supervision. *Conceptions* of supervision are supervisors' personal views of supervision, grounded in their various intentions. Conceptions do not fit squarely within a single concept or idea but are multidimensional drawing on a range of concepts and to varying degrees. By analysing the varied intentions by which supervisors pursue a range of supervisory activities, the present study arrived inductively at a framework of concepts of supervision. This framework, in turn, is useful for describing individual supervisors' conceptions of supervision.

The research questions were:

- What do supervisors from three disciplines say are the intentions behind what they do in a supervisory context, and what concepts of supervision emerge from these intentions?
- How are the emerging concepts of supervision similar or different to those Lee (2008, 2018) found in her work?
- Do some of these emerging concepts appear more strongly than others in supervisors' intentions and what similarities and differences in intentions can be observed across the three disciplines?
- What implications arise from the findings of this study for future research on graduate supervision?

## Methodology

### *Purpose and assumptions underpinning the study*

The study was principally qualitative, descriptive-interpretive and involved two rounds of interviews with a group of supervisors. Of interest were supervisors' subjective views on the goals of their supervision and the purpose of doctoral study, and, especially, their expressed intentions of why they do what they do in a supervisory context. There was no assumption guiding the study that certain intentions let alone activities were superior to others, or representative of an objective measure of quality in supervision. Hence, the purpose was to look for concepts of supervision rooted in the subjective experiences of participants. An attempt was made to look for similarities and potential variations in the personal views on supervision expressed by participants from different disciplines; however, in line with the exploratory and primarily qualitative nature of this study, the objective was to describe and not to offer explanations or draw general conclusions on observed similarities and variations.

### *Participants*

Participants included thirty doctoral supervisors from three research-intensive universities located in three large cities in the northern region of the UK. Each supervisor had guided at least four PhD students to successful thesis completion, many had supervised for more than a decade, and a few had supervised over twenty doctoral students. Participants were considered 'very good supervisors' by their head of department and other colleagues, and they had responded to letters sent by the researchers inviting them to participate in the study. Ten participants each came from Biology, History and Engineering. A decision to include ten supervisors from these three disciplines was made for the following three reasons: first, little is known about whether supervisors' views on doctoral supervision vary by discipline and a decision was made to choose participants in a way that would allow for an initial exploration of this question; second, Biology, History and Engineering were chosen given previous (and by now classic) studies reporting on the distinctiveness of their disciplinary cultures (Becher 1989; Biglan 1973; Donald 2002), making the views on supervision of academics in these fields especially interesting to look into; third, while it would have been exciting to widen the group of participants to include also supervisors from other disciplines and professional fields, this was not feasible given the resources provided for this study. Although we had hoped for the group of participants to be more balanced with regards to gender, in the end only six female supervisors could be recruited (1 in Engineering, 2 in History, and 3 in Biology). Prior to commencing the study, the researchers obtained approval through the Research Ethics Board of the University of Edinburgh and all participants completed a consent form indicating their willingness to participate and for the findings to be published.

### *Design and method*

The study was carried out in two phases. In both phases, interviews were held in a room chosen by the participating supervisors at their respective universities. Each supervisor

contributed between two and three hours to this study, participating in two separate interviews scheduled several days apart.

In the introductory phase supervisors participated in individual semi-structured interviews lasting between forty to sixty minutes. This phase addressed the previously noted concern that we need to understand better why supervisors do what they do (i.e. their goals) and how they view the purpose of graduate education (Akerlind and McAlpine 2017). The interview was focused on two questions: '*What in your mind are the purposes of PhD study in your field these days*' and '*How would you describe the goals of your supervision? What do you hope to achieve with student*s?'. All interviews were audio-recorded and later transcribed verbatim. Data were coded inductively (without a pre-defined code frame) first within and then across interviews, and codes sorted into themes.

The second and main research phase was based on individual interactive interviews that lasted between 60 and 120 min. Our data in phase two were not transcripts but statements of intent that were developed through dialogue with individual supervisors, verified with supervisors during the meeting, and recorded in writing at that meeting. After each interview, all recorded statements of intent were added to an excel file for data management. Below we describe the method and data analysis employed in the main research phase in greater detail.

### Step 1: identifying supervisory activities

We asked supervisors to think of a specific doctoral student they were supervising at the time and name concrete activities they employ to guide this student. We clarified that we were interested in activities they feel are important, and that these should be distinct and not overlap. For example, 'giving feedback on the thesis draft' and 'commenting on the methodology chapter' would not qualify as separate activities as one activity is part of the other; however, 'commenting on the methodology chapter', 'discussing related literature', 'co-authoring a paper', 'having lunch with the student', and 'introducing the student to other scientists in her field' (to offer just a few examples) would qualify as separate activities. Following these guidelines, each supervisor identified between ten and thirteen activities and wrote them down. Once they had developed their initial list of activities, the list was discussed, and care was taken that participants would feel confident and satisfied that their list was comprehensive, complete and representative of what they do.

