

Identifying Entrepreneurial Competencies using Q Methodology: An Innovative Research Approach

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Abstract: This paper introduces Q Methodology as a technique for the study of human subjectivity and in particular individual beliefs, values, opinions and attitudes. Originating in the discipline of psychology, Q Methodology remains a relatively unknown and underutilised technique across other disciplines. Moreover, where it does occur, it is frequently described as an innovative research approach. Here, the six key stages within a Q Methodological study are introduced, and are explored in the context of an illustrative Q study, which sought to identify the entrepreneurial competencies of UK farmers who have diversified all, or part, of their agricultural operations to farm based tourism and recreation. Thus, the aim of this paper is to demonstrate how Q Methodology works in a practical setting with the literature on Q Methodology reviewed and discussed in tandem with the research findings. In outlining this research design, this paper highlights that Q Methodology embraces a hybridity of both quantitative and qualitative approaches. However, at its core, lies a rejection of hypothetico-deductive methods, and as such, it remains a social constructionist and largely qualitative method. Moreover, this paper demonstrates that Q has much to offer business and management researchers in heeding the call for greater methodological pluralism.

Keywords: Q Methodology, Subjectivity, Entrepreneurial Competencies, Farm Diversification.

I. Introduction

This paper explores the use of Q Methodology (hereafter Q), a technique designed for the systematic study of subjectivity, within a business and management research setting. More specifically, this paper presents an illustrative Q study that considers the entrepreneurial identity of farmers who have diversified their operations to farm based recreation and tourism. The work presented here emerges from a social constructionist research agenda where Q was used to explore the entrepreneurial competencies that farmers considered essential to facilitate these farm diversification strategies (See: Phelan, 2014). Moreover, social constructionist approaches are advocated as a useful methodological tool to generate new insights into the study of entrepreneurship (Chell, 2000); the ontological position being that entrepreneurship and the entrepreneur are social constructions based on subjectively and inter-subjectively understood beliefs amongst researchers, policy makers and practitioners (Lindgren and Packendorff, 2009).

Q has been advocated by Stergiou and Airey (2011) as a new research technique, to aid the critical turn away from traditional positivist approaches that dominate tourism research. Ainley, Phelan and Kline (2011) establish that the vast majority of farm tourism research adopts positivistic methodologies and quantitative approaches, a situation which they say is unsurprising, given that the field of tourism itself is largely dominated by quantitative research designs and methods. Thus, they call for greater methodological pluralism in this research domain (See also: Ainley and Kline, 2014).

Surprisingly, given the discussion within this paper, Q extracts subjective opinion using statistical techniques and factor analysis, allowing some scholars to emphasize the scientific basis of the approach (McKeown and Thomas, 1988). However, the epistemic orientation, and qualitative analysis of any post Q interviews reaffirm its departure

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from positivism. To this end, Q provides a foundation for the systematic study of subjectivity, therein a person's viewpoint, opinion, beliefs and attitudes (Brown, 1993) Hence, Q is proposed as an innovative research approach (Stergiou and Airey, 2011; Massingham, Massingham and Diment, 2012), to understand how individuals, 'come to know and make meaning and sense of their worlds from their own perspectives and experiences,' (Previte, Pini, & Haslam-McKenzie, 2007:141). What is more, this paper advocates that Q provides a valuable addition to the business and management research toolkit, in that it offers a hybrid approach that bridges the qualitative-quantitative divide, which otherwise remains largely intact within the discipline and which addresses the call for greater methodological pluralism previously highlighted.

2. Farm diversification and entrepreneurial competencies

As outlined above, this paper outlines a recent Q study, which sought to identify the entrepreneurial competencies that farmers identify as essential in the context of farm diversification. In effect, the study sought to conceptualise their entrepreneurial identity following ongoing reform of the EU Common Agricultural Policy (CAP). Reforms which have led to a reorientation from productivist to more entrepreneurial models of farming. These transitions, which have exerted downward pressures on farm income, have driven many farmers to seek alternative income away from primary food production, often through diversification of all or part of the farm holdings.

