Theory-informed research: Exploring the potential and the limitations of using theory in the research process

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In dissertations at all levels, students need to engage with theory – at the conceptual stage (thinking about the focus of the research and developing the research question), at the design stage (thinking about how they will answer their research question), and at the analysis/interpretation stages (thinking about what their data tell them and how to frame it). These stages are of course intertwined. Students can struggle with *how* to use theory in their research, however, either shying away from it, or conversely assuming that everything about their research, including design and analysis, will be dictated by theory. The following activity (which focuses initially on survey analysis) has supported students to explore the potential of theory to *inform* the research cycle. The activity arose out of my desire for students to critically engage with and evaluate theory – but after a few iterations I realised that we also had really valuable discussions about the potential and limitations for use of theory in research.

I use this activity in a class about motivation and aspiration, on a Master's conversion programme in Psychology of Education. I believe that the principles would work well for both third year undergraduate and Master's level, for any topic where there are a number of theories that could be used to frame and understand the field, and where open-ended survey data can be sourced.

This is a two-hour session with a fairly large class (usually around 80+ students). The intended learning outcomes for the session are that students will be able to:

- Describe, summarise and apply theories (in my case, of motivation in education)
- Select an appropriate theory to explore a chosen context, and justify that selection
- Recognise the strengths and limitations of a theory in supporting exploration of a context or dataset.

In the first half of the session, I introduce students to a range of theories about motivation and aspiration. These have included, for example: Maslow's Hierarchy of Needs; Dweck's Mindsets and Achievement Goal Theory; Deci and Ryan's Self Determination Theory; Eccles' Expectancy Value Model of Behavioural Choice; Gottfredson's Circumspection and Compromise; and Oyserman et al's Possible Selves. At the start of the class, I ask students a series of questions about their own learning and academic motivation and as we go through the theories, I ask reflection or discussion questions to highlight how the theories can be used to help them reflect on their own circumstances. We then explicitly pull that together at the end of the first half, relating the original questions to the theories.

In the second half of the session, students start working in small groups, usually between 4 and 6 students. I introduce a list of questions that can help students critically evaluate theory, which currently includes:

- Is the theory logically coherent?
- Does the theory have any contradictions?
- Are there gaps in the theory?
- What critiques do other researchers have of the theory and/or the evidence for it?
- How well does the theory predict?
- What predictions can be made from the theory?
- What is the evidence for these predictions?
- How good is the quality of that evidence?
- How good is the theory's explanatory power?
- Does it provide a rich description?
- How good is the quality of the evidence for explanatory power?

This supports students in their understanding of criticality, and highlights that no one theory can do everything – different theories have different strengths and different purposes.

I provide each group with part of a dataset from a survey where 2000+ young people (ages 15/16 and 17/18) were asked (amongst other things) to list up to five of their 'goals, hopes, plans and dreams'. Each group has open-ended responses to this question from a few hundred students, which gives them more than enough to work with. I ask students to start to analyse

their portion of the dataset, by creating categories for the responses – essentially using content analysis. Specifically, I ask whether any of the theories we discussed can help students to create useful categories.

As the students work through the dataset sections, I (and usually a teaching assistant) move around the room to support students in their discussions. The students usually start by trying to create categories from theories and fit the data into those categories. This is when the 'aha' moments start: students realise that the survey data is not structured around the theories, so there's not enough information to do this effectively. The survey data then help them evaluate the theories and recognise what the affordances of different theories are. In the plenary I ask the following questions:

- Can you use the theories to categorise the responses?
- Can you use the theories to ***interpret*** or ***understand*** the responses? (i.e. find an underlying motivation)
- How else can you categorise or interpret the responses?
- What else would you like to know about these responses, to help you think more about the theories?
- What did the theories enable you to do with the data?
- How did they help you think about the responses?
- What were the limitations of the theories in this exercise?
- Did the responses help you think about the theories at all?

These two sets of questions at the end of the task help to structure the 'aha' realisation. Students begin to recognise that different theories have different conceptual affordances and different practical affordances (i.e. for use in analysis); they begin to explain the importance of integrating theory in the design to help focus analysis; and they discuss how analysis can take you beyond the bounds of particular theories and see the value in that.