

It is clear that a range of similarity exists in relation to each of the sorts. For example it appears that the way in which Participant 2 arranged their sort is quite similar (0.68) to how Participant 18 arranged theirs. On the other hand Participant 1 and Participant 8 show a degree of disagreement in the way they have arranged their sorts (-.36). Other participants, such as Participant 17 and Participant 20, show neither a high degree of agreement or disagreement in how they have sorted their items (-0.05). Based on the correlation matrix, not only can we begin to identify patterns of association between individual pairs of sorts we can also speculate about broader patterns relating to the entire data set. For example we can see that the general direction of correlation is positive (i.e. the majority of values are not preceded by '-'). This does not necessarily mean that the majority of the P-Set are positively disposed to evidence-based practice, but merely that on the whole the Q-Sorts were completed in ways that were more similar than opposite. Based on this broad level of agreement among sorts one might feel warranted to conclude the statistical analysis at this point and move on to an interpretation of the items that most characterised agree with most/agree with least. However two imperatives necessitate additional analysis: we should not simply be content with a visual inspection of the data in making our decisions about the holistic patterns that exist across the entire group; all we can be confident about at this stage is agreement and disagreement among *individual pairs* of sorts. Moreover, even if we were to trust in our ability to discern an overall pattern from the correlation matrix this would result in a significant loss of insight relating to the potential for there to be distinct sub-groups that could not be

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reasonably ascertained from a cursory visual inspection. The statistical technique that attempts to resolve this challenge is factor analysis, and the precise variety used in the current study is presented in the following Section.

#### **4.4.1.1.2 Factor analysis**

In terms of the data analysis so far the degree of correlation between each participant's sort has been identified. However it is unclear at this stage how many of the correlated sorts are similar enough to one another (yet distinct from the others) that they might be considered to be a common grouping or 'factor'. The next stage therefore is subjecting the correlated sorts to a widely used statistical procedure known as factor analysis, which aims to provide an answer to our question posed above of how many broadly similar sorts exist among the P-Set. This process is elucidated by Brown (1993) who states,

factor analysis examines the correlation matrix and in the case of Q methodology, determines how many basically different Q sorts are in evidence: Q sorts which are highly correlated with one another may be considered to have a family resemblance, those belonging to one family being highly correlated with one another but uncorrelated with members of other families. Factor analysis tells us how many different families (factors) there are. (p. 111)

Commonly this process is achieved through the use of computer software, however Brown (1980) provides an accessible guide to computing the Centroid version of factor analysis by hand<sup>19</sup>. Typically in Q-methodological studies either PCA or Centroid factor analysis is used. For both theoretical and pragmatic reasons (see Appendix LL for a discussion of these) Centroid

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<sup>19</sup> I would urge those interested in selecting Q-Methodology for their own research to follow Brown's (1980) steps with some sample Q-Sorts as it helps to clarify the data analysis process.

factor analysis was used in the current study, which was achieved through Q-Assessor's internal software and PQMethod. The additional use of PQMethod may be seen as an unnecessary step, however it was used alongside Q-Assessor not only to verify Reber et al.'s (2000) claims of convergent validity, but also to satisfy the need for experimentation and exploration of 'Q' as a method. Although ultimately the results reported in the present study could have been obtained from Q-Assessor's initial output alone, this would have reflected convenience rather than reasoned judgement.

#### ***4.4.1.1.3 Factor solution***

Both Q-Assessor's internal software and PQMethod revealed the same unrotated factor solution following Centroid factor analysis (see Table 11).

**Table 11- Initial unrotated factor solution**

		Factors							
		uA	uB	uC	uD	uE	uF	uG	h <sup>2</sup>
<b>Individual Sorts</b>	1	0.68	-0.26	0.12	-0.24	0.10	-0.18	-0.19	0.69
	2	0.73	0.14	-0.02	-0.04	0.01	0.04	0.29	0.65
	3	0.77	-0.14	0.15	-0.07	0.04	0.21	-0.05	0.69
	4	0.76	-0.23	-0.21	0.19	0.05	0.20	0.10	0.77
	5	0.75	0.08	0.19	0.01	0.05	0.16	-0.02	0.64
	6	0.76	0.17	-0.10	0.19	0.04	0.04	-0.23	0.72
	7	0.54	-0.40	-0.32	0.15	0.14	-0.03	0.06	0.62
	8	-0.24	0.33	0.28	0.21	-0.12	0.14	0.09	0.34
	9	0.78	-0.04	0.18	-0.25	0.08	0.13	-0.23	0.79
	10	0.72	0.14	-0.36	-0.15	0.08	-0.18	0.17	0.76
	11	0.83	0.09	-0.02	0.08	0.00	0.13	-0.11	0.74
	12	0.65	0.07	0.24	0.10	0.07	-0.08	-0.20	0.56
	13	0.53	0.02	0.34	0.34	0.19	-0.12	0.00	0.58
	14	0.65	0.30	-0.09	-0.11	0.07	-0.18	-0.03	0.58
	15	0.54	0.23	0.18	-0.23	0.12	0.21	0.23	0.55
	16	0.51	0.29	-0.05	0.02	0.05	-0.13	0.06	0.37
	17	0.59	-0.21	0.17	0.31	0.12	0.04	0.32	0.66
	18	0.83	0.08	0.06	-0.11	0.02	-0.13	0.14	0.77
	19	0.85	-0.17	0.10	0.16	0.04	-0.23	0.05	0.85
	20	0.35	0.12	-0.45	-0.13	0.11	0.24	-0.28	0.52
<b>Eigenvalues</b>		9.14	0.85	0.97	0.66	0.17	0.50	0.61	12.94
<b>% Total Variance</b>		45.74	4.25	4.85	3.34	0.87	2.53	3.09	64.70

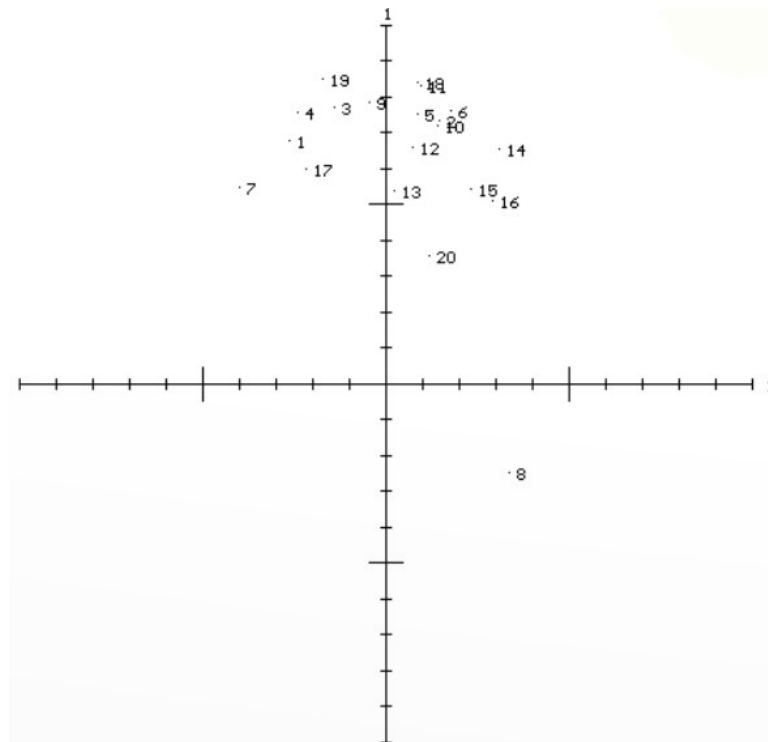
h<sup>2</sup> represents communality (the proportion of each variable's<sup>20</sup> variance that can be explained by the factors) and is the sum of the squared factor loadings for each sort. **Eigenvalues** represent the variance in all the variables accounted for by that factor and is the sum of the square loadings for each sort within the factor. **% Total Variance** represents how much of the variety among the sorts is captured by each factor. The shaded areas represent the sorts which not only load significantly on a factor but are relatively distinct from the other factors.

The factor solution saw 16 of the 20 participants load on the first factor (uA), accounting for 45.74% of the variance.

Recalling the first step of the analysis (the correlation matrix, Table 10), a visual inspection suggested that, on the whole, the majority of the Educational Psychologists had sorts that correlated positively with those of the other Educational Psychologists who took part. This speculation was supported by the Centroid factor analysis whereby 80% (n=16) of the participants were

<sup>20</sup> As mentioned in section 3.5.2 the variables in Q-Methodology are the whole sorts completed by the participants.

found to load on the first factor. This apparent widespread consensus among the individual sorts is visually represented in Figure 15.



**Figure 15- Graphic illustration of the consensus among understandings of evidence-based practice captured by Factor uA.**

Given the apparent clustering in Figure 15, it may be unclear why only 16 participants were identified as loading on the first factor (uA) when all but one of the Q-Sorts (that of participant 8) broadly cluster together. This is because the procedure used to determine the 'loading' of a sort reflects not only the significance of the correlation for that factor, but also the degree to which it is

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distinct from other factors (Jordan, Capdevila & Johnson, 2005; Berry, 2010 Asah, Bengston, Wendt, & DeVaney, 2012).<sup>21</sup>

Based on this analysis one might be tempted to conclude therefore that the majority of Educational Psychologists viewed evidence-based practice in a similar way (with the exception of Participant 8) and to end the analysis there.

There appears to be at least two good reasons to continue in unpicking the degree of difference and similarity present in the sorts produced by the Educational Psychologists.

From a theoretical perspective it has been suggested that in applied settings straightforward disagreement with evidence-based practice as a concept is uncommon (Trinder & Reynolds, 2000) but that the debate arises in relation to specific, usually philosophical, points of contention (i.e. the relative superiority of one form of evidence over another (Pawson, 2006; Haynes, 2002)). This provides a theoretical rationale for speculating that the consensus suggested by Factor uA may represent agreement on many of the broad principles of evidence-based practice but that subtle philosophical differences may exist in

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<sup>21</sup> While a straightforward way to identify a 'loading sort' is by stipulating a statistical cut-off (i.e.  $p < 0.01$ ), Schmolck (2009) claims, "a simplistic approach, like: all sorts that load above XX on the factor certainly would not suffice [in making a good factor exemplar]. For every sorts [sic] you must look on the entire pattern of loadings across factors. As a general rule, for instance, a person who is a very good exemplar for one factor cannot be a very good exemplar for another factor at the same time." Schmolck (2009) suggests that the Fuertratt Criterion represents a "simple, clear cut and un-sophisticated approach for suggesting a minimal set of eligible marker sorts that specifically does not accept double loadings". In the current study a 'loading' sort requires both, 1) a 'significant' loading (the sort's correlation coefficient must be greater than  $2.58/\text{square root of the number of items (0.38)}$ ) and, 2) a 'pure' loading (the square of the sort's correlation coefficient must explain more than half of the common variance ( $h^2/2$ ) across the factors).

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terms of how certain statements relating to evidence-based practice were sorted. The ability to firstly notice and then to consider and curiously explore this type of question is recognised to be a key strength of Q-methodology (Wolf, Good, Brown, Cuppen, Ockwell & Watts, 2011) in comparison to more 'expressive' methodologies (Beebe-Center, 1929).