In short, CAP reform has seen farmers transition from the conventional role of price taker, towards that of price maker; with the former requiring appropriate technical and managerial competency, whilst the latter necessitates broader entrepreneurial skills and competencies (Phillipson, et al., 2004; McElwee, 2006; Pyysiäinen, et al., 2006; Phelan and Sharpley, 2012). For example, de Wolf, McElwee and Schoorlemmer (2007) suggest that networking, innovation, risk taking, team working, reflection, leadership and business monitoring are fundamental to developing and improving the farm business. Whilst, Morgan, et al. (2010), emphasise what they describe as the higher order skills of, recognising and realising opportunities, creating and evaluating a business strategy and networking.

Whilst a number of potential development and diversification strategies for farmers have been identified (See: McElwee, 2006), the perception that tourism is a viable alternative has seen it become a key diversification activity. However, whilst there has been an increasing conceptualisation of the farmer as an entrepreneur and a focus on the associated entrepreneurial and managerial competencies, research to date has yet to focus on farm tourism from this same perspective (Phelan and Sharpley, 2011). Thus, the specific objective of the Q study detailed below, was to address this gap within the literature and to develop a taxonomy of entrepreneurial competency with respect to farm tourism diversification. Moreover, in doing so, this study also provides a valuable methodological contribution, given that as a research method, Q remains underutilised within tourism management. However, as will be demonstrated, it offers significant potential for the study of both entrepreneurship and entrepreneurial competencies.

3. Introducing Q Methodology

Q Methodology was introduced by William Stephenson, in a letter to the journal *Nature* in 1935, in which he outlined his ideas for correlating persons instead of tests. Stephenson's ideas came to be distinguished from more traditional statistical techniques (known as R methodology), in that they inverted the traditional factor analysis technique to allow for a by-person as well as by-variable factor analysis (Brown, 1980; McKeown and Thomas, 1998). More specifically, respondents are asked to rank order items according to their degree of preference or agreement, against a condition of instruction established in the research design. These items are typically written statements, but can be photographs or other items, against which the researcher seeks to identify the operant subjectivity or shared viewpoints of individuals. At its core, Q assumes that subjectivity has a measurable structure and central to Q is the notion that respondent gives meaning to the statements by sorting them. Thus,

the technique can be used to describe a population of viewpoints, and not, as is the case with more traditional methodologies, a population of people (Brown, 1993).

Inevitably, the fact that Q involves numerical data and complex statistical analysis can portray it as a quantitative technique in the eyes of qualitative researchers; just as its emphasis on the collection of verbal statements and post Q-sort interviews, makes it appear a qualitative technique to quantitative researchers (Davis and Michelle, 2011). However, Q is said to combine the strengths of both approaches, to the extent that it has been described using the term *qualiquantological* to explain and justify its hybridity (Stenner and Stainton Rogers, 2004). However, despite this, at its core is a rejection of quantitative logic and the hypothetico-deductive methods that have more traditionally been viewed as science, with those championing Q reminding us that it was designed for the very purpose of challenging the Newtonian logic of testing that dominated at the time (Watts and Stenner, 2005).

Despite the fact that Stephenson was resistant to Q being placed within any theoretical framework, its abductive qualities have increasingly seen it accepted as a social constructionist research approach, given that it is capable of identifying the principal social viewpoints and knowledge structures relative to a chosen subject (Stenner, 2008; Watts and Stenner, 2005, 2012). Therefore, despite its factor analysis and statistical heritage, Stenner, Watts and Worrell (2008:216) remind us that with Q, we have a 'discursive, constructivist, and hence an essentially qualitative method.'

4. Implementing a Q Methodology study

Having introduced Q and acknowledged farm diversification and rural entrepreneurship as the research context, it is now necessary to detail the six main stages of Q, which include: (1) the definition of the *concourse*, (2) the development of the *Q-set*, (3) the selection of the participants, (4) the *Q-sorting* procedure, (5) the statistical analysis, and (6) the interpretation of the emergent factors. Within this section, the design elements of a typical Q study are considered in tandem with a discussion as to how Q was developed in this particular study context.