### Step 2: identifying statements of intent

With the list of activities established, the interview turned to the main area of interest, which were the intentions that guided the supervisor' activities. Since for many supervisors identifying and articulating their intentions is challenging, we needed a method that would facilitate this process and render it more likely that we would obtain rich and diverse responses for different activities. The approach we employed is based on a comparison of threes, inspired by the triad procedure introduced by psychologist George A. Kelly (1955) in the mid twentieth century.

We wrote each of the activities the supervisor had identified on a separate index card. The supervisor was then invited to select any three of these cards and tell us what his or her intention was with two of these three activities, compared to the third. This approach supported thoughtful engagement with the reasons behind specific activities and discouraged generic responses that would apply to most, such as 'I want to help the student make

progress'. Responses then took the form of 'With activity X and Y my intent is to … while with activity Z my intent is to … '.

The process of arriving at these statements of intent involved extensive dialogue between interviewer and supervisor around why supervisors do what they do. Supervisors took time to find the best wording for their intentions, and the interviewer facilitated this process through careful questioning and sometimes summarising and repeating back to the supervisors what they had said ('what I hear you to describe to me is … '). The final wording of each intention came from the supervisors themselves. Prior to recording each statement of intent on paper, supervisors were asked whether they were happy with the statement and confident that they had identified the key intent behind the chosen activities. Examples of statements of intent the supervisors developed through the comparison method are:

- My intent with these two activities is to push the student out of her comfort zone (example 1), while my intent with this activity is to provide intellectual support (example 2);
- My intent with these two activities is to help the student make sense of large amounts of data (example 3), while my intent with this one is to help build communication skills (example 4);
- My intent with these two activities is to encourage collaboration with me and with others (example 5), while my intent with this one is to ensure a presentable thesis (example 6).
- My intent with these two activities is to help the student build a strong social network (example 7) while my intent with this one is to develop a critical appreciation of the text (example 8)

Through seven rounds of comparisons, each time with a different set of activities, every supervisor generated fourteen separate statements of intent. After seven rounds supervisors typically felt that they had exhausted the range of intentions by which they engage in the activities they had identified. In a final but important step, we asked them to articulate their two core or most fundamental intentions guiding their supervision. Here supervisors were no longer bound by identifying intentions behind specific supervisory activities but were invited to offer statements of intent that in their minds summed up their intentions as supervisors more generally. Once that step was completed, each supervisor had contributed a total of sixteen different statements of intent.

The thirty UK supervisors generated a total of 480 statements of intent through this process. A thematic analysis of all statements of intent was then carried out, whereby statements were grouped according to perceived commonality, and eventually differentiated by discipline. The emerging thematic categories were interpreted as 'concepts of supervision'.

Specifically, we proceeded inductively from the data rather than imposing *a priori* categories. Since thematic analysis is a subjective process relying strongly on the analyst's personal judgements, we decided to strengthen the confidence in our findings in the following way: Initially, two members of the research team, independently of one another, assigned all the statements of intent to emerging categories, which yielded a relatively low match of 57%. To achieve a higher level of consistency, two measures were taken. First,

the number of categories into which to place the 480 statements of intent was determined in advance (in the first round the principal researcher had arrived at seven categories while the second researcher had identified six). Six categories were agreed upon through discussion. Second, for each category inclusion criteria (features that must be present to include a statement under this category) and exclusion criteria (features that would automatically exclude the statement from the category) were provided, as well as a typical example (an obvious example for this category), an atypical example (a surprising example of this category) and 'close but no' exemplars (examples that may seem like the category but are not). With these measures in place, the two judges, again independently, re-categorised all the 480 statements this time achieving a match above 95%. The remaining few areas of disagreement were discussed until a consensus was reached.

We report briefly on the themes that were identified in the introductory phase before turning to the findings of the main research phase.

## Findings

### *Introductory phase: purposes of PhD study and goals of supervision*

Three separate themes emerged from the analysis of participants' views regarding the purpose of PhD study, and five regarding their views on the goals of their own supervision (Table 1). Reporting percentages in the context of the findings from this first interview has limitations. Unlike surveys where participants give responses to a fixed set of items precisely so that responses can be easily tabulated and compared across participants, semi-structured interviews are open-ended and designed to let participants express themselves freely without leading them on too much. Therefore, participants not mentioning a certain purpose or goal is not equal to them not viewing this as a purpose or goal. However, taking account of which themes are addressed more often (and by whom) can still be valuable. What can be said about the reported percentages is this: first, some purposes of PhD study and goals of supervision were addressed more often than others by interviewees (and some more often by interviewees from certain disciplines); second, given that these goals and purposes were stated more often may or may not mean that they were more saliently on people's minds and, therefore, more important to them than others; third, whether these tendencies are representative of other supervisors in History, Biology and Engineering is a question this study is not able to answer and no such claim is made.