The conjecture, that among the apparent widespread consensus important distinctions remain, is also supported from a statistical (rather than simply theoretical) standpoint. If one accepts that (at least<sup>22</sup>) 80% of the Educational Psychologists' views are captured by the first factor (uA) it may be somewhat surprising that this factor accounts for less than half of the variance. Although some authors suggest that, "anything in the region of 35-40% or above would ordinarily be considered a sound solution" (Watts and Stenner, 2012, p. 105), had there been uniform consistency among the '80%', the amount of variance explained by uA would have been much higher.

One method of exploring where the potential differences may lie is achieved by interviewing participants using questions informed by the analysis. The participants were purposefully selected based on their position within the graphic illustration of the factor seen in Figure 15 and the result of this shared factor interpretation follows below.

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<sup>22</sup> It is worth acknowledging that strictly speaking *all* the participants contribute to all of the factors within Factor Analysis and that the '80 %' referred to simply reflects those participants who 'loaded' on uA.

### 4.4.2 Results

The factor solution uA (Table 11) suggested that there was a broadly consistent understanding of evidence-based practice within the majority of the Educational Psychologists. The first step in interpreting the factor solution will be to explore an idealised exemplification of the Factor uA.

**Table 12- Idealised sort for factor uA**

-5	-4	-3	-2	-1	0	1	2	3	4	5
11 (-1.716)	37 (-1.414)	7 (-1.209)	14 (-0.669)	24 (-0.309)	38 (0.337)	40 (0.804)	21 (0.941)	9 (1.072)	15 (1.373)	42 (1.506)
16 (-1.731)	10 (-1.416)	13 (-1.229)	17 (-0.711)	20 (-0.332)	28 (0.285)	35 (0.74)	41 (0.935)	44 (1.055)	3 (1.153)	33 (1.446)
	36 (-1.55)	25 (-1.278)	1 (-0.878)	27 (-0.409)	31 (0.235)	26 (0.498)	5 (0.931)	29 (1.003)	12 (1.142)	
		39 (-1.35)	22 (-1.004)	32 (-0.459)	6 (0.211)	34 (0.41)	43 (0.93)	8 (0.986)		
			18 (-1.078)	30 (-0.505)	19 (0.052)	23 (0.35)	2 (0.919)			
					4 (-0.096)					



The numbers that correspond to the Q-Set items are shown in their idealised position for Factor uA above. The Q-Set items are available as a removeable Appendix (Appendix S) to assist the reader in interpreting the numbers and the Q-Statements the correspond to. The values in parenthesis are the z-scores for each item.

Table 12 is derived from the participants' weighted factor scores<sup>23</sup> and represents how an individual whose response embodied the understanding of evidence-based practice captured by Factor uA would have sorted the items. To increase the validity of claims regarding the understanding of evidence-based practice captured in Factor uA above, factor interpretation drew not

<sup>23</sup> For interested readers Brown (1980) provides a detailed account of this process (pp. 239-247).



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only on the comments made by *all* the participants in the post-sort questionnaires (Appendix T), but was further supplemented by joint interpretation alongside eleven of the participants (Gallagher & Porock, 2010)

<sup>24</sup>.

The first step in interpreting a factor solution proceeds by selecting salient items such as those ranked towards either end of the idealised distribution of items (i.e. those at +5 or -5). To assist with this process the most salient items from the factor solution are presented in Table 13. While interesting and useful, this type of 'by item' analysis does carry an important caveat. Specifically there is a danger of straying into a R-Methodological approach in which the individual items (rather than entire sorts) become the point of interest. A central tenant of Q-Methodology is that items are made meaningful only in the presence of other items through the subjective evaluation of each individual (Watts & Stenner, 2012). Therefore the following factor interpretation attempts to give a sense of the factor solution as a whole rather than ascribe an independence to the individual items of the Q-Set.

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<sup>24</sup> As for the thematically analysed Focus Groups, the factor interpretation is presented in a way that reflects stylistic considerations rather than a sequential record of the analysis. Consistent with the practitioner action research orientation of the study, the interpretation of the factor was an iterative process in which successive reformulations were shared with the selected participants for further refinement. Therefore it is important to note that the results presented illustrate the final shared interpretation of the factor and does not claim to be an immaculate conception of the data achieved in a single sitting.

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**Table 13 Highest and Lowest ranked items from the idealised factor solution.**

<b>Idealised sort based on the factor analysis</b>	
<i>Highest ranked items</i>	<i>Idealised item position</i>
42. Educational Psychologists have an ethical obligation to practice in an evidence-based way.	+5
33. Evidence-based practice offers Educational Psychologists a tool to reduce uncertainty.	+5
15. Evidence-based practice allows professionals to be more accountable.	+4
3. There are some methods of practice that are more effective than others.	+4
12. The advantages evidence-based practice may bring outweighs the disadvantages.	+4
9. Some sources of evidence are more useful than others in guiding practice.	+3
44. I feel that the evidence I gain from client views has a significant impact on the final course of action agreed.	+3
29. I feel like I have the skills needed to undertake useful evaluations of my own practice.	+3
8. Evidence-based practice seeks to find optimal ways of practicing in complex situations.	+3
<i>Lowest ranked items</i>	
11. Evidence-based practice is unachievable because of the complexity of our work.	-5
16. There are too many barriers to make evidence-based practice feasible for Educational Psychologists.	-5
37. Identifying what worked in one situation won't work in another.	-4
10. Because we work with unique individuals an evidence-based approach s of limited use.	-4
36. I feel becoming more evidence-based would limit my autonomy.	-4
7. Evidence-based practice suggests that there is one 'right' way.	-3
13. I value creativity over evidence.	-3
25. Evidencing impact is incompatible with a model of service delivery that aims to have others carrying out the intervention.	-3
39. Rather than evidence our impact we should be trusted as professionals to be making a difference.	-3

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As table 13 illustrates, the two highest ranked statements within the idealised sort were:

42. *Educational psychologists have an ethical obligation to practice in an evidence-based way.*
33. *Evidence-based practice offers Educational Psychologists a tool to reduce uncertainty.*

One of the fascinating outcomes of the Q-Sorting process was the emergence of the importance of the ethical dimension to evidence-based practice which had failed to emerge during the Focus Group and was added as part of the subsequent literature review (see section 3.5.2.2). It appeared that despite the differing opinions that emerged during the focus group about both the theoretical and practical challenges to evidence-based practice, there was widespread agreement that Educational Psychologist are obliged to practice in that way. When this was explored during the post-sort discussion the majority of comments centered around the lack of a viable alternative to evidence-based practice that could be defended from an ethical position (as opposed to theoretical or practical reasons):

Well what's the ethical alternative to saying I practice in an evidence-based way? Although we might be able to identify barriers in terms of actually practising in an evidence-based way it should certainly be an aspiration. (Participant 11)

Similarly the comments around item 33 identified a positive disposition towards evidence-based practice which was characterised by an identification of its ability to “guide decision making” (Participant 4), “weed out ineffective or

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dangerous practice” (Participant 10) and “providing an informed starting point for intervention” (Participant 12).

Another strong theme in the interpretation was the notion that the ability to practise in an evidence-based way was compromised by a number of issues including “limited access to quality published research” (Participant 12) and “difficulty in gaining meaningful evidence of the effectiveness of our [Educational Psychologist] advice” (Participant 18), with one participant commenting that “the skill of the psychologist is to make a judgement on the many partial and incomplete forms of evidence, from research, from experience from the setting, and to use this as the basis for making decisions” (Participant 7). It is quite startling how closely aligned to the visual representation of evidence-based practice proposed by Haynes et al. (2002) (Figure 2) this comment is, and how it coheres with the idealised sort positions of many of the items in the idealised sort above:

8. *Evidence-based practice seeks to find optimal ways of practicing in complex situations. (Ranked highly at +3)*
33. *Evidence-based practice offers Educational Psychologists a tool to reduce uncertainty. (Ranked highly at +5)*

Perhaps the most frequently used term used during the joint factor interpretation was ‘pragmatist’. Throughout the interviews the participants spoke of the numerous advantages that evidence-based practice brings and in the same breath described how the pursuit of the ideal was a case of compromise:

In an ideal world we would have a robust evidence-base for everything we do, however the limitations associated with educational research and the difficulty of knowing just how well our recommendations are applied in practice means that quite often you have to take a pragmatic approach. (Participant 13)

This sentiment encompass the idealised Q-Sort positions of a number of items above (i.e. 11(-5), 33(+5), 12(+4)) it also echoes some of the main aspects of the discourse identified during the Focus Group.

It is important to note that there is a difference between an individual's viewpoint (as captured by their own individual sort) and the viewpoint expressed in the idealised sort above, and although we have commented on the areas in which there was significant agreement among the factor interpretation of uA, a number of the idealised item rankings surprised some participants. It is precisely because of these subtle potential differences in opinion that the decision was taken to include the participants in the factor interpretation.

Interviewing participants about their interpretation of the statements seems highly relevant to the analysis if researcher bias is to be minimized...using participants' rationale in this way seeks to minimize any error of analysis through the incorrect interpretation of the factor arrays, therefore improving the rigor of the study...interviewing participants avoids placing the meanings of others onto the participants. (Gallagher & Porock, 2010, p. 298)

The importance of involving participants in the interpretation was also useful in terms of pulling apart the subtleties in the sort and to also provide a degree of challenge to my own initial interpretation of the array. For example there were a number of items that grouped together around the midpoint that seemed to relate to quantification and a 'medical model' approach. Given the significant influence that the medical model has had on the development of

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evidence-based practice, evident in both the Literature Review (see Section 2.2. and 2.3) and the Focus Group discussions (See Appendix SS and TT) the relative lack of saliency attached to the following items was surprising:

24. *Using numbers to evidence my practice is unsatisfactory to me (Ranked at -1)*
32. *Medical practice has had a positive influence on how evidence-based practice is understood among Educational Psychologists. (Ranked at -1)*
19. *There is not enough gold standard research available to Educational Psychologists that could allow them to practice in an evidence-based way. (Ranked at 0)*
4. *There are paradigms other than the 'scientific paradigm' that can produce equally an equally sound evidence-base from which to practice. (Ranked at 0)*

In relation to the placing of these items participants suggested that “there is a world of difference between the settings in which we work and the clinical settings medical professionals practice, we don’t have the same levels of control” (Participant 7) and “that the within person medical model is antithetical to the interactionist paradigm I work from” (Participant 4). One Educational Psychologist suggested in relation to item 32 that it was not ranked lower due to “the general orientation towards evidence-based decision making rather than a wholesale adoption their specific practices” (Participant 4).

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When considering the factor array as a whole it seems that much of the theoretical debate that characterised the Focus Group discussion was not deemed to be the most significant aspect of Educational Psychologists' understanding of evidence based practice. Instead those items placed at either extreme tended to focus on both the practical advantages it brings (i.e. 33 (+5), 3(+4), 29 (+3), 8(+3)) and the ethical dimension involved (i.e. 42 (+5), 15 (+4)). This would appear to suggest that Factor uA encompasses a pragmatic orientation whereby areas of debate that are unlikely to be resolved easily have a lower saliency for Educational Psychologists than those items that are related to more practical considerations. This interpretation is certainly consistent with the views shared by a number of the participants:

one of the difficulties we face is that the Gold Standard research we might want to base our work does not always fit the situation you are operating in and so you have to take a pragmatic approach (Participant 16)

EPs can't stick dogmatically to a certain approach or technique as our work often calls for an eclectic approach to meet the need of the individual (Participant 12).

the philosophical debate is too far away from my day to day practice for that to be relevant (Participant 13)

This was not to say that the participants weren't aware of the wider philosophical debate that seems to polarise the previous two factors, only that, "the most important thing is making a difference to that child or that family in that particular situation which requires an Educational Psychologist to call on whatever approaches seem best, regardless of their philosophical basis" (Participant 12).