4.1 The *concourse*

The first stage in Q is the development of the *concourse*, which is a technical term for the collection of all possible statements that respondents could make regarding a subject. Typically a *concourse* comprises of hundreds of statements that must be reduced to a manageable yet representative sample for respondents to sort. The *concourse* can be derived from a variety of sources, including the literature, interviews, focus groups, media reports and opinions of both experts and lay people (Van Exel and DeGraaf, 2005). In practical terms, the *concourse* may be considered the overall population of statements from which the final *Q-set* (or items to be sorted) is derived (Watts and Stenner, 2012). For this study, the *concourse* was drawn from an appraisal of the literature on entrepreneurial skill and competency. What is more, in order to make the process manageable, both *concourse* and the resulting *Q-set* were structured around the competency clusters advocated by Man, Lau and Chan (2002), as will now be explored.

4.2 Developing the *Q-set*

As has been outlined, the *concourse* may comprise of hundreds of statements and thus a more manageable set must be developed. This resulting *Q-set*, may be emergent following examination of the *concourse* (bottom-up) or theory based (top-down) as appropriate to the study. Whether theory driven or emergent, the aim is to develop a range of statements that is representative of the existing views and opinions of a topic (Watts and Stenner, 2005). Inevitably, this is an area of research design that may attract criticism, given the role of the researcher in deriving both *concourse* and *Q-set*. However, as Brown (1993) notes, it is the respondent who gives meaning to the selected statements by sorting them and the *Q-set* should allow participants to understand the central issues at play. Moreover, Stenner, Watts and Worrell (2008:221) advocate, that it is, 'not the *Q-set*

itself that is of prime importance... but what the participants do with it. The ultimate aim of Q study is not, after all, to estimate a theme or issue, it is to identify (in a holistic fashion) the various positions that participants adopt in relation to it.'

As has been noted, the framework advocated by Man, Lau and Chan (2002) was used to frame the concourse and refine a manageable Q-set. They propose that an entrepreneur should hold a balance of various competencies, with an emphasis on only a few not being sufficient to ensure venture success. Thus, their approach categorises six competency clusters, to include: (1) opportunity, (2) relationship, (3) conceptual, (4) organising, (5) strategic and (6) commitment competencies. The decision to implement this approach stemmed from the desire to offer an approach that was transparent and defensible, although it is acknowledged that final selection necessitates value judgements on the part of the researcher. However, as has been acknowledged, the aim is to develop a range of statements that is representative of the existing views and opinions on a topic. Thus, forty-two statements were selected, with seven against each of the six competency clusters, to form a structured and balanced Q-set.

4.3 Selection of participants

Within Q, the participants who implement the sort are known as the P-set. Herein, lies one of the most fundamental distinctions from other research approaches, with participants considered the variables and the items being sorted the cases. Within a Q design, the intention is not to identify the worldview of participants within the sample, but rather to identify and describe the viewpoints that are more broadly available in the wider population. For this reason, it is preferable to recruit a P-set that holds a diverse range of positions and opinions, to increase the likelihood of including the broadest range of worldviews possible (Brown, 1980; Stenner, Watts and Worrell, 2008). Opinions on the size of the participant-set vary, with the prevailing view being that the P-set is usually smaller than the Q-set (Van Exel and De Graaf, 2005), with Barry and Proops (1999) suggesting that as few as twelve participants can generate statistically meaningful results. For this study, the P-set comprised of fifteen farmers, who were purposively sampled from an earlier study of farm diversification in the North West of England (Phelan and Sharpley, 2012).