Table 1 also shows the conceptual linkages between the stated purposes of PhD study and goals of supervision (see areas of similar shading showing which purposes and goals are linked). The table also foreshadows how the stated goals of supervision identified in the introductory phase link up with the concepts of supervision emerging from the main research phase (a point we will revisit later).

### *Views on the purposes of PhD studies*

More than half (57%) of our participants mentioned purposes that were representative of the view that PhD study prepares for scientific activity either within the academy or

**Table 1.** Themes related to purposes of doctoral studies and themes related to goals of supervision that emerged from a thematic analysis of interviews ($N = 30$) in the introductory phase, and the relationship between the two sets of themes as indicated by common shading.

| Supervisors' views on the 'Purposes of PhD studies' | Supervisors' views on the 'Goals of their supervision' |
|---|---|
| **Theme 1: Prepares for an academic career or scientific activity outside of academia; 57%** (H = 60%; B = 80%; E = 30%) | **Theme 2: Providing support, guidance and fostering self-development; 37%** (H = 50%, B = 40%; E = 20%) *Linkage to 'Emancipation', 'Care' and 'Functional' Concepts* **Theme 3: Cultivating students for an academic career; 40%** (H = 40; B = 50%; E = 30%) *Linkage to 'Enculturation' Concept* **Theme 4: Fostering independent research; 27%** (H = 10%; B = 30%; E = 40%) *Linkage to 'Emancipation' and 'Preparation for Work and Life' Concepts* |
| **Theme 2: Helps to acquire useful skills for non-academic vocational directions (e.g. industry, government, etc.); 50%** (H = 60%; B = 30%; E = 60%) | **Theme 5: Promoting development opportunities beyond the academic context** (such as stimulating confidence, encouraging critical thinking, developing communicating skills, emphasising teamwork, supporting trans-disciplinary skills and providing teaching experiences); **33%** (H = 30%; B = 20%; E = 50%) *Linkage to 'Preparation for work and life', 'Critical thinking', 'Emancipation', 'Care' Concepts* |
| **Theme 3: "Explores the unexplored" and through advances in the field contributes to the world in a beneficial way; 23%** (H = 20%; B = 20%, E = 30%) | **Theme 4: Fostering independent research; 27%** (H = 10%; B = 30%; E = 40%) *Linkage to 'Emancipation' and 'Preparation for Work and Life' Concepts* |

Percentages in bold show the frequency with which a certain theme was addressed by the thirty supervisors.
Percentages in parentheses show the frequency by which these themes were addressed by each sub-group (H = History; B = Biology and E = Engineering).
The cursive descriptors in the 'Goals of Supervision' column (referring to different 'concepts of supervision') are taken from the main research phase and are included here to illustrate the linkages between the findings from the introductory phase and the main phase of the research.

outside (theme 1). Eight Biologists, six Historians and three Engineers mentioned purposes aligned with this first theme. Half the group (50%) stated purposes that were aligned with the view that PhD study helps acquire useful skills for non-academic vocational directions (e.g. industry, government, etc.) (theme2). Three Biologists addressed this theme, compared to six Historians and six Engineers. About one quarter of participants (23%) mentioned purposes representative of the view that PhD study allows for the exploration of the unexplored, thereby advancing knowledge in the field which contributes to the world in a beneficial way (theme 3). Only two Historians, two Biologists and three Engineers mentioned purposes aligned with this third theme. These three purposes of PhD study parallel those identified by Lepp et al. (2013, 406) closely: 'doctoral studies as a way of educating future researchers and developing the domain, doctoral studies as a PhD student's learning process, doctoral study as a way of creating new knowledge'. Akerlind and McAlpine's (2017, 1693) research identified yet another overarching perceived purpose of PhD study: 'enabling students to develop as individuals, by ensuring their enjoyment of and commitment to the doctoral experience'. While our participants did not state self-development of students explicitly as a purpose of doctoral study (at least not beyond the acquisition of useful skills, which was addressed as theme 2), they did address this point in their goals of supervision (theme

2, see below), which likely implies that they saw it as a purpose of doctoral studies as well.

### Views on goals of supervision and relationships to purposes of doctoral studies

The view that PhD study prepares for scientific activity either within the academy or outside (purpose, theme 1), can be connected to four of the five emerging themes regarding goals of supervision: Theme 1, Offering training in specific research skills (two-thirds of supervisors mentioned goals aligned with this theme); Theme 2, Providing support, guidance and fostering self-development; Theme 3, Cultivating students for an academic career; and Theme 4, Fostering independent research. It is curious that only one Historian addressed this last theme. Likewise, it is not clear why eight Engineers mentioned offering training in research skills as a goal of their supervision (Theme 1 of goals) but only three mentioned preparation for scientific activity as a purpose of PhD study (theme 1 of purpose). One can only assume that although they did not explicitly state it, they still consider it a purpose. The view that PhD study helps to acquire useful skills for non-academic vocational directions (purpose, theme 2) is conceptually connected to a goal of supervision as promoting development opportunities beyond the academic context (such as stimulating confidence, encouraging critical thinking, developing communicating skills, emphasising teamwork, supporting trans-disciplinary skills and providing teaching experiences). (goals, theme 5). One third of all participants expressed goals relating to this theme, including two Biologists, four Historians and five Engineers. Finally, a view that PhD study explores what is yet unexplored and through advances in the field contributes to the world (purpose, theme 3) can again connects with the goal to foster independent research (goal, theme 4).