#### **4.4.3 Summary of the results of the Q-Sort analysis**

The analysis of the Q-Sorts completed by the Educational Psychologists provided a fascinating complement to the results of the thematic analysis, consistent with previous research that had combined the two methods (Lazard et al., 2011).

An examination of how Educational Psychologists understand evidence-based practice progressed incrementally through a successive process of theoretically informed statistical analysis. Beginning with a simple correlation of the sorts (see Table 10), it appeared that there was much common in the way the group of Educational Psychologists understood evidence-based practice. Although interesting, unpicking this perceived trend was limited by the complexity of the data set. In order to reduce the complexity, while retaining as much of the original insight as possible, the correlation matrix was explored using Centroid factor analysis which appeared to confirm the general consensus of understanding. Although this finding in itself provided a significant contribution to the research question, it was necessary to dig deeper in order to satisfy a curiosity about the amount of variance explained by the dominant factor but also by theoretical considerations. To achieve this and to enhance the claim that the factor interpretation was an accurate portrayal of the participants' understandings, an iterative process of factor exploration took place in which an account of the subtle differences in understandings of evidence-based practice that characterised factor uA



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emerged. The shared interpretation supported the theory-driven speculation that the differences that may explain the relatively small amount of the variance explained by the dominant factor may have a philosophical basis. Specifically, it may be that in adopting a pragmatic approach the Educational Psychologists found it to be less of a priority in terms of their understandings of evidence-based practice to sort items relating to intractable philosophical positions (i.e. along a realist or relativist continuum) and instead focused on the practical Q-Sort items.

#### **4.5 Conclusion**

Although a more detailed elaboration of the results presented in this Section in relation to the research question is presented in the following Chapter, it is worth briefly summarising the analysis and results of the Focus Groups and Q-sort.

As discussed in Chapter 3, achieving both an account of the range and diversity of views on evidence-based practice on the one hand, and the ways in which individuals and groups made sense of those views in a holistic way, was difficult to achieve through monomethod research. This Chapter went on to state a stronger case that in fact a measurement of both 'range and diversity of subjective views' and 'subjective cohesion' was *impossible* to capture simultaneously: precise subjectivity within the group was indeterminate.

However, rather than adopt a philosophical defeatism in respect to the research question, the present study employed a research design that could

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both sensitively explore the range and diversity of views as well as how the subjective sense making of this diversity manifested itself in individuals and across the group by carefully combining two methods that had already demonstrated their utility in this endeavour (Lazard et al., 2011).

The thematically analysed Focus Groups showed that understandings of evidence-based practice drew on both theoretical considerations (see Appendix JJ) as well as the context specific contributions of themes associated with applied practice (see Appendix EE). The way in which the practical and theoretical considerations informed Educational Psychologists' understanding of evidence-based practice was found to be mediated through personal dispositions; a notion that has received little coverage within the wider literature around evidence-based practice.

Although the thematic analysis produced a rich insight into the complexity of factors that informed understandings of evidence-based practice, it was unclear how this complexity was reconciled among individuals and whether discrete 'families' of understandings were evident.

As such a Q-methodological approach was used in which the range and diversity of views (the concourse) was distilled into a Q-sort activity that aimed to make operant the Gestalt understandings individuals had of the complex and interacting facets of evidence-based practice.

The analysis of the Q-sorts presented an incremental journey of discovery that began with an insight into the individual understandings of evidence-based practice that existed within the group and how these related to one another (evident in the correlation matrix, Table 10). The interpretation of the

resulting factor matrix (Table 11) was informed both by a curiosity in relation to the statistical analysis but also by theory (Trinder and Reynolds, 2000), as were the shared interpretations of factor uA.

The final Chapters of this study seek to make clear the wider implications of these findings, both in terms of their contribution to the theoretical appraisal of evidence-based practice but also in terms of their practical utility in informing the Cycle of Exploration (Figure 1) discussed in the Introductory Chapter.

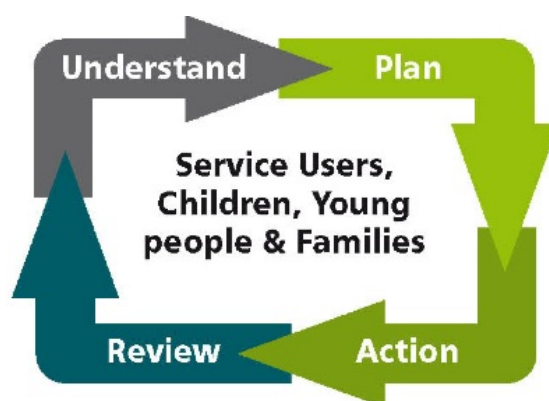
## 5. Discussion

### 5.1 Introduction to Chapter

The previous Chapter outlined both the analysis and subsequent results of the data collected in relation to the research question:

*How is evidence-based practice understood within a group of practising Educational Psychologists?*

The purpose of this Chapter is to elaborate more fully on how the results of the research contribute to the 'Understand' element of the Exploration Cycle (see Figure 16), with a view to generating findings that can feed into the subsequent stages ('Plan', 'Action', 'Review').



**Figure 16- The Exploration Cycle provided by the local Children's Trust, which is used as a framework for the present study (reproduced with permission).**

Beginning with a discussion of the results in the context of the research question (Section 5.2), this Chapter then goes on to explore the wider contribution of the study both in terms of the methodology used (Section 5.4),

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but also within the wider literature surrounding evidence-based practice. To assist readers in interpreting the findings presented in the current study, a number of limitations and caveats associated with the design (5.5.1) and conclusions drawn (5.5.2) are also presented. The Chapter concludes with a brief identification of the practical implications the research may have (5.6).

## ***5.2 Contribution towards the research question***

As described in the Methodology Chapter, the combined use of thematically analysed focus groups and Q-Methodology allowed an insight into the research question that was unlikely to have emerged through the application of a single research tool (Lazard et al., 2011). The aim of the current Section is to summarise the contribution of the results in terms of how evidence-based practice is understood by a group of practising Educational Psychologists.

### **5.2.1 What the Focus Groups told us**

What was clear from the Focus Groups was that evidence-based practice was an area that was important to the group, evidenced by the richness of the discourse among the Educational Psychologists (Appendix OO & Appendix PP). This importance was explained partly by the understanding of 'evidence-based practice as a commodity' that could be used to the profession's advantage during times of economic uncertainty:

We have to remember that we have been sold to the directors sort of saying EPs can do research if we do evidence led research they can give you evidence of how wonderful the authority is with all these initiatives uh it has survival value for us. (FG1\_FGP3\_547-550)

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However evidence-based practice was also understood to hold additional benefits that included its perceived utility to improve outcomes for children, make transparent the contribution of the psychologists and overcome questionable practices (see Appendix CC). There appeared to be a general recognition of the principles of evidence-based practice within the group (see Appendix FF), which picked up many of the proposed benefits identified in the Literature Review (Section 2.2).

### **5.2.2 What the Q-Sort told us**

Given the range and diversity of views expressed in the Focus Groups, the Q-Sort provided the current study with a way to make sense of the views expressed in a holistic way.

Based on this holistic sorting of items the Q-Sort suggests that Educational Psychologists understand evidence-based practice to be a practical tool that allows them to practice ethically (Item 42 (+5)) and provides them with a way to improve accountability (Item 15 (+4)) and support them to make decisions in complex situations (Item 33 (+5)). It was also clear from Factor uA that the shared understanding of evidence-based practice also entailed the need to be critical about different sources of evidence (Items 9 (+3) and 3 (+4)) as well as ensuring that client views play a significant role (Item 44 (+3)). The Q-Sort was also clear in telling us that Educational Psychologists don't feel that evidence-based practice is unachievable because of the complexity of their work (Item 11 (-5)) or that there are too many barriers to make it feasible for

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them to practice in an evidence-based way (Item 16 (-5)).

As such a fascinating contribution to the research question arose, whereby the apparently opposing and diverse understandings of evidence-based practice that characterised focus group discussion did not lead to opposing and incompatible views of evidence-based practice overall. A comment made in the post-sort questionnaire (see Appendix T) captures the saliency of this finding, hinting towards a future course of action:

I came to the conclusion that evidence-based practice when defined well and despite its weaknesses is the better alternative- a bit like democracy. It's not perfect but it is better than its absence...I also like the definition supplied<sup>25</sup> and feel that if there was consensus then something like this could support professional identify and influence culture and practice (Participant 9)

This sentiment somewhat echoes the views of Wilson et al. (2009) in the Literature Review that the apparent debate and disagreement that exists around the finer details of evidence-based practice occurs because the definitions that are accepted in the literature (i.e. Sackett et al., 2000; Levant & Hasan, 2008) are not known by applied practitioners at large. Participant 9's insightful comment suggests that a simple step towards evidence-based practice may be an agreed definition which makes explicit the widespread agreement there appears to be.

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<sup>25</sup> As part of the post sort questionnaire participants were given the following APA (2006) definition and asked to comment on any elements they would change (see Appendix T):

*"Evidence-based practice in psychology (EBPP) is the integration of the best available research with clinical expertise in the context of patient characteristics, culture and preferences"*

### **5.2.3 What the methods combined tell us**

Through thoughtful empirical investigation the present research suggests that most Educational Psychologists appear to have a broadly similar understanding of the principles of evidence-based practice. However the present study extended this notable finding and unpicked some of the subtle differences that some authors had contended presented ‘incommensurable’ world views (Gage, 1989). The findings of the present study suggested that although differences do exist among practitioner understandings of evidence-based practice, these differences do not prevent a broadly compatible shared understanding to emerge.

This is a pleasing answer to the research question, and one that contributes significantly to the next stages of the Exploration Cycle (Figure 16) upon which the current Action Research orientation is based. The remaining sections of this Chapter seek to clarify these contributions as well as identify some of the relevant links to the wider theoretical context in which the findings of this study should be interpreted.

### ***5.3 Contributions to the Exploration Cycle***

The present research sought to make a modest contribution to a wider process of potential change within the organisational context in which the practitioners are placed. The first step of this process was to ‘*Understand*’ evidence-based practice within the group of Educational Psychologists. Following this initial stage the Exploration Cycle then seeks to ‘*Plan*’, ‘*Action*’ and ‘*Review*’ (Figure 16). Based on the findings from the Focus Groups it



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appeared that practitioners could identify many reasons to practice in an evidence-based way (Appendix CC), and although they recognised limitations (Appendix DD), they identified a number of changes that would allow them to practise in a more evidence-based way (Appendix HH). Further support for the notion that there was a general orientation towards evidence-based practice may be present in the Q-analysis, whereby Educational Psychologists generally sorted item 41 (“I would like to practice in a more evidence-based way”) towards the ‘agree most’ end of the distribution, evident in Figure 17<sup>26</sup>.