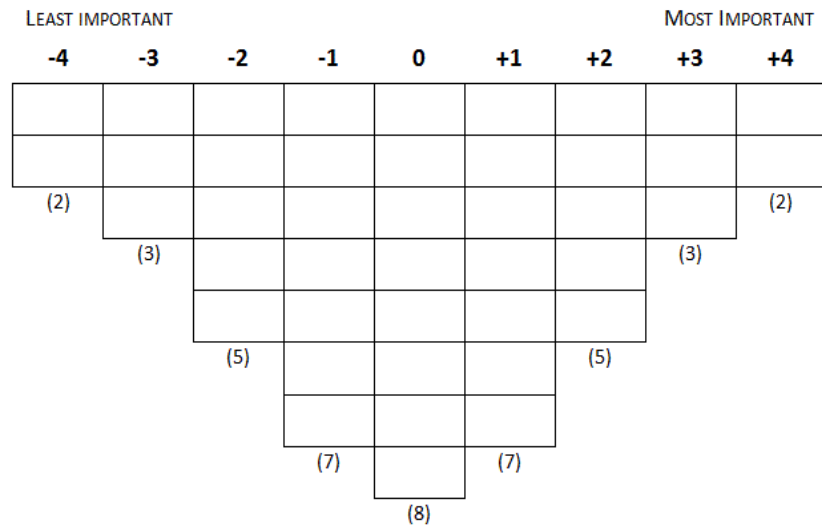


Figure 1: The 42 item Q-Sort distribution used in this study

4.4 The ranking procedure or Q-sort

Having selected both the Q-set and P-set, the third and most easily identifiable stage is the Q-sorting task. Here, participants are asked to sort the statements according to a condition of instruction. Typically, this will be from

most agree at one end, through to most disagree at the other. The sorting of these statements is a forced distribution with a number of patterns possible, generally across a nine to eleven point scale (Brown, 1980). Here, respondents were asked to rank order the forty-two statements against the nine point forced distribution shown in Figure 1 (from +4 to -4), according to the instruction 'most' to 'least' importance.

4.5 Factor analysis

Q Methodology uses factor analytical techniques to reveal the underlying explanations for patterns emerging from the Q-sort data, with the resulting factors representing the 'idealised sorts' or 'social perspectives' that comprise the subjective expressions of participants. The researcher's role is to now interpret these idealised Q-sorts and develop a narrative that describes each of these social perspectives (Webler, Danielson, Tuler, 2009). More specifically, data analysis within Q, involves the application of three statistical procedures, comprising: (1) correlation, (2) factor analysis, and (3) the computation of factor scores (Van Exel and De Graaf, 2005). Specific handbooks exist to guide the researcher through the stages of analysis and interpretation (See: McKeown and Thomas, 1998; Webler, Danielson and Tuler, 2009; Watts and Stenner, 2012) though broadly, the intention is to select 'factor exemplars' based upon the identification of those Q factors with an eigenvalue in excess of 1.00 and which have a minimum of two Q-sort's loading significantly upon that factor (Brown, 1980). Within this phase, Webler, Danielson and Tuler (2007:27) remind us that: 'you are in essence doing the reverse of what the participants did while Q sorting – they took their views and translated them into an arrangement of cards. Now, you are taking arrangements of cards and translating them into viewpoints.'

Here, analysis was conducted using the DOS based freeware PQMethod (Schmolck, 2014), along with the sequential approach to generating a Q-Methodological factor analysis advocated by Watts and Stenner (2012). Firstly, the correlation matrix, which represents the 'level of (dis)agreement between the individual sorts' and thus the, 'the degree of (dis)similarity in points of view between the individual Q-sorters' was calculated (Van Exel and De Graaf, 2005:10). Next, the correlation matrix was subjected to factor analysis to reveal the natural groupings of Q-sorts with respect to similarity/dissimilarity to one another, with those showing similar views belonging to the same factor. Next, the sorts were subjected to varimax and by-hand rotation, with three factors subsequently extracted, that provide three distinct interpretations of managerial and entrepreneurial competencies that farmers identify as important in the context of diversification to farm tourism (See Table 1 below). The selected factors, each have an eigenvalue greater than 1.0, account for all 15 participants and collectively explain 54 percent of the variance. Within Q, any factor solution above 35 percent of total study variance is considered a sound solution (Watts and Stenner, 2012).

4.6 The emergent factors

Whilst the scope of this conference paper does not allow for a comprehensive analysis of the emergent factors, it is nonetheless useful to engage in some discussion of the subjective constructions that the process identified. The Factor Array for the three emergent factors labelled: (A) reflective leaders, (B) opportunity aware organisers, and (C) opportunity driven innovators, are presented in Table 1. Specifically, the Table displays the ranking of items within each factor and if read 'by row' reveals the comparative ranking, from -4 to +4, of a particular item (relating to a specific entrepreneurial competency) across all factors. If read 'by column', then each array can be considered the 'factor exemplar' having been calculated by a procedure of weighted averaging; with higher loading exemplars given more weight as they better exemplify the factor (Watts and Stenner, 2012). What is more, any individual factor array (A, B or C) could be presented in the form of an idealised Q-sort, if presented within the 42 item forced distribution shown earlier in Figure 1. Having established the idea of a factor exemplar or factor array, the interpretation of the three emergent factors can now be established. A brief description of each factor is presented here, with the ranking of any relevant items included in parentheses. For example: (Item 18: -4) would indicate that item 18 has been ranked in the position -4 against the factor under discussion.