The findings from this introductory stage offered some initial insights into how doctoral studies and supervision were conceptualised among participants. However, the second phase contributed a deeper level of understanding, allowing us to identify concepts of supervision and explore similarities and differences among the three groups more systematically.

### Findings from main research phase: concepts of supervision

The 480 statements of intent the supervisors had generated were associated with six different thematic categories, or 'concepts of supervision'. Five of these resembled the concepts identified by Lee (2008) closely enough to justify keeping her labels ('Functional' – *Completing program & supervision requirements*; 'Enculturation' – *Socialising into the knowledge community*; 'Critical Thinking' – *Encouraging student's critical thinking on their work*; 'Emancipation' – *Promoting growth and self-reflection* and 'Building a quality relationship' – *providing care*). The sixth was '*Preparing for career and life*'. To demarcate clearly between the three partially overlapping categories (concepts) of 'critical thinking', 'enculturation' and 'emancipation' (while they are three distinct concepts they also overlap somewhat in that they share a concern with critical reflection), we determined the following: all statements that spoke specifically to the intent to promote logical reasoning or intellectual development in relation to research, for example by learning to critique research, were allocated to the category 'critical thinking'. All

statements that addressed the intent to induct students into the ways of thinking and practicing of the discipline (Hounsell and Anderson 2005) and were about fostering participation in the scientific knowledge community, were allocated to 'enculturation'. Finally, any statements reflecting an intention to foster independent as well as original and creative thinking were grouped with those that spoke to encouraging personal development and were allocated to 'emancipation'.

### *Considering the thirty supervisors together*

Looking at all 480 statements of intent contributed by the thirty supervisors, we see in Table 2 that more than half of their statements referred to the two categories of Enculturation (33.12%) and Functional (23.75%). Considerably fewer statements of intent were aligned with the concept Critical Thinking (13.5%), and still fewer addressed the categories of Emancipation (10.2%), Care/building relationship (9.16%) and Preparation for Career/life (8.75%). Table 2 includes examples of statements associated with each category that also serve to further define each concept of supervision.

It was interesting to observe that when we looked at the 60 core or fundamental statements of intent separately (note that each supervisor had generated two core or fundamental statements), the Functional perspective featured less prominently; indeed, almost one third (30%) of all fundamental statements of intent were associated with

**Table 2.** 480 Statements of Intent (SofI) analysed thematically, resulting in six 'concepts' of supervision. Numbers and percentages indicate the number of SofI that were generated for each category or 'concept'. For illustrative purposes, three examples of SofI are included for each 'concept'.

| Concepts of supervision | Examples of SofI generated by individual supervisors in Biology ($N = 10$), History ($N = 10$) and Engineering ($N = 10$), male (m) and female (f) | SofI N | SofI % |
|---|---|---|---|
| Enculturation | B1, UK m. SofI 3 Help student become linked to the scientific community<br>H9, UK, f. SofI 4 Help student understand the standard of practice (of written work in history)<br>Eng 2, UK, m. SofI 9 Help student understand the progress that is made within the field (the state of the art of international research activities in this field) | 159 | 33.12% |
| Functional | B4, UK, m. SofI 2 Provide the infrastructure to allow student a clear sail<br>H2, UK, m. Sol 7 Make sure the thesis meets the basic standard of the PhD<br>Eng 7, UK, m. SofI 11 Ensure a smooth start and continued progression towards the research goals | 114 | 23.75% |
| Critical Thinking | B10, UK, f. SofI 7 Encourage analytical skills<br>Eng 1, UK, f. SofI 8 Help develop the student's critical reasoning<br>H9,UK, f. SofI 2 Help identify an intellectual argument | 65 | 13.5% |
| Emancipation | B10, UK, f. SofI 2 Give student more freedom to pursue own/personal interest<br>H4, UK, m. SofI 14 Challenge the student's interests and expertise<br>Eng 1, UK, f. Sofi 10 Help student to appreciate that experts in the field do not know everything | 49 | 10.2% |
| Care/Quality of relationship | B5, UK, m. SofI 2 Help student to feel good about him or herself<br>H8, UK, f. SofI 9 Create a good supervisor-student relationship<br>Eng 2, UK, m. SofI 6 Making the PhD enjoyable | 44 | 9.16% |
| Preparing for work and life | B5, UK, m. SofI 7. Help the student to do better in communication skills<br>Eng 1, UK, f. SofI 1 Help student develop necessary skills for participating in work environment<br>H3, UK, m. SofI 2 Encourage the student to identify career aspirations and gradually develop necessary skills | 42 | 8.75% |
| Miscellaneous | | 7 | 1.25% |
| Total N of SofI | | 480 | 100% |