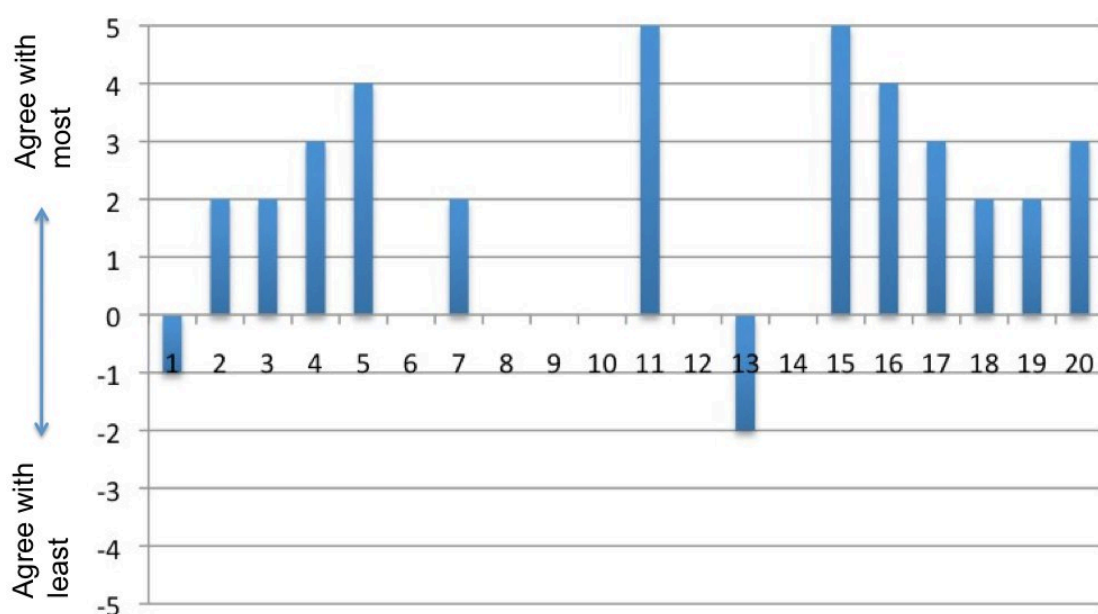


Figure 17- Sort positions for item 41 by participant.

Not only do the findings suggest a direction for the ‘Plan’ aspect of the

<sup>26</sup> Although this ‘by item’ analysis is included merely to triangulate a claim originating from another part of the methodology, it is important to recognise the Q-Sort position of individual items does not represent an absolute level of agreement as it might in an R-Methodological scale. Moreover, “when ranked, the items are no longer discrete bits of information independent of one another” (Brown & Ungs, 1970, p. 129). All that one is able to conclude is that relative to the other statements in the Q-Set item 41 tended to be placed more towards the ‘agree with most’ end of the distribution.

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Exploration Cycle (towards a greater application of evidence-based practice among the Educational Psychologists), but also make explicit the types of '*Action*' that may lead to an increase in evidence-based practice (see Appendix HH).

However perhaps the most significant contribution to the potential for practical change is in the identification of a set of variables that may provide a novel explanation to why there has been limited uptake of evidence-based practice in applied settings. Rather than simply arise from 'resource barriers' outlined in the literature review (Copley & Allen, 2009; Pagoto et al., 2007), it appears certain 'mediating factors' (see Appendix KK) influence how theoretical and practical considerations relating to evidence-based practice are applied by individual professionals. During the Focus Groups, post-sort questionnaires and in the shared interpretation of the results, Educational Psychologists identified how personal preferences relating to practice and variations in professional identity influenced how evidence-based practice was understood and applied. It was perhaps in explaining the origin of these personal 'mediating factors' that the majority of the debate ensued (ie. See Section 4.3.1.5). The root of this debate appeared to be related to the ability of practitioners to explicitly reference the evidence (from a variety of sources) that informed their practice. Some Educational Psychologists felt strongly that an implicit evidence-base developed with clinical experience which led to intuitive evidence-based decision making:

An experienced psychologist would implicitly apply theory when practising and making decisions (Participant 18)

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I also have the experience of on the job action research over the years to support my practice” (Participant 4)

These views would appear to be consistent with the work of Klein (2001, 2011) whose research into ‘Naturalistic Decision Making’ (popularised in ‘*Blink*’ by Malcolm Gladwell (2005)) suggests that experience allows practitioners to become intuitive experts who have developed ‘frames’ that:

permit skilful decision making in field settings. Experienced decision makers are able to categorize situations rapidly as typical of various prototypes, using representativeness and availability heuristics, and are able to evaluate the courses of action suggested by these prototypes by conducting mental simulations, using the simulation heuristic, without having to compare options. (Klein, 2001, p114)

However other Educational Psychologists felt that the inability to explicitly reference evidence used to make a judgement was not indicative of skilled intuition but potentially of questionable practice:

I think there is a whole piece of work in deconstructing exactly what years of accumulated evidence means. There can be a richness but there could also be dyed in the wool or out of date or frankly dangerous practice too unless the work has a clear evidence base. Post-hoc rationalisations can be problematic! Clinical expertise is valuable and should be valued but within a wider context that is made explicit. (Participant 13)

I would have to say that in my [x] years as an EP I have come across little evidence of colleagues actively reflecting on their practice outcomes, nevermind falsifying them...practitioners in the main (IMHO) don't actively reflect and falsify their practice- they often do the opposite and cling to nonsense and fairy stories about practice, often tooth and claw until the evidence against becomes so overwhelming they have to let go or lose face. (Participant 6)

Like the previous 'Naturalistic Decision Making' position, these views also find empirical support in the decision making paradigm of 'Heuristics and Biases' (Kahneman, Slovic & Tversky, 1982). While researchers in this paradigm acknowledge the general utility of cognitive shortcuts in the decision making process they note that:

Experts' judgements appear to be prone to many of the same biases as those of the laypersons...strong initial views are resistant to change because they influence the way that subsequent information is interpreted. New evidence appears reliable and informative if it is consistent with one's initial beliefs; contrary evidence tends to be dismissed as unreliable, erroneous, or unrepresentative. (Slovic, Fischhoff & Lichtenstein, 1982, p85)

Fortunately for the present study the opposing accounts of decision making provided by Klein (2001- 'Naturalistic Decision Making') and Kahneman et al. (1982- 'Heuristics and Biases') resulted not in acrimonious academic polarity, but in a joint study which sought to resolve the apparent contradictions in their findings and perspectives. Kahneman and Klein's (2009) collaboration started, "from the obvious fact that professional intuition is sometimes marvellous and sometimes flawed" (p. 515) and sought to "map the boundary conditions that separate true intuitive skills from overconfident and biased impressions" (p. 515). The authors concluded that for professionals to develop a reliable form of implicit decision making a number of prerequisite conditions needed to be present. While pp. 524-525 of their study describe these in detail, the most relevant features for the debate presented above is that those environments that allowed genuine expert intuition to develop provided opportunities for

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“prolonged practice and feedback that is both rapid and unequivocal...if an environment provides valid cues and good feedback, skill and expert intuition will eventually develop in individuals with sufficient talent” (p. 532).

This raises important questions in relation to the debate around the acceptability of implicit decision making raised by the Educational Psychologists.

First, the notion of ‘valid cues’ presented by Kahneman and Klein (2009) in the quote above may be considered to be the evidence drawn from the different assessments used by Educational Psychologists. As the Focus Groups suggested, a considerable variety of approaches were reported to be useful assessments that could provide evidence (‘cues’) on which to base decisions (see Appendix AA). What also emerged during the Focus Groups was the view that the use of number to evidence practice was “ deeply unsatisfactory to most of us” (FGA\_FGPD\_348-349) and that statistical assessment methods such as the Wechsler Individual Achievement Test that generated “data” were “negative” (FGA\_FGPB\_624-625). Intuitively the ‘richness’ provided by holistic clinical evaluations of the complexities of casework would seem to provide a more ‘valid cue’ than a statistical assessment that may only focus on one or two proposed domains (i.e. the child’s ability to decode phonetically plausible letter strings). Despite the intuitive appeal of clinical insight, a significant body of research exists that has demonstrated the superiority of actuarial methods in a variety of fields (Hardman, 2009). Shlonsky and Wagner (2005) identify the seminal articles in

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relation to actuarial vs. clinical judgement relevant for Educational

Psychologists in Table 14 below.

**Table 14- History of seminal actuarial vs. clinical decision making research in psychology. (Shlonsky & Wagner (2005), reproduced with permission (See Appendix MM))**

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1943	Sarbin's (1943) study of university admissions finds that a simple formula estimates academic success better than university admission counselors.
1954	Blenkner finds that clinical social workers could observe and score specific case characteristics, which could be combined in a simple, but effective, actuarial tool. She also finds that the actuarial tool provides a better estimate of future client success in a family casework agency than the prognosis of clinical social workers.
1954	Meehl reviews 20 research studies in which simple actuarial instruments proved either superior or equivalent to clinical prediction in estimating future behavior.
1966	Sawyer (1966) reviews 45 research studies, which compare actuarial and clinical prediction. He concludes that actuarial procedures proved better than or equal to clinical decisions in every study.
1989	Dawes, Faust, and Meehl restate these findings.
1996	Grove and Meehl update Meehl's (1954) study with same result, this time using 136 studies over a wide range of outcomes.

*The controversy in child welfare*

1984	Johnson and L'Esperance conduct the first study comparing a statistical model to clinical prediction of subsequent maltreatment in a child welfare sample.
1990	Wald and Woolverton write a seminal article pointing out the difficulties of risk assessment and, while advocating the use of actuarial instruments, highlighting some of the challenges of constructing and using such tools.
1996	Rossi, Schuerman, and Budde (1996) conduct an experimental study using vignettes, finding that clinical decisions to place children are fairly unreliable and are influenced by factors unrelated to the family.
1999	Baird, Wagner, Healy, and Johnson compare the reliability of three risk assessment instruments, one actuarial and two consensus-based, finding that the actuarial model had better reliability.
2000	Baird and Wagner compare the validity of three risk assessment instruments, one actuarial and two consensus-based, finding that the actuarial model more accurately categorized children into varying degrees of risk of maltreatment.

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In relation to the findings summarised in Table 14 above, Dawes (1993)

suggests that while practitioners may dislike the use of number to evidence practice and base decisions on,

objections ignore [that] data from well over 100 studies...the objections to using statistics also ignore the ethical mandate that, for important social purposes such as protecting children, decisions should be made in the best way possible. If relevant statistical information exists, use it. If it doesn't exist, collect it. (p. 39)

A second feature of a professional environment identified by Kahneman and

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Klein (2009) that allowed individuals to develop genuine implicit decision making skills was ‘rapid’ and ‘unequivocal’ feedback. The Focus Groups revealed several barriers to evaluating the effectiveness of one’s work when it is applied through a consultative method of service delivery (see Section 4.3.1.5). Further evidence that the opportunities for ‘rapid’ and ‘unequivocal’ feedback may be limited can be seen in the tendency for the Educational Psychologists to place item 17 (*‘The Educational Psychology Service has robust mechanisms for allowing educational psychologists to evidence their own practice’*) towards the ‘agree with least’ end of the distribution (see Figure 18).