Table 1: Factor array of the three emergent factors

<i>Item number and wording</i>	Factor Arrays		
	A	B	C
1 Able to easily describe the problems in your business	-1	-2	-1
2 Have a large measure of creativity	-3	-3	1
3 Effectively put your ideas across to an audience	2	-4	3
4 Have sound financial management skills	2	4	2
5 Continuously aware of new possibilities	-1	0	1
6 Have the ability to identify unmet customer needs	-1	2	4
7 The ability to communicate effectively and make requirements clearly understood	3	1	2
8 Have the ability to plan the daily operations of the business	1	1	0
9 Able to generate new and innovative ideas	1	1	3
10 Allocate the resources to allow the business to run smoothly	0	1	-2
11 Able to identify products and services that provide real benefits	0	1	-1
12 The ability to evaluate your own actions as much as possible	1	-2	-2
13 Willing to look for new information all time	-2	-2	-1
14 Be open to criticism from others (colleagues, employees, etc)	0	-2	-3
15 Possess the emotional ability to cope with a problem	1	-1	0
16 Be able to enlist the support of key people	2	2	1
17 Able to look at problems in new ways	-1	-1	0
18 The ability to make the venture work no matter what	-4	0	0
19 Be an effective leader	4	3	2
20 Be able to delegate effectively	3	0	-2
21 Be able to recognise a gap in the marketplace	-2	2	3
22 Be prepared to negotiate with suppliers or buyers regarding prices	-3	3	2
23 Actively look for products or services that provide real benefits to customers	-1	2	0
24 Have the ability to name your business goals straightaway	-2	-1	-2
25 The ability to incorporate feedback from customers into your products / services	-1	0	0
26 Be good decision maker	2	4	2
27 An awareness of changes in the industry and how they may impact your business	1	2	-1
28 Aware of your own strengths and weaknesses	2	0	-1
29 Prepared to lay down your goals in written plans	-2	-3	-4
30 Possess a clear idea of where your business will be in five years	-2	1	-1
31 The ability to prioritise your work in alignment with your business goals	0	0	1
32 Perceptive as to what others mean by their words and actions	0	-1	-4
33 Be able to motivate others	3	0	1
34 Be the first to try out new things	-4	-2	-3
35 Be able to picture the consequences of a decision over the coming months / years	1	1	0
36 Maintain a network of professional contacts	-3	-4	0
37 Be prepared to take risks	0	-3	4
38 Be able to see things from various points of view	1	-1	-3
39 Not be easily diverted from the goals that you set yourself	-1	-1	-1
40 Prepared to make large personal sacrifices when necessary	0	-1	1
41 Be able to weigh the costs and benefits of the decisions you make	0	3	1
42 Have the ability to organise and coordinate people	4	0	-2

Factor A (Reflective Leaders) has an eigenvalue of 9.66 and explains 23% of the study variance, with 6 participants significantly associated with this factor. This factor is an account of those who value decision-making and the ability to organise and coordinate (Items 19 and 42: +4). The key aspects of this factor are the supporting relationship competencies that allow them to achieve this, including effective communication (Items 7 and 33: +3), gaining consensus and support, as well as fostering motivation amongst those they lead, coordinate and organise (Items 16 and 3: +2). However, whilst comfortable with these internal relationships, the interpersonal skills of those with this shared perspective do not seem to extend beyond the farm gate, either through a lack of

willingness or, perhaps, reflecting the fact that these respondents prefer not to network externally (Items 22 and 36: -3).