Enculturation, just over 23 percent with Emancipation and only 10 percent with Functional. This suggests that when given a chance to express their core intentions without needing to link these to their specific activities, supervisors tend to emphasise enculturation followed by emancipation; yet, the specific activities they employ when working with students are more strongly guided by the functional perspective.

Only eight (just over 13%) of the core or fundamental statements of intent addressed Critical Thinking; and only four each (or 6.6%) aligned with 'Preparation for Career/life' and 'Care/ Building Relationship'. Six of the 60 fundamental statements of intent (10%) could not be grouped as some supervisors had trouble coming up with more than one intention (instead using vague descriptions such as 'what I said earlier is not so much my main intent here'). This shows how challenging it can be for supervisors to make their intentions explicit.

### Similarities and differences across the three groups

A few observations can be made with regards to the three groups of supervisors. Figure 1 shows that across the three disciplines about one third of statements of intent expressed by supervisors in each group aligns with the category of 'Enculturation', making this a dominant concept for all three groups. 'Functional' is the second dominant concept underlying the statements of intent of Historians and Engineers, but not so for Biologists whose second category of intentions is 'Critical Thinking', with 17.5% of their statements of intent addressing that category. The third category for Biologists' statements of intent is 'Emancipation' (15%), while this is among the least frequently addressed concepts for Historians, with only 5.6% of all their statements being associated with this theme. Interestingly as well, just over 14% of statements of intent
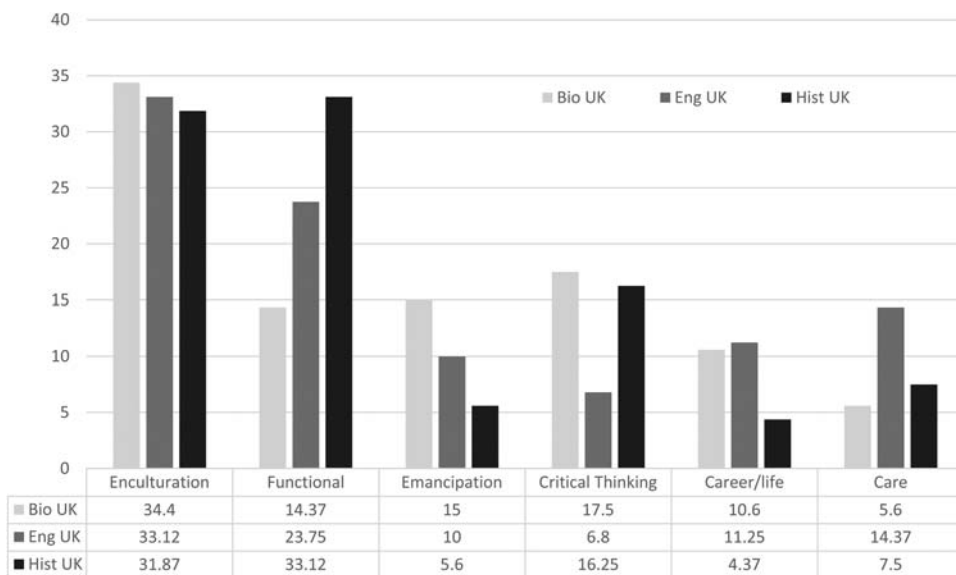


| | Enculturation | Functional | Emancipation | Critical Thinking | Career/life | Care |
|---|---|---|---|---|---|---|
| Bio UK | 34.4 | 14.37 | 15 | 17.5 | 10.6 | 5.6 |
| Eng UK | 33.12 | 23.75 | 10 | 6.8 | 11.25 | 14.37 |
| Hist UK | 31.87 | 33.12 | 5.6 | 16.25 | 4.37 | 7.5 |

**Figure 1.** Distribution of statements of intent ($N = 480$) across the six concepts, differentiated by discipline (reported in percentages).

expressed by Engineers are aligned with 'Care/Relationship building', making this their third dominant concept, while the fewest statements of intent of Biologists were in that category (5.6%). The fewest statements of intent of Historians were associated with 'Preparation for work/life' (4.5%), with the other two groups raising this intent more than twice as often. The fewest statements of intent of Engineers were aligned with the concept of 'Critical Thinking' (6.8%), with supervisors in the other two fields addressing this twice as often as an intent.