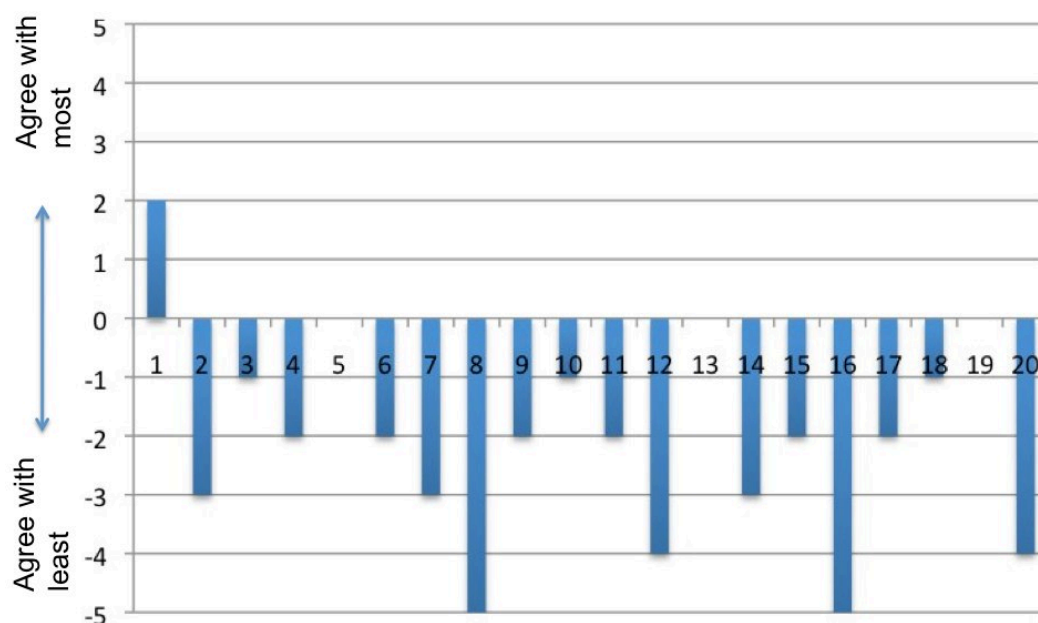


Figure 18- Sort positions for item 17 by participants<sup>26</sup>.

Although a wealth of research exists that supports the belief that sophisticated and accurate implicit decision making can be achieved through accumulated experience (Klein, 2001, 2011), using the framework provided by Kahenemann and Klein (2009), the findings from the current study suggest it

is unclear whether the necessary preconditions currently exist within the Educational Psychology Service that would allow such a skill to emerge.

Such a finding is invaluable in terms of planning a course of action that can support the Educational Psychologists who participated in the study to practice in a more evidence-based way.

#### ***5.4 Methodological Contribution***

Miles and Huberman (1994) suggest that excellent research, “is more craft than a slavish adherence to methodological rules” (p. 5). As such, while the methods used in the present study both have a long history (Wilkinson (2004) traced Focus Groups to work carried out by Emory Bogardus in 1929; Stephenson, 1953) that have given rise to established data collection and analysis techniques (Braun & Clarke, 2006; McKeown & Thomas, 1988), a number of adaptations were made to each in order to craft a methodology best suited to the research question. The following Sections summarise firstly the most significant of these adaptations (5.4.1), before commenting briefly on how their combination enhanced the research process overall (5.4.2).

##### **5.4.1 Iterative interpretation**

While none of the research techniques used in relation to the Focus Groups or Q-Methodology may be considered novel in their own right, the combination of different techniques suggested by different authors produced a precise collection of methods for obtaining and analysing the views of the Educational Psychologists which would appear to be unique among the



published literature. The adaptations were made based on Lau's (1997) advice that a defining feature of Action Research is that, "the researcher and participants engage in collective interpretation of the findings (p. 52).

While care has been taken throughout the research to identify any deviations from published guidelines relating to the thematic analysis of Focus Groups (i.e. Braun & Clarke, 2006; Kruegar & Casey, 2000) and Q-Methodology (Brown 1980; McKeown & Thomas, 1988), it may be worth highlighting the influence of the iterative interpretation of the results to the contribution the present study makes.

A number of steps were taken in the analysis of the Focus Groups to ensure that they were interpreted alongside those who took part. As an initial measure participants were encouraged to share their views immediately following the Focus Groups, either through the use of a purposefully designed feedback sheet (Appendix I), or through the numerous opportunities that arose through my 'complete member researcher' status within the group (Adler & Adler, 1987). Following the initial stages of the analysis participants were asked to comment on how their contributions had been coded and how these codes were subsequently themed. Participant input at this stage influenced the final thematic map (Figure 11) and the way in which this was interpreted. The level of analysis and insight gained through participant feedback relating to the initial analysis of the thematic map also allowed two importance facets of the results to emerge in greater depth (Section 4.3.1.5).

A similar iterative process was followed for the interpretation of the Factor that arose from the analysis of the Q-sort, whereby the idealised sort formed the basis of a semi-structured discussion in which understandings of evidence-based practice emerged collaboratively. Although this iterative process added an additional and time-consuming layer to the established analysis frameworks described in the literature, the enriched interpretations thus provide a peer-validated platform on which one might claim to have reported a very close approximation of how the group of Educational Psychologists understood evidence-based practice.

#### **5.4.2 Methodological synthesis**

A final notable contribution in terms of the methodology used in the present study is the complementary nature of thematically analysed Focus Groups and Q-Methodology. While both methods can claim to uncover participant understandings in their own right (Casey & Krueger, 2000; McKeown & Thomas, 1988), they are individually suited to capturing different aspects of understanding. Focus Groups allow many different elements of the discourse around a topic to emerge and one could not predict in advance the points that might be mentioned. However little or no sense of how the different aspects of the discourse relate to one another to form an individual's holistic understanding emerge. Moreover one cannot be sure how common certain understandings are within the group or the way in which the understandings of different individuals relate to the understandings of others in the group.

Conversely, Q-methodology allows for both an appreciation of an individual's holistic understanding as well as an indication of how this relates to the understandings of others in the group (and therefore of understandings within the group as a whole). However the strengths of Focus Groups identified above may be considered a weakness of Q-Methodology, namely the difficulty for novel aspects of the discourse that emerge to be incorporated into the sort procedure in 'real time':

Limitations are automatically placed on the participant's responses due to the pre-determined statements and therefore it is argued that there are only limited accounts which can be expressed. (Cross, 2005, p. 211)

In terms of the present study, this synthesis allowed very specific aspects of the discourse around evidence-based practice relating to the group of Educational Psychologists to emerge. For example the Focus Groups uncovered aspects of evidence-based practice that were not apparent in the published literature (i.e. 'Support with Tribunals', 'Taking Ownership away from Others', 'Some evidence as Taboo' see). The thematic map that summarised the themes and codes from the thematic analysis suggested a real diversity of potentially incommensurable views. However it was only through the inclusion of Q-Methodology that the high degree of consensus in understandings of evidence-based practice became clear (see Section 4.4.2.1), while also allowing a precise exploration of the differences that were evident (see Section 4.4.2.2).

### ***5.5 Limitations and alternative explanations of the findings***

Care has been taken to identify both the positive and negative implications associated with the numerous methodological decisions that have been made in this study. This was done to assist the reader in determining the extent to which the research question was answered and, importantly, what caveats and limitations accompany the answers given, acknowledging Bergman's (2011) view that,

In the end, no matter how many theoretical approaches, data sets, or analyses are part of a research project, it will never answer a research question in all its complexity. (p. 274)

As such the purpose of this Section is to emphasise the considerations that should be borne in mind when considering the contribution this study has made in answering the research question posed.

### **5.5.1 Methodological considerations**

Throughout the present research the readers attention has been drawn to various methodological decisions and the implications that this has in terms of the interpretation of the results. As such this section deals specifically with methodological considerations not yet raised.

For example Dell (Personal Communication, March, 2012) questioned the validity of a shared process of factor interpretation, summarising the view of Wallis, Burns and Capdevila (2011) that:

Q-methodology has some limitations. It provides a snapshot of views at a particular time...rather than a continuity of views over time (p. 176)

It is unclear whether Wallis et al. (2011) are just being cautious in terms of the claims made by Q-methodology or whether their assertion has an empirical basis, however, in response, one might be tempted to consider Block's (1961) claim that:

The wondrous and well-established fact, however, is that the behavior of the Q-sorter is highly repeatable (test-retest reliabilities of 0.8 and 0.9 are conventional)...the establishment of high reliability for a Q-sort of course implies something meaningful is captured by the item-ordering. Whether that meaningful something is the underlying dimension we desire is another question which we must consider. (p. 65)

A second methodological consideration sufficiently pressing that further elaboration is required is the use of an electronic Q-Sort procedure as opposed to the more conventional face to face Q-Sorts. While the practical necessity for a resource-efficient sorting procedure was discussed above, this by no means absolves the responsibility of the researcher to acknowledge and respond to the limitations associated with this decision.

Chief among the concerns associated with the electronic procedure is the lack of opportunity one has to gather participant views during the procedure itself. Although participants were encouraged to record any comments or thoughts they had during the electronic sort (see Figure 4 and Appendix W), no written communications were received and participants were instead contacted by phone in order to get this type of unstructured feedback<sup>27</sup>.

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<sup>27</sup> Structured feedback was sought in the post-sort questionnaire (see Appendix T)

A second limitation of the electronic sort procedure was the inability for participants to indicate the demarcations between the valence (agree/disagree) of their final distributions. This is not strictly a criticism of electronic sorts in general, as online alternatives do exist which provide an indication of where the divisions between absolute dispositions lie (i.e. Flash Q), and may therefore be viewed as a constraint associated with the specific software employed for this study (Q-Assessor).

A final point worth raising in relation to the online sorts was the participant comments in relation to its useability. Although several participants familiar with Q-Methodology felt it made the sorting procedure easier, other participants said that they found the use of technology to complete the sorts quite challenging.

### **5.5.2 Alternative interpretations of the results**

Given the numerous aspects of peer validated interpretation built into the present study, it is difficult to generate an alternative explanation of the findings without calling into question the judgements of the participants on which the present study is based. However, if forced to do so (either by academic convention or a desire to robustly falsify the claims made so far), we are presented with an alternative account of the findings with a rich theoretical pedigree: Dual Process Accounts (DPA) of human judgement.

What dual-process theories have in common is the idea that there are two different models of processing...almost all authors agree on a distinction between processes that are unconscious, rapid, automatic, and high capacity, and those that are conscious, slow, and deliberate (Evans, 2008, p. 256)

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As summarised by Evans (2008) in Table 15 below, conceptualisations of ‘Dual Process Accounts’ are frequent in the literature, with the two models of processing known by a variety of related titles.

