

**How to progress your thinking about your
thesis/research topic:
Hansen's Heuristic Hexagon.**



Dr. Jens J. Hansen, Woodhill Park Research Retreat

www.woodhillpark.com

Ph. +64 9 411 7703

A few years ago, I taught two post-graduate research courses at the University of Auckland; one focussed on quantitative research and the other, you guessed it, was about qualitative approaches to research. During one session, I discovered that some of the students were having considerable difficulties in generating not just research questions, but also research goals, objectives, aims, call them what you will. Moreover, they struggled with formulating research hypotheses and in articulating resultant research outcomes.

For instance, they, like many other students I've encountered over the years, did not seem to know that an objective or a goal practically always begins with the word, "To ..." (achieve something or other) and a hypothesis inevitably begins with the word "That ..." (something or other is probably true or, in null form, is likely false). So as an impromptu exercise, I asked them to nominate two or three key words that they thought might encapsulate the kernel of their contemplated thesis or dissertation. I then asked them to identify, as precisely and concisely as they possibly could, the global question that their thesis might specifically focus upon. Additionally, they were asked to give wording to any supplementary or secondary questions that derived from the global question and I asked them to present these questions in a logical sequence within a table column.

When these had been completed, I asked the students to carefully specify research aims and outcomes making sure that the aims and outcomes were attendant to the questions from which they had flowed. They were also asked to nominate associated hypotheses for each of these items.

What had emerged, more a less by happen-chance, was actually a very useful strategy for clarifying the preliminary thinking that is necessary for the framing of a thesis topic. As we discovered, this was an approach that drilled into the nub of the thesis rather more precisely than many of the typically long and tortuous forms that are developed, often clone-like, by tertiary institutions. The students told me that what we did was, for them, extremely difficult. But it was also, they acknowledged, an intensely useful exercise for them.

However, there were to me, two apparent flaws: first, identifying questions, goals, outcomes and hypotheses (in any order) did not get to grips with the important matter of

theory, and second, neither did the grid give rise to any considerations about possible methodological frameworks that could be used. So two more columns were quickly added to the matrix and the emergent table looked something like this:

Table One. A simple matrix to help clarify initial research thinking¹

Research Aim/s	Aims, objectives, goals always begins with the word "To ..." and relate to procedures needed to achieve the objective, e.g. "The goals are: 1. to determine how many eggs a chicken lays over a four week period; 2. to calculate how many eggs might be laid in year; 3. to see if the chicken crosses the road to lay eggs." Note that there can be a global aim, viz, finding out about the laying behaviours of chickens, and more specific interconnected and/or discrete aims, viz. the road-crossing whims of chickens.
Research Question/s	Research questions can either be concerned with <u>descriptions</u> (i.e. finding out about <i>what</i> and <i>how</i>) or with <u>explanations</u> (i.e. finding out about <i>why</i> or <i>why not</i> things happen). In addition, there can be <i>compound</i> or <i>omnibus</i> questions which probe both descriptive and explanatory domains, e.g. how many eggs did the chicken lay over four weeks and how often did it cross the road in order to lay and why, if at all, might it have crossed the road?
Hypothesis/es	Hypotheses, always begin with the term "That ..." (something or other is demonstrable)". In other words, a hypothesis is the articulation of a proposition that can be stated either as a test of a demonstrably true claim, or conversely, as a matter to be disproved. In the social sciences, however, demonstrating that something is true or false is a typically a <i>probabilistic</i> exercise.
Outcome/s	Outcomes are basically declarations of anticipated and desired achievements. They are indicative of what is likely to happen, i.e. they tell researchers and supervisors about intended accomplishments. Reasonably framed outcomes also help clarify the extent to which new knowledge will likely be achieved.
Theory	Theory is fundamental to research for without it, research, per se, does not really exist. Note that in some instances, theoretical considerations inform research procedures and in other cases theory emerges as a consequence of research actions (viz – deductive and inductive approaches to research).
Research Procedures	In the end, what we do procedurally is primarily informed by all blended forms of all of the above. However, there is reciprocity of influence because procedures can and do prompt further questions, spark new goals, trigger fresh hypotheses, force revised outcomes and give rise to reconsidered theory. In turn, research procedures are fashioned by the all of the above.

Thus, as shown in grey within the table above, two fresh columns (which have been shown as rows here for ease of fit) were added to the matrix – one for *theory* and one for *research procedures*. These additional columns/rows meant questions, goals, outcomes, and hypotheses could be informed by theory (which is usually, but not always, drawn from academic literature) and in turn each of these elements could be framed in such a way that they aligned with theory. Furthermore, as the late W. P. B. Cleary said to me (when I was a seventeen year old at Ardmore Teachers' College) "*once your objective/s are clear, your method or methods will become apparent.*"

Whilst Bruce Cleary's espousals were concerned with shepherding our thinking as beginning teachers, I've come to realise that the same principle applies for research activities – you need to know what it is you want to achieve, and why, before you begin so that you can then work out how you're going to proceed. Hence, for this scheme of thinking, it is unlikely that the research procedures column will be completed first.

¹ When it was first devised, the headings to this matrix appeared on the top horizontal row but for ease of web-page presentation, the material has been rotated. As with all matrices, presentation choices are optional; it is the material within each cell that matters. The grey rows, by the way, denote the added elements.

There are two final comments to add to this commentary and they go like this:

- First, over the past twelve months, I've tested the above framework, informally, with a fairly substantial number of researchers (close to twenty doctoral and/or masters candidates and also some ten or so academics). They've uniformly given the approach a thumbs-up and have also generally indicated that, for them, the process has been at once been intensely challenging and richly rewarding. But please note that it is not a substitute for a fully fledged research or thesis proposal – it's merely an aid, a heuristic to thinking.
- Second, I awoke one morning at around 4.00 a.m. to discover, horrors of horrors, that I'd been thinking in my sleep about how Clive McGee's (1997 pentagon shaped) model of curriculum development might be adapted to incorporate the matrix I've described above – only it would need in this case to be manifested as a hexagon. The thing I like about McGee's model² is that it can be stepped into at any point and as I've reasoned above, with possibly the exception of the research procedures dimension, the thinking processes required to clarify the nature and intensity of a research proposal can, as per McGee's model, also unfold in any order. This means you can begin your thinking at any point you prefer except for the dimension of procedures (and even that may be contestable!).

As we know, hexagons are the shape of honeycombs so that plains of separate cells intersect to form the whole of a hive. And so it is with research. The various dimensions or planes of any one research project can usually be made to interlink with aspects of the past and the future. That is how epistemology grows. Thus, I'm suggesting, the matrix above can also be shown pictorially with each dimension represented at one of the points of the hexagon.

What do you think? Comments and feedback welcomed.

Note: A PowerPoint showing this hexagonal approach has now been developed that provides a schematic representation of the thinking matrix. Click [here](#) to view this Power Point Show.

² McGee, C. (1997). *Teachers and Curriculum Decision Making*. Palmerston North: Dunmore Press