Turning to observed similarities and differences across the three groups with regards to the twenty core or fundamental statements of intent each group had generated, we can see in Figure 2 that 'Enculturation' and 'Emancipation' are dominant concepts in all three groups, while the functional perspective is now less prominent in each. Additionally, we observe some group variation in relation to the other concepts, most notably perhaps on the concepts of 'Critical Thinking' and 'Care' (with none of the fundamental statements of intent of Biologists addressing the latter category).

### Differences within a single discipline: personal conceptions

The data allow us to identify the conceptions held by individual supervisors. This is achieved by looking at each supervisor's sixteen statements of intent and grouping these according to the six concepts of supervision we identified. Figure 3 compares three examples of individual conceptions of supervision held by supervisors in Engineering. The variation between the three profiles is striking. Therefore, while small disciplinary differences across groups may exist (and the descriptive account offered above would need to be substantiated through future research), it is evident that there are also differences between members of the same group. Hence, supervisors hold idiosyncratic conceptions of supervision.
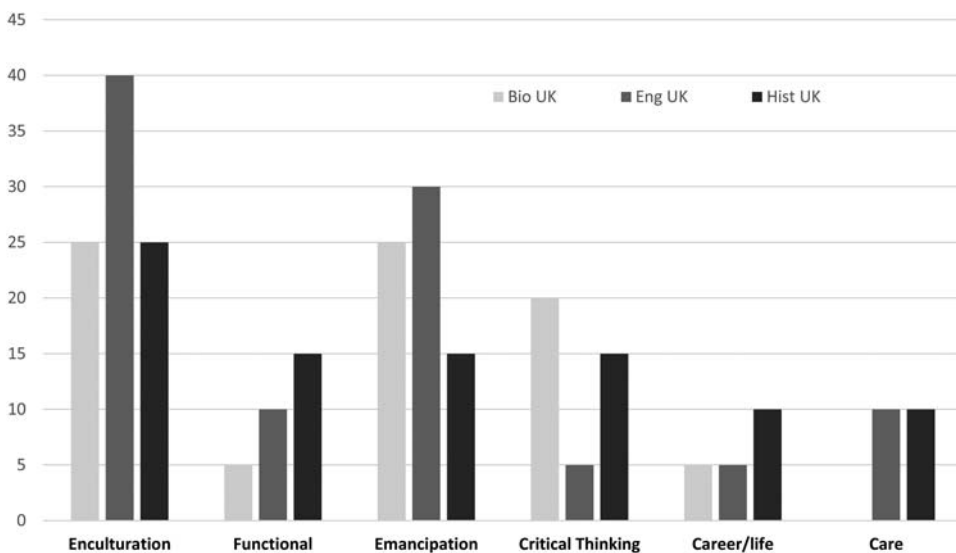


**Figure 2.** Distribution of core or fundamental statements of intent across the six categories, differentiated by discipline (reported in percentages).

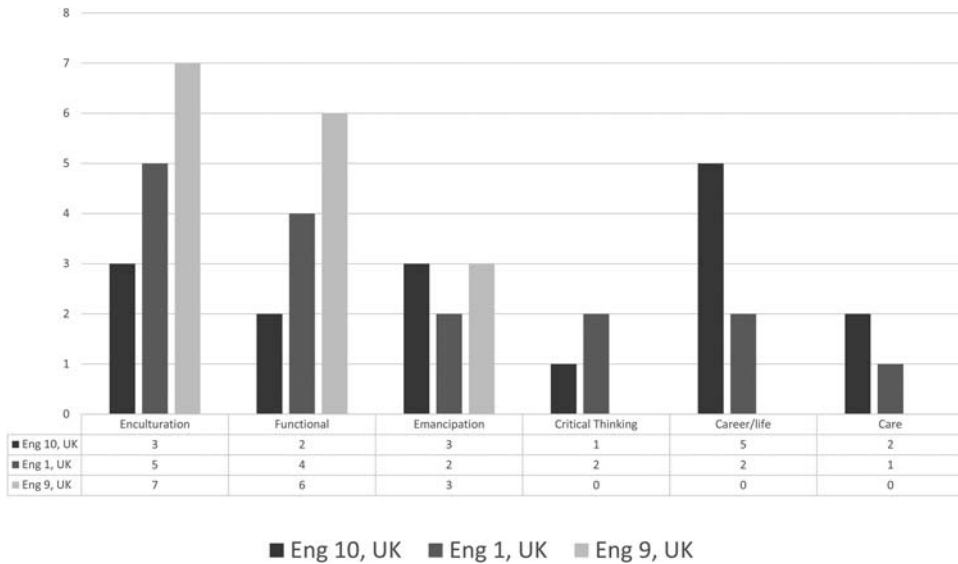| | Enculturation | Functional | Emancipation | Critical Thinking | Career/life | Care |
|---|---|---|---|---|---|---|
| ■ Eng 10, UK | 3 | 2 | 3 | 1 | 5 | 2 |
| ■ Eng 1, UK | 5 | 4 | 2 | 2 | 2 | 1 |
| ■ Eng 9, UK | 7 | 6 | 3 | 0 | 0 | 0 |

■ Eng 10, UK   ■ Eng 1, UK   ■ Eng 9, UK

**Figure 3.** Personal conceptions of supervision of three different UK supervisors in engineering, as shown by how their sixteen statements of Intent are distributed across the six concepts of supervision.