**Table 15- Conceptualisations of Dual Process Accounts found in the literature (Evans, 2008), reproduced with permission (See Appendix NN)**

References	System 1	System 2
Fodor (1983, 2001)	Input modules	Higher cognition
Schneider & Schiffrin (1977)	Automatic	Controlled
Epstein (1994), Epstein & Pacini (1999)	Experiential	Rational
Chaiken (1980), Chen & Chaiken (1999)	Heuristic	Systematic
Reber (1993), Evans & Over (1996)	Implicit/tacit	Explicit
Evans (1989, 2006)	Heuristic	Analytic
Sloman (1996), Smith & DeCoster (2000)	Associative	Rule based
Hammond (1996)	Intuitive	Analytic
Stanovich (1999, 2004)	System 1 (TASS)	System 2 (Analytic)
Nisbett et al. (2001)	Holistic	Analytic
Wilson (2002)	Adaptive unconscious	Conscious
Lieberman (2003)	Reflexive	Reflective
Toates (2006)	Stimulus bound	Higher order
Strack & Deustch (2004)	Impulsive	Reflective

Using Dual Process Accounts as a framework, one may call into question whether the results do in fact demonstrate ‘understandings’ of evidence-based practice of the groups of Educational Psychologists. Using this lens it may be that the findings merely represent the understandings of evidence-based practice obtained through ‘system 2’ (controlled, rationale, explicit and analytic). While this may be heralded as a worthwhile achievement in itself, the results could not be assumed to provide knowledge of evidence-based practice as understood or applied in ‘system 1’ (automatic, tacit, experiential). This presents quite an issue given that the literature review orientated the research towards applied (as opposed to theoretical) understandings of evidence-based practice. One must consider then that when actually faced

with clients or based in schools that the understandings of evidence-based practice that emerge and manifest themselves may not match those provided in the present study. This interpretation may provide a neat explanation for the following anomaly identified by Fox (2003):

It appears that EPs' espoused theory about professional practice- that which the EP claims to follow- is usually constructional. It starts from a premise that there are many different ways of seeing (constructing) the world. Most EPs follow a model that suggests that interventions are dependent on the individual client, be that teacher, parent or child. This seems to work when the client's perception of the severity of the problem...the goal and the programme for intervention matches the EPs. However, if the client constructs the problem differently then the EP may flip to a positivist position...the EP then defends the position based on theoretical knowledge founded on research evidence. (p. 101)

Perhaps rather than contest the findings of the present study overall the 'Dual Process Account' suggests potential avenues for future research in which the applied understandings of evidence-based practice from both of the systems are compared.

### ***5.6 Practical implications of the findings***

Although the present research has a number of practical implications, this Section focuses specifically on implications of the research in terms of service delivery and professional practice.

#### **5.6.1 Implications for Service Delivery**

Chapter 2 made it clear that while there was a professional mandate for Educational Psychologists to practice in an evidence-based way (HPC, 2009;



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BPS, 2010) implementation research suggested that practitioners across a range of disciplines had difficulty in applying these professional expectations in practice (Upton & Upton, 2005; Pagoto et al, 2007). In an attempt to explain the mismatch between professional expectation and practice Fox (2003) outlined what he felt to be some professional objections to evidence-based practice. Although insightful, Fox's (2003) article did not draw on the views of other Educational Psychologists and so it was unclear how representative his views were of his colleagues and therefore what the implications for service delivery might be. Based on the findings of the present study it seems that a significant implication for service delivery would be the explicit consideration of ethics in Educational Psychology practice. As the results of the Q-Sort demonstrate, in the presence of an ethical context (i.e. Item 42) many of the objections and hesitancy apparent in the Focus Group were reduced. Moreover the practical barriers that were mentioned during the Focus Groups, which mirrored those identified in the literature (Gotham, 2006; Copley and Allen, 2009), were no longer seen to be as problematic. This was apparent in how the group of Educational Psychologists sorted the following items:

11. *Evidence-based practice is unachievable because of the complexity of our work. (-5 'Agree with least')*
16. *There are too many barriers to make evidence-based practice feasible for Educational Psychologists. (-5 'Agree with least')*

The importance of having participants make judgements about statements relative to other statements had a significant impact on how evidence-based practice was viewed in the group. For example in the presence of an item

related to an ethical requirement to practice in an evidence-based way (42-*Educational psychologists have an ethical obligation to practice in an evidence-based way*) many of the strongly aired views in relation to the philosophical aspects of evidence-based practice that characterised the Focus Group discussion did not manifest themselves in the placing of Q-Sort items that had a philosophical component (i.e. 4(0), 26(1), 31(0), 35(1)) at either extreme (i.e. 'Agree with most' or 'Agree with Least').

In terms of practically achieving an explicit focus on ethics within Service delivery that may contribute to an increased use of evidence-based practice Educational Psychologists already have an existing framework to guide them (the British Psychological Society's Code of Ethics and Conduct (BPS, 2009)). Practically, time could be set aside in Supervision or as part of Service development days in which various case studies that could generate discussion around ethical issues and how an evidence-based approach may be able to support Educational Psychologists in their decision making.

### **5.6.2 Implications for Professional practice**

Although a focus on ethics within service delivery may support Educational Psychologists in adopting a positive *disposition* to evidence-based practice, there are a number of implications from the current study that may facilitate its *adoption* in professional practice. Perhaps the most significantly it was clear from the Focus Groups and Q-Sort that practitioners felt they wanted to

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develop their own evidence in a way that is consistent with the views of the children and families they work with. In particular, it was clear from the Q-Sort activity that Educational Psychologists wanted the views of those who they worked with to have a significant impact on the types of work they undertake (i.e. Item 44 was sorted to position +3). As such a significant practical implication of the research would be to support Educational Psychologists in undertaking research of their own, particularly when the methodology used allows the views of children, families and other stakeholders to be expressed clearly.

Educational Psychology practice in Scotland provides a model of how practitioners can begin to generate their own evidence that can be used to guide decision making. The Currie report (Scottish Executive, 2002) outlined five core functions that all Educational Psychologists are expected to undertake, one of which was research. On the basis of the report all Psychological Services are inspected against their fulfilment of the five core functions. This national expectation has facilitated a research agenda in all Educational Psychology Services. A more systemic practical implication for professional practice in the Service in which the research was undertaken would be the development of a national 'core offer' of research by all Educational Psychologists, similar to that developed in Scotland.

In addition to a national core offer Educational Psychologists would be supported in developing specific research methodologies that were sensitive to the views of stakeholders.

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In meeting this aspiration the current study provides a model sustainable practitioner research within the field of Educational Psychology which is particularly sensitive to the views of those being researched.

For example, during the initial negotiations that took place around the topic and type of enquiry a clear aspiration was to produce a style of research that could be practically achieved within the resource constraints (most notably time and money) associated with the professional role of Educational Psychologists. As such, some forms of investigation were not deemed practical despite their potential methodological suitability (see Appendix E) and Q-methodology may well have been excluded on this basis had it not been for efficiency achieved through empirically supported online applications of the method. By melding together two efficacious methods of data collection and analysis this study makes practical a methodologically rigorous model of research that could be applied to many aspects of the Educational Psychologist's role. While limitations relating to the methods certainly exist (see Section 5.5 above), as long as they are recognised when interpreting subsequent findings the combination of Focus Groups and online Q-sort appears to provide a sustainable system of enquiry available to all practising Educational Psychologists.

This implication for practice is endorsed in the literature:

There is need for the development of a model that places increased value on practice-generated evidence, and processes to generate high-quality evidence from individual client programs and larger numbers of programs. Achieving this aim is likely to require individual organisations

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and practitioners to consciously adopt a practice-based action research model. (Copley & Allen, 2009, p. 200)

## **6. Conclusion**

Although multifaceted, evidence-based practice is understood, explicitly, in a broadly similar way by a group of Educational Psychologists. The general consensus in relation to evidence-based practice identifies many of the espoused advantages the literature claims arises from evidence-based practice ('a tool to reduce uncertainty', 'greater accountability', 'avoid questionable practices'). These findings present a fascinating rebuttal to claims that certain philosophical world views were incommensurable and cannot be combined. What the current study suggests is that despite potential philosophical differences between practitioners a shared understanding of evidence-based practice is possible, particularly when framed in an ethical context.

What also emerged during the research was the notion that when the broad definitions of evidence-based practice apparent in the literature were adopted, a greater sense of alignment was reported by the participants.

The findings in the present study also echoed many of the wider debates that exist in the literature relating to decision making, actuarial vs clinical judgement and Dual Process Accounts of cognition. Of these wider debates Dual Processing Accounts suggested that additional research seeking to explore understandings of evidence-based practice in applied settings could compare how understandings become operant in an environment that encourages automaticity (System 1) as well as one that promotes deliberation and control (System 2).

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Of the many contributions the study makes, it was perhaps in establishing a sustainable practice-based action research model that the practical implications were most clear. This was perhaps because the participatory nature of the research, and its place within a wider model of change, prevented bold speculation around the practical implications of the content of the thesis.

On this final point it is worth recognising that the process of engaging participants in a participatory way throughout the research may have had an emancipatory effect that transcended both the methods used and the findings proclaimed:

the wider cultural sort of acceptance that science is a truth scientists speak the truth...more infallible than the pope and it's hard to challenge that I'm curious as to why we have never had this discussion before (FG1\_FGP4)

its brilliant actually (FG1\_FGP5)

It would be interesting to have a conversation with some of our managers about this (FG1\_FGP4)

(FG1\_817 829)

While the contribution this research makes in terms of content and methodological approach is satisfying, providing a voice to those who feel that their marginalised views have gone unnoticed and now feel empowered to speak to the dominant groups to facilitate a process of change presents perhaps the most significant contribution of the present study.

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## Appendices

### ***Appendix A Sample of extracts relating to evidence-based practice taken from site documents***

“Developing a knowledge bank for the children and young people’s workforce, to ensure that practice, training and workforce development is firmly based on evidence about what makes the most difference”

“Develop a means of providing information on the evidence base organisations or services are working from or how they are quality assured”

“Development of work in XXXXXXXXXXXXXXX is based wherever possible on evidence based or informed practice and national policy. Key national reports pertinent to this area includes: the Healthy Child Programme, the Marmot review of health inequalities and New Horizons, Confident Communities, Brighter Futures: a framework for developing well-being. All stress the importance of the early years and providing a good start in life together with prevention, early intervention and targeted support to those with greatest needs.”

“Use local community views and evidence of effectiveness of interventions to review existing services and shape the future investment.”

“Help build the evidence base to influence the commissioning of services.”

“There is no indication that the coming cuts to public services is a temporary measure. With that in mind, this JSNA needs to provide an evidence base for spending going forward, with the recognition that decisions made now about how and what to cut will have a direct impact on longer term outcomes. With the announcements about academies and free schools alongside the implementation of the new NHS model over the next two years, localized flexing of service delivery and commissioning is here to stay.”

“During 2010/11, CYPS established a number of overarching principles, which have informed decisions about the approaches to identifying and delivering savings. These are reflected in the CYPS model of service and remain relevant to the Plan for 2012/13:

Ensuring the safety of children and young people is paramount

Services will be targeted at need and based on the principle of effective, evidence based, early intervention

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The gap in education and wellbeing outcomes must be narrowed

We will seek to ensure that the multi-agency system of services that interacts with children, young people and their families does so in the most efficient and effective manner”

“Many of the principles set out below are enshrined in statutory guidance and all principles are founded on the underlying premise that Commissioners will follow UK procurement policy and EU procurement laws. These principles have been developed through the workshops held in summer 2010 supported by the Commissioning Support Workshop.