Factor B (Opportunity Aware Organisers) has an eigenvalue of 7.98 and explains 20% of the study variance, and again 6 participants are significantly associated with this factor. This factor is closely linked to A, in that parallels can be drawn in regards to organisational and relationship competency. However, whilst organisational competencies are still valued highly, the need to be an effective leader (Item 19: +3) is now (marginally) surpassed by the need to be a good decision maker (Item 26: +4). Thus, the importance now appears to be placed on making the right decision (as opposed to being decisive) and the possession of solid financial management skill (Item 4: +4). This factor also places emphasis on strategic and opportunity competencies to the extent that they offset a number of the conceptual competencies advocated by Factor A. Moreover, distinguishing statements reveal that high importance is given to identifying products and services that provide customer benefits and indeed to being able to identify these unmet customer needs (Items 6, 21 and 23: +2). Similarly, this shared perspective demonstrates a keener strategic awareness with regards to future business direction, as well as understanding what is taking place in the industry overall (Item 27: +2). Thus, in being more strategic and opportunity aware, one might argue that if a continuum between managerial and entrepreneurial exists, then this perspective is much further along (than Factor A) and is evidently more enterprising and outward facing in its stance.

Factor C (Opportunity Driven Innovators) has an eigenvalue of 5.04 and explains 11% of the study variance, with 3 participants significantly associated with this factor. This factor is differentiated by its emphasis on conceptual and opportunity competencies (Items 4, 19 and 26: +2) and, whilst still valuing relationships, has a reduced emphasis on the organising competencies (Items 10, 20 and 42: -2) demonstrated by the previous factors. In particular, this shared perspective would seem to positively embrace risk or, at the very least, recognise that an element of risk is inherent in all business activity (Item 37: +4). Moreover, elements of creativity and being aware of 'what is possible' would seem to drive this opportunistic streak and risk propensity. Moreover, Factor C is conspicuous as the only factor that embraces elements of the more traditional definitions of entrepreneurship as in, for instance, opportunity and risk.

5. Findings and Conclusion

Having previously identified that the scope and limitations of this paper make a comprehensive analysis of the three factors problematic, it has been demonstrated that Q has brought clarity to a potentially complex subject area with the above discussion identifying three differing perspectives of the farmer as a rural entrepreneur. Moreover, it is apparent, that each of the factor perspectives embraces a different position on a continuum between managerial and entrepreneurial, as well as between strategic and opportunity awareness. To this end, Figure 2 below offers a 'conceptual space diagram' to visually present these inter-factor relationships and difference in perspectives. Specifically, these relationships are shown on a managerial to entrepreneurial bifurcation, as well as a reactive to proactive bifurcation.

Here, whilst managerial and entrepreneurial is self-explanatory, the proposed proactive to reactive axis is a crude attempt to highlight the differences with regards to seeking opportunity and being strategic in approach (proactive) as opposed to not embracing strategic and opportunity competencies, or valuing them less (i.e. reactive). Thus, the research presented here has shown that the conceptualisations of the diversified farmer as a rural tourism entrepreneur as offered in the literature would benefit from refinement and from a clearer analysis as to which specific competencies are most evident or, indeed, to the nature of entrepreneurship under empirical scrutiny. Moreover, the above discussion reinforces the view that, in the context of entrepreneurship, farmers are not a homogenous set of actors (McElwee, 2006; McElwee and Smith, 2012). Indeed, there is a heterogeneity to the shared factor viewpoints which suggests that, amongst the farming population in the North West of

England at least, farmers as the operators of diversified tourism ventures take on to varying degrees managerial and entrepreneurial characteristics, irrespective of the ongoing structural reforms within the agricultural sector and the need to be more entrepreneurial and competitive within this context. To this end, and as a reflection of this heterogeneity in relation to the skills and competencies that are deemed necessary for successful farm diversification to tourism, a taxonomy of the range of views and values that exist on this topic is presented in Figure 3.

