

## Chapter 2

# Mixed Methods



**Abstract** This chapter describes and defends the Thematic Analysis and the Qualitative Comparative Analysis (QCA) used in the research design. In the Thematic Analysis, a total of 1812 responses were generated from the question posed on ResearchGate: What skills must 21st century teachers have to promote high quality learning? From these responses, 200 posts were analysed. In the Comparative Analysis these responses were compared to a select group of Big Thinkers.

**Keywords** Case study research • Qualitative comparative analysis

We undertook practitioner based, mixed method research. Thus, being a participant in the learning was mandatory. We examined our practices through the eyes of others.

### Thematic Analysis

In ResearchGate, only professional, relevant posts are permitted to persist. We elected to follow questions that had been posted under the educational topics. There, we selected one insightful and important question (by one of our authors). We collected responses from the initial posting of the question until we deemed that saturation had been achieved. (ResearchGate does not close threads down.)

We did not select representative examples; we used full (100 %) sampling. However, our usable response rate for obtaining relevant lucid material being returned was far less than 100 %, as we had to discard off-topic posts, thanks, and responses with little content. That was the editing phase of our research, and was a natural part of the processing of our data. For compression and subsequent consumption, we present what is a pre-digested version of a very long and unending thread.

From the posed question, the responses were collected in a data base. From that data base, we eliminated trivial and off-topic posts and any posts in which we could find no key phrases (i.e., skills) to highlight. We put each response into one or a few pigeon holes (i.e., by tagging). This process helped us to “see the simplicity beneath the complexity” (Kennedy, to appear).

Over the period Nov 15, 2012 to March 2 2015, the question we concentrated on had received 1812 responses. We found that new ideas were starting to saturate by Jan 17, 2013 and we stopped collecting new data for the data base on that date. Some 200 posts had been generated and formed our primary data base while some relevant data was obtained after those dates.

We then highlighted key phrases in the eligible posts, and categorised the key phrases and the posts according to one or more categories, which became the rows in our Table 4.1. We expanded Table 4.1 by adding rows as we found it necessary. We sorted the posts according to categories. We reorganised the table to have one letter per row with a “reasonable” grouping of skills.

We then reported on the common voice of the posts on that category, supporting that category with the literature while actively seeking for gaps in the literature and in the posts.

We used only what other posters considered to be high-quality posts of thinking about the needed skills. Given that we have a wide range of posters, we first narrowed our analysis to include only those posts that we considered to be high-quality posts on the topic. We were influenced by the posts relevance to the question being addressed.

The general quality of responses was strong, with none garnering any down-votes. All of our top 50 posters garnered 3 or more up-votes, each from at least 3 different readers or co-posters. Their names appear in the Appendix. To ensure replicability and impartiality, the top posters for our thread were based on votes accrued by the top 76 posts in the thread we analysed. We had to tally 76 top scoring posts to get 50 posters, because some posters posted more than once. There were no down-votes, so we did not have to reduce any scores. See Appendix for the list of the contributors who received the most acknowledgements from other posters for what they wrote.

We now present the steps that we followed in our method.

We started by collecting every post to the discussion thread through copying and pasting all posts into a spreadsheet. The full data included the whole thread as it was presented on ResearchGate, i.e., the name and institution of the author, the statement posted by the author and date.

To aid us in our approach, we started by highlighting key words in bold, until we had established a folksonomy.

We fixed obvious spelling and grammar errors where meaning was unclear.

We numbered any external references that the posters supplied. We later checked the existence and suitability of the references. We have appended them for teachers/researchers to use as a resource.

As we read the posts, we built up a framework (Table 4.1) for classifying the main contribution of each post. This was so that we could sort the thread according to contributions, to bring similar contributions together.

This and the next were vital steps in understanding the coding of categories. In the previous step, we had arranged the texts of the posts as records, one per row. The texts of the posts were in column A (field A). We then added another column. We typed in an easy-to-remember alphabetic code to characterise each main thought.

We sorted automatically.

We paraphrased each post if it improved the text; otherwise we inserted opening and closing information in an attempt to tie together and synthesise the category. We referenced each post with the poster's name and date of post.

We felt it was important to view these categories of skills and ideas individually and as a cohesive whole.

## Qualitative Comparative Analysis

Within the Mixed Method Approach we employed a Qualitative Comparative Analysis (QCA) on the categorised data. The QCA examined the central ideas of the posters who responded to the ResearchGate question as a single case. We also examined ways in which their ideas compared to a number of Big Thinkers in the area of 21st century education. This enabled us to better understand the source of their thoughts and the progression of the overall thread.

QCA can be defined as:

“A research method for the subjective interpretation of the content of text data through the systematic classification process of coding and identifying themes or patterns” (Hsieh and Shannon, 2005, p. 1278).

QCA is a research strategy that originated from Charles Ragin (1987) as a way to envisage the dialogue between ideas and evidence. Here was a means to compare theories being advanced by a group of Big Thinkers and those of teachers/researchers.

Alternatively, we can use Patton's definition, which is

“Any qualitative data reduction and sense-making effort that takes a volume of qualitative material and attempts to identify core consistencies and meanings” (Patton 2002, p. 453).

To better understand the thinking that our posters brought to the discussion about skills that teachers need for 21st century learners, we grouped them together as a single case. Yin (1984, p. 23) defines the Case Study research method as

an empirical inquiry that investigates a contemporary phenomenon within its real-life context; when the boundaries between phenomenon and context are not clearly evident; and in which multiple sources of evidence are used.

## The Cases

While we recognised that the membership in this case was filled with linguistic, cultural, political and philosophical variables, this is what made it a chaotic yet exciting place to investigate.

For instance, the posters work in a myriad of educational sectors and institutions. They have a diversity of positions, with years of experience ranging from managing large research centres to teaching in high schools, undertaking their PhD's or are in honorary positions. They also represent a wide variety of disciplines with science areas appearing to dominate the field.

We gathered global data from a diverse range of teachers/researchers in many sectors and disciplines to show a range of contexts (see Appendix).

For instance, the posters come from and work in a myriad of educational sectors and institutions with differing beliefs, languages, traditions and practices. Three examples suffice:

1. A German lecturer, currently working in Thailand, shared that students are being prepared by “sharpening their pencils and copying their teachers’ chalky shadows on the blackboard.” (Bruckner, Jan 15, 2014).
2. From India, Mischra Vinod posted that they [his educational leaders] are making teachers become job providers rather than job seekers (June 10, 2013) and
3. Francisco Moreno posted that Mexican teachers are not being prepared for new responsibilities and change (March 20, 2013).

While recognising this diversity of tradition we still considered the posters to be a single case since all

- posters are teachers or researchers with an interest in bettering their teaching and bettering learning for 21st century students.
- believe needed change in education is crucial.
- have joined ResearchGate.
- have responded voluntarily at least once to the question posed by Hélia Jacinto:

What are the skills that 21st century teachers must have to ensure that high quality learning takes place?

This research process was iterative. Returning to the case often lead us back to a previous step and revise our interpretations.

To support our process, we also turned to a number of Big Thinkers in education. Membership in this case was linked to their unified beliefs.

- They all think locally and globally, towards the unknown in their directions in education.
- All believe that the current education models are broken, beyond repair and propose a new paradigm.
- All are against standardisation, high stakes testing and a common core curriculum.
- All believe in the power and ability of youth to solve many of our global challenges.
- All favour an innovative, entrepreneurial and creative approach to education.

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