The Principles are as follows:

A strong **focus on meaningful outcomes** for children and young people with agreed measures of impact;

**Openness, transparency and visibility** of the commissioning process and commissioning decisions – in the light of climate of austerity and the need for greater efficiencies, clarity about where savings and what the consequences will be;

**Fair allocation of resources**

**Clear priorities with minimum expected standards** of quality for all;

An **inclusive process** of how commissioning is undertaken with engagement of relevant partners and service users in identifying needs and delivering valued services that meet needs;

**Needs-led** commissioning through **evidence based** commissioning decisions

**Clear accountability** for services”

“Develop the strategy and implement a county wide framework for a psychological service for children in need and children in need of protection, together with the Senior Managers and the Heads of Services within Social Care.

Responsibility for the development of a Psychology service with particular emphasis on evidence based practice as a way of changing the destructive behaviours within the family, managing and assessing future risk for the child and improving their outcomes.

Provide lead advisor role for evidence based Psychological interventions for vulnerable children and families for whom XXXXXXXXXXXX County Council’s

Educational Psychologists.

Children and Young People's Services have a responsibility.

Provide an essential link to the XXXXXXXXXXXX Foundation Trust senior managers for the co-construction of locality based interventions for hard to reach families.

### **Strategy and Partnership**

Provide professional expertise to set the strategic direction within Children and Young People Services (CYPS) and with Clinical Directors to achieve best practice in social work and psychological services across xxxxxxxxxxxx and partner agencies.

Work collaboratively with senior managers from all agencies, particularly xxxxxxxxxxxx Children and Young People's Services and xxxxxxxxxxxxxxxxxxxx xxxxxxxxxxxxxxxxxxxx (xxFT) in developing the *Social Work: Working for Families* model. Ensure that the objectives are understood and supported across the agencies.

Influence the strategic development of social work and evidenced based intervention with families on a local and national level with senior managers and policy makers. Provide evidence and evaluation for this purpose.

Develop and implement methods of working which are sensitive to and appropriate for the needs of families from a wide range of racial, cultural and religious backgrounds.

Assure the quality of evidence based psychological interventions and ensure that the practice has a fidelity to the evidence base. Hold managers to account across Children and Young People Services through the provision of high quality psychological supervision.

### **Leadership and Management**

Lead and influence senior managers to ensure that effective working relationships are developed and maintained across agencies in order to create an overall psychological and systemic framework for the organisation.

Lead on an over-arching needs assessment that will enable CYPS to match the needs of a child and family to the intervention that will best meet their need.

Lead in championing the new vision and ensuring all CYPS staff understand and are truly committed to an evidence based psychological and systemic framework for the understanding and intervention with vulnerable children and families.

Educational Psychologists.

Lead and advise on the strategic development and implementation of a range of specialist psychological interventions with an emphasis on evidence based practice for children and families. Ensure that the psychological formulations are adjusted and refined by drawing on different explanatory models and maintaining a number of provisional hypotheses.

Have responsibility for ensuring all psychological services staff within CYPS, maintain up to date knowledge of legislation, national and local policies and issues in relation to both the specific client group and mental health and evidence based interventions

Undertake appropriate research and provide research supervision to other staff undertaking research within the service with the purpose to evaluate the unit model of intervention

Create an evaluation framework. Ensure that the Units can measure the impact of their interventions in line with the overall plan for the child and family. Ensure that this information can be collected as part of the overall evaluation and as part of the national debate

Utilise theory, evidence based literature and research to influence and support evidence based practice across CYPS and CPFT.

Initiate policies to improve overall service delivery and performance maximising an inter-agency approach.

Identify training and development needs in psychology and evidence based practice across CYPS. Develop and deliver high quality training and supervision to meet these needs.

Be responsible for ensuring all staff using evidence based intervention programmes are accountable for maintaining the fidelity of those programmes.

Develop systems and implement to ensure evidence based interventions are measurable in terms of their impact on children and families. Initiate and implement project management, including complex audit and service evaluation.

Contribute and influence at a national level and show evidence of impact of this work on children and family outcomes

Propose service developments, advise on new research and then work to implement practice guidelines, policies and services particularly where they relate to psychological practice and evidence based interventions.

Provide high quality psychology supervision with particular emphasis on evidence based practice to both clinical and social work staff across CYPS.”

**Appendix B Publisher permission Haynes, Devereaux and Guyatt (2002)  
(Figure 2)**



WAACPJC12174  
The University of Sheffield  
Western Bank  
Sheffield S10 2TN  
UK

Dear Mr. Urquhart:

Thank you for your request for print format of the following from *ACP Journal Club*:

Figure 1: Haynes et al, Clinical expertise in in the era of evidence-based medicine and patient choice. *ACP Journal Club*, 2002, Vol: 136.

Permission is granted for the preceding material with the understanding that you will give appropriate credit to *ACP Journal Club* as the original source of the material. **Any translated version must carry a disclaimer stating that the American College of Physicians is not responsible for the accuracy of the translation..** This permission grants non-exclusive, worldwide rights for this edition in print format for not for profit only. ACP does not grant permission to reproduce entire articles or chapters on the Internet unless explicit permission is given. This letter represents the agreement between ACP and Callum Urquhart for request WAACPJC12174 and supersedes all prior terms from the requestor.

Thank you for your interest in *ACP Journal Club*. If you have any further questions or would like to discuss the matter further, please contact me at 856-489-4446 or fax 856-489-4449.

Sincerely,

Gina Brown  
Permissions Coordinator



Educational Psychologists.

***Appendix C Publisher permission for Niiniluoto (2002)***

Dear Callum,

Thank you for your enquiry. You have our permission to use the OUP Material you list in your email below in your thesis for submission to University of Sheffield.

If at some future date your thesis is published it will be necessary to re-clear this permission.

Please also note that if the material to be used is acknowledged to any other source, you will need to clear permission with the rights holder.

Best wishes,

Ben Kennedy

Permissions Manager

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Direct fax +44 (0)1865 353429

e mail: [ben.kennedy@oup.com](mailto:ben.kennedy@oup.com)

**Appendix D Personal Communication Kratochwill (2012)**

----- Forwarded message -----

From: **Tom Kratochwill**  
Date: Sunday, 4 March 2012  
Subject: Understandings of EBP  
To: Callum Urquhart <edp09cu@sheffield.ac.uk>

It is important to note that we are recommending evidence-based practice and not just EBIs! The former takes into account a much broader set of skills and competencies.

On 3/4/2012 8:40 AM, Callum Urquhart wrote:  
Hi Professor Kratochwill,

Thank you so much for taking the time to read and reply to my email. I am also grateful for the copy of the paper you attached; I'll read it this afternoon.

I am really pleased with how my research is shaping up as I feel it adds an important dimension to understanding why implementing EBP can sometimes be a challenge. Much of the difficulty based on my research so far is that practitioners equate EBP narrowly with 'empirically supported treatments' (EST) or 'Evidence-based intervention' (EBI) and feel therefore that a) their own professional judgement is not valued/recognised, b) the views of clients are not important. As the definitions I alluded to in my previous email make clear, these are both fundamental components of EBP.

Once my research is complete I would be happy to send you a copy for your interest.

Best regards and thanks again,  
Callum

On 4 Mar 2012, at 14:21, Tom Kratochwill <tomkat@education.wisc.edu> wrote:

Dear Callum,

Thanks for your note. I do not know of any research that directly addresses your questions but I have attached a paper that you may find of interest. The paper is in press in the *School Psychology Review*.

Good luck in your work.

Educational Psychologists.

Best Wishes,

Tom

On 3/4/2012 7:26 AM, Callum Urquhart wrote:

Hello Professor Kratochwill,

My name is Callum Urquhart, I am a third year doctoral trainee educational (school) psychologist (EP) studying at the University of Sheffield in the UK. I am currently completing my thesis which aims to examine understandings of evidence-based practice (EBP) within a group of practicing educational psychologists (n=21), using a combination of focus groups and q-methodology.

I have enjoyed immensely reading your contributions to the debate on EBP, and draw heavily on the division 12 task force's exploration of evidence-based interventions which I believe you chaired.

One of the reasons the focus of my research is on how EBP is understood by EPs (as opposed to how it is applied) is that there appears to be a gap in the literature specifically related to applied practitioner understandings. While I believe that theoretically EBP has a clear definition (based on Sackett et al's original (1996) and expanded (2000) conceptualisation, made personal to the psychologists in the APA definition), I question how closely this matches the constructions of applied practitioners (at least here in the UK anyway). While a number of interesting 'opinion' pieces have been written on the subject this side of the pond (I.e. Fox, 2003;2011), I have not yet encountered any research sets out to empirically explore practitioner perspectives.

Based on your considerable experience and expertise in this area I was wondering if you knew of any research which empirically examined how EBP is understood by practitioner school/educational psychologists (rather than, say, an examination of the barriers to implementing EBP in the eyes of practitioners). Your input will assist me greatly, either by supporting my assertion that my research addresses a gap in the literature, or by helping me to identify similar research to which I can compare my own.

Thank you for any insights that you might have on this matter,

Best regards,  
Callum

Educational Psychologists.

### ***Appendix E Research methods considered but not included***

In attempting to uncover how evidence-based practice is understood by a group of practising Educational Psychologists, a number of research methods were explored but eventually rejected. Conceptually, the decision making process includes two parts: firstly a decision regarding which methods may be the most appropriate for collecting the data, followed by a decision on how the data can be meaningfully analysed.

#### **Data collection methods**

Despite having a published precedent in exploring attitudes and perceptions of evidence-based practice, perhaps the easiest methods to discount from an action research perspective were those approaches that limited the ability of the participants to go beyond the *a priori* structure imposed by the experimenter (standardised scales, i.e. The Evidence-Based Practice Attitude Scale (EBPAS) Aarons, 2004; questionnaire designs (Upton & Upton, 2005)).

Other methods that provided greater promise in terms of their potential to empower the Educational Psychologists involved to give the full range of their opinions and perspective were unstructured interviews and case study designs.

Unstructured interviews were explored with a number of colleagues within the service (given the participatory ethic of the research), however two main challenges were presented. Given that part of the research brief agreed was to develop a sustainable model of inquiry that could be accomplished by a full time Educational Psychologist, it was felt that the expense associated with

Educational Psychologists.

individual interviews with the group was too great as was the potential cost in terms of time. It was also felt that the artificiality of unstructured interviews may fail to capture the range of perspectives that had been seen to emerge in more social contexts such as team and service meetings. This was a significant factor in the selection of Focus Groups as Morgan (1988) claims that a primary strength of the technique *“is the explicit use of group interaction to produce data and insights that would be less accessible without the interaction found in groups”* (p. 12). Moreover Krueger and Casey (2000) claim that focus groups are particularly suited to research designs that seek to act as a catalyst for organisational change as they allow ideas to be explained, challenged and defended in a naturalistic manner consistent with decision making within complex groups.

While a case study approach was seen to be more financially viable among colleagues, it was felt that only a limited number of perspectives may appear and as such there was the potential for some understandings of evidence-based practice to be marginalised.

### **Data analysis methods**

While significant guidance exists around the data analysis procedure for Q-methodology (Brown, 1980; McKeown & Thomas, 1988; Watts & Stenner, 2012), a number of authors have identified clear advice on the analysis of Focus Group data as a limitation of the method (Wilkinson, 2004):

Compared with the advice on how to *conduct* focus groups, there is relatively little in the focus group literature on how to *analyze* the resulting data. Data analysis sections of focus group ‘handbooks’ are typically very brief...In published focus group studies, researchers often omit, or briefly gloss over, the details of exactly how they conducted their

analysis (p. 182, emphasis in original)

As such the remainder of this appendix focuses on the process by which thematic analysis was selected as a method of analysis for the Focus Group. Once again some methods were easier to discount than others. For example some authors suggest that a sufficient level of analysis is achieved by “taking notes during the focus groups and, afterward, identifying themes based on these notes” (Kress & Schoffer, 2007, p. 191). It is difficult to see how this method would allow a deep analysis of both the salient and subtle themes that emerged.