## Discussion

We discuss four key observations that arise from this study, show linkages between the findings from the introductory phase and main phase, and make suggestions for further research on doctoral supervision.

### *Six concepts of supervision*

The approach we took in the main research phase, asking supervisors to compare their own activities and identify similarities and differences in intent among these, proved productive in helping supervisors express the varied reasons behind their actions. Five of the six concepts of supervision we identified through thematic analysis resembled the ones Lee (2008) reported in her work, suggesting that Lee's concepts are indeed partially representative of the dimensions of variation in which supervision is understood by supervisors. Lepp et al. (2013), in their study of how supervisors conceptualise doctoral studies, also showed that when the aim of doctoral studies is construed as a learning process of PhD students, all five of Lee's (2008) concepts of doctoral supervision were evident in supervisors' interviews. Importantly, our study identified a sixth concept, preparation for work and life, which, we surmise, is partially attributable to an increased emphasis that has been placed over the past twenty years on the importance of providing students with opportunities to develop knowledge and skills that are useful also beyond a career in academia (Auriol, Schaaper, and Felix 2012). As was noted, however, only few statements of intent addressed this category. The six concepts could be mapped onto the findings on supervisors' perceived purposes of PhD study and goals of supervision obtained through the introductory phase (see Table 1), further corroborating the argument that these concepts do indeed play a strong role in how supervisors think about their practice.

### Dominant and less dominant concepts

The observation that the 480 statements of intent did not distribute equally across the six concepts of supervision is especially interesting. Most statements of intent were aligned with the concept of 'Enculturation'. This is consistent with the findings from the introductory phase where 'Offering training in specific research skills' and 'Cultivating students for an academic career', both conceptually linked to enculturation, were the goals most frequently addressed by supervisors. The second dominant concept was 'Functional', with the remaining four concepts ('Critical Thinking', 'Emancipation', 'Preparation for work and life' and 'Care') being addressed by far fewer statements of intent. It certainly is not unexpected that within a group of supervisors some concepts would feature more strongly than others; nonetheless, we recommend that future studies with different groups of participants explore whether the tendencies in distribution identified in our study changes or stays more or less the same.

When we compared Biologists, Engineers and Historians, we noted similarities and differences. 'Enculturation' was the dominant concept with each group. 'Functional', the second dominant concept for Historians and Engineers, was less dominant with Biologists, for whom the second most frequently addressed concept was 'Critical Thinking' followed by 'Emancipation'. While these and other differences reported earlier are interesting, the sample size of ten in each group is still too small to allow for any final conclusions to be drawn regarding the importance each group might place on the six concepts. Future research could look further into the tendencies that we observed in this study. However, as we will discuss a little later, what is important is not so much whether there are differences between disciplines but how supervisors across disciplines can be supported in being effective supervisors.

### Fundamental statements of intent tend to be less 'Functionalist'

Singling out the 'fundamental' statements of intent revealed that 'Enculturation' and 'Emancipation' featured most dominantly in all three groups, with far fewer statements of intent addressing the concept of 'Functional' (Figure 2). This suggests that when asked more generally about 'why they do what they do', supervisors espouse intentions that go beyond managing the thesis process (i.e. Functional), although many of the activities they engage in when working with doctoral students are driven by the functional perspective. Future research exploring more deeply the extent to which supervisors' overall intentions (i.e. their espoused theory of supervision) are reflected in their actual supervision practice (theory-in-use) with students, could be helpful. 'Espoused theories are those that an individual claims to follow. Theories-in-use are those than can be inferred from action' (Argyris, Putnam, and Smith 1985, 82).

### The idiosyncratic nature of conceptions

Fourth, the study demonstrated how greatly individual supervisors' conceptions of doctoral supervision can vary (see Figure 3). While this was not unexpected, it is a point that warrants some further discussion. Since it became evident that supervisors from the same discipline can hold very different conceptions, it follows that individual conceptions of

supervision most certainly cannot be attributed exclusively to disciplinary cultures, even if future research were to contribute evidence of some form of a link between these two. There are a range of other factors that may be influential, among them supervisors' conceptions of research (Brew 2001; Bøgelund 2015; Lee 2008; Kiley and Mullins 2005); their own experience of being supervised (Lee 2008); their subjective experience of the culture of their department; their subjective experience of national policies and institutional policies and procedures on research, postgraduate teaching and graduate training; their subjective experience of how supervision is rewarded; and gender. In terms of the latter it is worth noting that a meta-analysis of twelve studies exploring the relationship between gender and supervision (although not specifically graduate supervision) showed that 'female supervisors have a greater relationship focus than do male supervisors' (Hindes and Andrews 2011, 254). While in our study only six percent of all the statements of intent contributed by female supervisors addressed the Care/Relationship building category, it would be interesting to explore whether conceptions of supervision vary by gender, especially if such explorations could include an analysis of female supervisors' experience of workload, and importantly the roles and expectations placed on them within the academy.