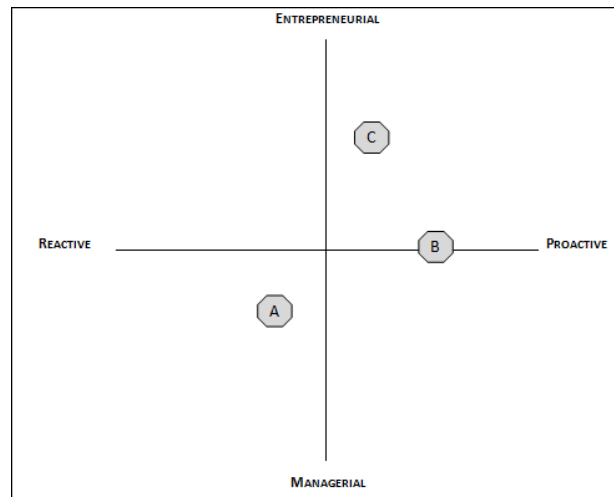


Figure 2: Conceptual space diagrams

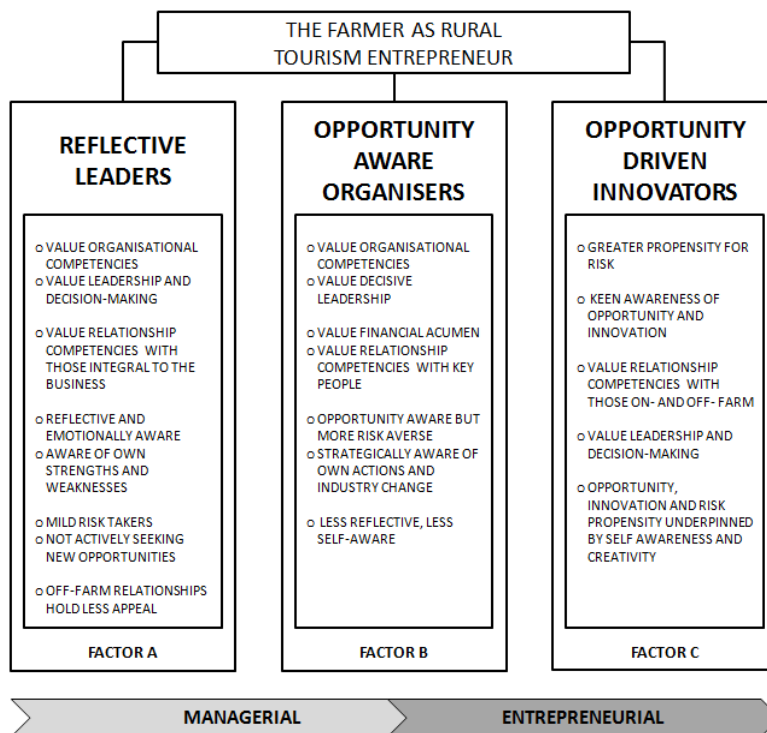


Figure 3: A taxonomy of the farmer as tourism entrepreneur

Having presented the key findings obtained via the application of Q, it must be noted that as a research approach it proved a novel and engaging activity for the participants who engaged in the process: who frequently commented that they had enjoyed the Q-sort process and that it challenged them to think quite carefully about issues that they ordinarily took in their stride throughout their working day. However, one inevitable limitation of the research presented here concerns the condition of instruction given to diversified farmers who completed the Q-sort, and to whether the results identified represent opinions or practice. Specifically, it is difficult to assess whether the participants (as farmers who have diversified to tourism) have prioritised the skills and competencies that they believe are likely to be important or, alternatively, that they already know from practice that such skills and competencies are actually required. Similarly, it is difficult to assess whether participants were drawing on their experience of the diversified tourism venture specifically, or the farm business generally. However, it must be acknowledged that these concerns would apply to many research designs and methods with which one would consider skills and competencies and thus is not unique to the Q design here.

However, more fundamentally, the findings in section 4.5 and 4.6 above demonstrate that Q has the potential to overcome the quantitative-qualitative divide that permeates tourism research and indeed business and management research generally. As the factor analysis and subsequent interpretation highlights, the subjective viewpoints under consideration have been unravelled by means of a systematic and replicable analysis in a way that is easily communicable. Moreover, the findings presented within a Q study are arrived at statistically and not as a result of the researchers preferred viewpoint, but rather, from the meanings that the participants place on the statements and not from a priori assumption and judgment. However, the paper has acknowledged limitations, particularly in respect to the complex task of concourse and statement generation which is both time consuming and complex. With the development of the concourse in particular, requiring much time and care to ensure it is a full and true reflection of the topic under consideration. However, in summary, this paper has introduced Q Methodology as an innovative research approach that can add to the methodological pluralism of business and management research.

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