While understanding the potential reasons for differences in conceptions of supervision is important, we suggest that future research not just focus on these but delve into the more pragmatic question of how conceptions of supervision matter to supervisory practice and student success. Our study did not look at whether the conceptions of supervision our participants held were in fact associated with a positive experience of the student they were supervising. It would be especially interesting, therefore, if future research would focus on supervisor-student pairs to better understand how supervisors' activities and individual conceptions of supervision are linked to how their students experience the supervisory process, and how students' perceptions of supervision are linked to a positive doctoral experience and successful degree completion (for a similar point albeit not in relation to conceptions of supervision but conceptions of teaching, see Devlin 2006).

The statements of intentions supervisors in this study generated were based on activities they engaged in with one doctoral student they were supervising at the time. This raises the question whether supervisors' activities or intentions, or both, would be different with another student. A future study could ask supervisors to think of two different students they are supervising and develop separate sets of activities and statements of intent for each and compare these. If there were differences in the two sets, this would be a strong indicator that supervisors adapt what they do to their understanding of the needs of individual students.

A related but more abstract question is whether any observed differences would indicate a difference in their *conceptions* of supervision, or whether conceptions are more elastic and accommodate different practices. In this study we defined conceptions of supervision on the basis of sixteen statements of intent individual supervisors articulated for their activities, that were shown to align with up to six concepts ('Enculturation', 'Functional', 'Critical Thinking', 'Emancipation', 'Care/Relationship building' and 'Preparation for life and career'). For example, the conceptions of supervision of Engineer 9 can be described in terms of three concepts (Enculturation, Functional and Emancipation) while those of Engineer 10 can be described in terms of all six (see Figure 3).

Fourteen of the supervisors' sixteen statements of intent were based on concrete activities employed with a student. The remaining two statements were generated not on the basis of concrete activities, and they summed up the fundamental or core intentions behind their supervisory practice. While we did not test this assumption in our study, it is conceivable that the fundamental statements of intent are of a higher order, applying not just to one student. Following this logic, it would seem unlikely that a supervisor's conceptions of supervision would change profoundly from one student to another, although some of their activities and some of the specific intentions associated with these activities might change. Moreover, supervisors who are aware of and recognise the value of the six different concepts of supervision, might develop more comprehensive, sophisticated and integrated conceptions of supervision, which, in turn, might enable them to choose from a wide range of activities those that are best suited for the students they are working with. As others also observed, ideally supervisors would be able to draw on all the concepts of supervision, choosing from a range of practices to accommodate the needs of diverse students (e.g. Lee 2008, 2020; McCallin and Nayar 2012).

## Conclusion: the value of studying conceptions of supervision

This study described similarities and differences in the intentions of supervisors from three different disciplines, while it also revealed differences in conceptions between supervisors of the same discipline. However, the purpose of studying conceptions of supervision is ultimately not to find out whether there are differences between conceptions; nor is it simply to better understand the reasons for any observed differences (disciplinary or other), although investigations into these two issues serve to close an existing knowledge gap. Rather, and as was already intimated above, the real value behind studying conceptions lies in the insight identified differences offer for helping supervisors become more effective. In short, different conceptions may entail different potential development needs. It *might* be the case that supervisors in Biology consider fostering 'Emancipation' more important than Historians, Engineers consider 'Care/ Relationship building' more important than Biologists, and Historians consider 'Critical Thinking' more important than 'Engineers' (see Figure 2). Yet, even if similar tendencies were to be revealed also in future studies, thereby suggesting that they are somehow characteristic of the field, all it would show is that they all have some dominant concepts and some less dominant ones, which may mean that they have different development needs (and the same could be said about two supervisors from the same discipline with different conceptions).

Ideally, all new supervisors would have an opportunity, through targeted professional development workshops, to learn about different concepts of supervision and become aware of their personal conceptions, for such awareness could encourage a more thoughtful approach to supervision practice, and one aligned with the needs of individual students. We recommend a future study look at whether upon participating in such a professional development initiative, supervisors' personal conceptions become more developed and integrated, and their practices more adaptive. The level of integration of personal conceptions of supervision could be explored through repertory grids and concept maps, both techniques widely used in education research. And certainly, to build on an earlier point, we need to understand better whether the level of sophistication

or integration of a supervisor's conceptions has indeed any influence on student success factors.

## Disclosure statement

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