Other authors advocate the use of numerical data about the frequency of codes or themes or the number of participants who used a certain code (Stewart, Shamdasani & Rook, 2007). However this author agrees with Carey (1995) that the numbers derived “will generally not be meaningful” (p. 492). As such it was felt that whatever form the Focus Group analysis took it should conform to the of Millward (2001) who advocates that emphasis is on meaning rather than on quantification (p. 288).

While some methods were clearly focussed on establishing meaning (for example Interpretive Phenomenological Analysis), they appeared to be based on relativist philosophical premises that might be considered to be incompatible with the realist orientation of the current study.

Of the methods of analysis considered two appeared to be congruent with the research aims and theoretical orientation of the present study: Thematic

Analysis (Braun and Clarke, 2006) and Grounded theory (particularly the variety described by Glaser (2001)). While the model of analysis used in the present study is termed thematic analysis it also incorporates some aspects of grounded theory (i.e. saturation, peer validation). However the ultimate aim of Grounded Theory is to develop theory (Glaser, 2001), which did not align to the exploratory research aim of the present study and as such thematic analysis seemed to be preferable.

### References List

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Educational Psychologists.

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Watts, S., & Stenner, P. (2012). *Doing Q Methodological Research: Theory, Method and Interpretation*. London: Sage Publications

Wilkinson, S. (2004). Focus group research. In D. Silverman (ed.) *Qualitative research: Theory, method and practice* (pp. 177-199) Thousand Oaks, CA: Sage



### **Appendix F Ethical Approval**



The  
School  
Of Education.

Callum Urquhart

Head of School  
Professor Jackie Marsh

Department of Educational Studies  
388 Glossop Road  
Sheffield S10 2JA

**Telephone:** +44 (0114) 222 8081  
**Fax:** +44 (0114) 222 8105  
**Email:** [F.R.Gilligan@sheffield.ac.uk](mailto:F.R.Gilligan@sheffield.ac.uk)

Dear Callum

**Ethical Review Application:**

Thank you for your application for ethical review for the above project. The reviewers have now considered this and have agreed that you can go ahead with your research project. Any conditions will be shown on the Reviewers Comments attached.

Yours sincerely

A handwritten signature in black ink that reads 'F. Gilligan'.

Felicity Gilligan  
DEdCPsy Secretary

## ***Appendix G Participant Prompt Sheet***

### **Questions**

1. Evidence-based practice is understood in a variety of ways. What do you believe some of the common definitions of evidence-based practice are and how similar or different would these be to your own understandings?
2. What do you believe are the benefits of practising in an evidence-based way?
3. What do you believe are the disadvantages of practising in an evidence-based way?
4. What do you believe might facilitate evidence based practice within your own work and the work of the service?
5. What do you believe might be barriers to evidence based practice within your own work and the work of the service?

### **Debrief**

### **Appendix H Pilot Focus Group**

**Aim** *A pilot Focus Group was carried out in order to refine the procedure and to allow an experimentation with different types of analysis.*

**Method** *A group of 5 Trainee Educational Psychologists took part in a 30 minute Focus Group.*

**Results** *Amendments were suggested for the Ethics form and Consent Form. Additional recording devices were felt necessary as the device used (iPod Nano) did not pick up all the aspects of the conversation. A means of allowing participants to record their initial thoughts about salient's themes was felt to be a useful addition. The use of Nvivo as a means of analysis was trialed. Different transcription formats were trialed (discussed below).*

#### **Specific amendment(s) requiring additional elaboration.**

A number of transcription systems exist, which vary in the degree to which in the level of depth and interpretation ascribed (Dressler & Kruez, 2000).

Following the advice of Boyatzis (1998) a number of alternative systems were trialed within the pilot study and it was felt that the method of transcription used should provide transparency through a verbatim account of what was said while limiting the post-hoc interpretation advocated by some authors (Dressler & Kruez, 2000).

In terms of their technical layout the transcript system selected built on a previous system which made explicit where the each code was drawn from (Clarke, Burns & Burgoyne, 2006 cited in Braun & Clarke, 2006, see Table 1), but with the addition of line numbers (to support referencing) and a third column making explicit 'themes' as well (Table 2).

**Table 1. Transcription scheme used by Clarke et al. (2006 cited in Braun & Clark 2006)**

Data extract	Coded for
it's too much like hard work I mean how much paper have you got to sign to change a flippin' name no I I mean no I no we we have thought about it ((inaudible)) half heartedly and thought no no I jus- I can't be bothered, it's too much like hard work. (Kate F07a)	1. Talked about with partner 2. Too much hassle to change name

**Table 2. Transcription scheme used in the present study**

Line number	Transcript	Codes	Themes
	1. Transcript		
FGP A	6. My understanding is that evidence based practice comes from the	Medical influence,	Influences, Sources of evidence, Hierarchies of evidence, Factors associated with EBP (+)
	7. medical field originally and I think it incorporates not just evidence	Evidence from research, RCT,	
	8. from research studies some which are randomised control trails and	Theoretical assumptions, Transparency, evidence from clinical expertise, EBP as multifaceted,	
	9. so on particularly from medicine but so it's not just the research it's		

**Reference list**

Boyatzis, R. (1998). *Transforming qualitative information: Thematic analysis and code development*. Thousand Oaks, CA: Sage.

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3, 77–101.

Dressler, R. A., & Kreuz, R. J. (2000). Transcribing oral discourse: A survey and a model system. *Discourse Processes*, 29, 25-36.

***Appendix I Recording Sheet***

Aspects of the discussion that seem important

Aspects of evidence-based practice that haven't really been discussed

### ***Appendix J Facilitator Prompt Sheet***

- 1. Welcome group**
- 2. Discuss purpose of research and described materials**
- 3. Discuss ethics (data storage, aggregation, consent)**
- 4. Discuss FG (ground rules, one person at once, signal to me, timing)**
- 5. Q&A**

#### **Questions**

1. Evidence-based practice is understood in a variety of ways. What do you believe some of the common definitions of evidence-based practice are and how similar or different would these be to your own understandings?
2. What do you believe are the benefits of practising in an evidence-based way?
3. What do you believe are the disadvantages of practising in an evidence-based way?
4. What do you believe might facilitate evidence based practice within your own work and the work of the service?
5. What do you believe might be barriers to evidence based practice within your own work and the work of the service?

#### **Debrief**

Educational Psychologists.

### ***Appendix K Recruitment email***

Dear all

Please find attached the Information Sheet and Consent Information for Callum Urquhart's research.

You may recall Callum presenting his research proposal at a previous meeting. He is now at the data collection stage, and needs to complete this as soon as possible.

As a reminder, the purpose of this research is to explore EP perceptions around the term "evidence based practice". Callum is going to use focus groups and Q-sort to gather and analyse the different understandings and perceptions. This is a really interesting and potentially beneficial piece of research for the Service and I urge you to contribute, if you have availability at the following times.

You have been selected on the basis of having at least 2 years post qualifying experience. As the attached information demonstrates, your responses will be treated confidentially.

There are two parts to the data collection:

1) Focus groups (x2). Given the time constraints and existing group opportunities, the first of these is planned to take place after next week's Service meeting:

Tuesday 22nd November, 12.30 - 1.30pm at the XXXXXX primary school

The second one to be after the CPD event:

Tuesday 29th November, 12.30 - 1.30pm at the XXXXXX primary school

Ideally, there should be 6/7 people in each group.

2) The second part of the data collection will involve a Q-sort activity, taking approximately 30 minutes to be done on an individual basis. This will be made available electronically, for your convenience and is easy to follow in this format. Alternatively, a traditional physical Q-sort can be made available. Please let Callum know at the focus group which format you would like. Callum will be happy to go through the procedure of the Q-sort with anyone needing this support, although it is a relatively straightforward process.

Educational Psychologists.

Please indicate if you are unable to make one of the above dates/times, otherwise the assumption will be that you can make either, and Callum will allocate you to one of the groups.

Please contact Callum by Thursday 17th if you are unable to make one of the dates/times.

Callum will contact you on Friday 18th to say which group you have been allocated to.

Many thanks for your co-operation with this piece of research.

Best wishes

XXXXXXXXXXXXX



### ***Appendix L Information Sheet***

You are invited to take part a study designed to examine the notion of evidence-based practice and how it is understood and applied in the work of Educational Psychologists (EPs). You have been invited to participate as you are part of the collective group of EPs within the County Council in which the research is being carried out.

The study has a number of research phases that hope to draw together both academic perspectives on evidence-based practice (through a systematic literature review) as well as more local understandings (through a focus group and a Q-Sort activity).

The Q-sort activity involves sorting statements depending on your attitudes towards them.

It is hoped that the initial information gathering phase of the research will provide an indication of where the Educational Psychology Service would like to be in term of evidence-based practice. An aspiration of the research is to conclude with a number of avenues for future research.

By participating you are helping to provide a more representative sample of the perceptions and practice within the County Council, therefore increasing the validity and reliability of the research. It should be noted that your participation in the research is entirely voluntary. Moreover should you wish to take part initially but then change your mind at a later date you are encouraged to withdraw your consent and are free to do so until your individual anonymised responses have been aggregated into the collective data set from the other participants (you will be notified prior to this date). You should also be aware that once the research has been submitted to the University for examination it may be made publicly available however no individual responses will be named or identifiable. Please contact xxxxxxxxxxxx if you wish to do so. Should you have a concern that you do not feel comfortable raising with myself directly please contact the University's Registrar and Secretary [registrar@sheffield.ac.uk](mailto:registrar@sheffield.ac.uk).

Thank you for taking the time to read over the information sheet. A copy will be made available to you regardless of you consent to participate in the current study.

Educational Psychologists.

### **Appendix M Consent Form**

You are being invited to participate in a research study about the concept of evidence-based practice. This research project is being conducted by Callum Urquhart and is affiliated with The University of Sheffield (Faculty of Education). The objective of this research project is to attempt to explore the perceptions of Educational Psychologists in relation to evidence-based practice.

There are no known risks if you decide to participate in this research study, nor are there any costs for participating in the study. The information you provide will help me understand how evidence-based practice is understood by practicing Educational Psychologists and may inform future aspects of the research design and data collection. The information collected may not benefit you directly, but what I learn from this study aims to provide general benefits to the Educational Psychology Service your work for, the clients it serves and the wider research community.

This information obtained during the focus group and statement sorting procedure will be made anonymous and referred to in the research in general terms such as 'an opinion from an Educational Psychologist was...'. No one will be able to identify you, nor will know whether you consented to participate in this study.

Your participation in this study is voluntary. If you choose to participate then the data I obtain will be securely held electronically until the completion of my research after which point it will be destroyed.

You are also able to withdraw this consent up until the data has been aggregated. You will notified prior to the data aggregation allowing you to withdraw your consent Please email me xxxxxxxxxxxxxxxx you which to do so.

If you are happy to participate in this research please tick the appropriate box and sign and date below.

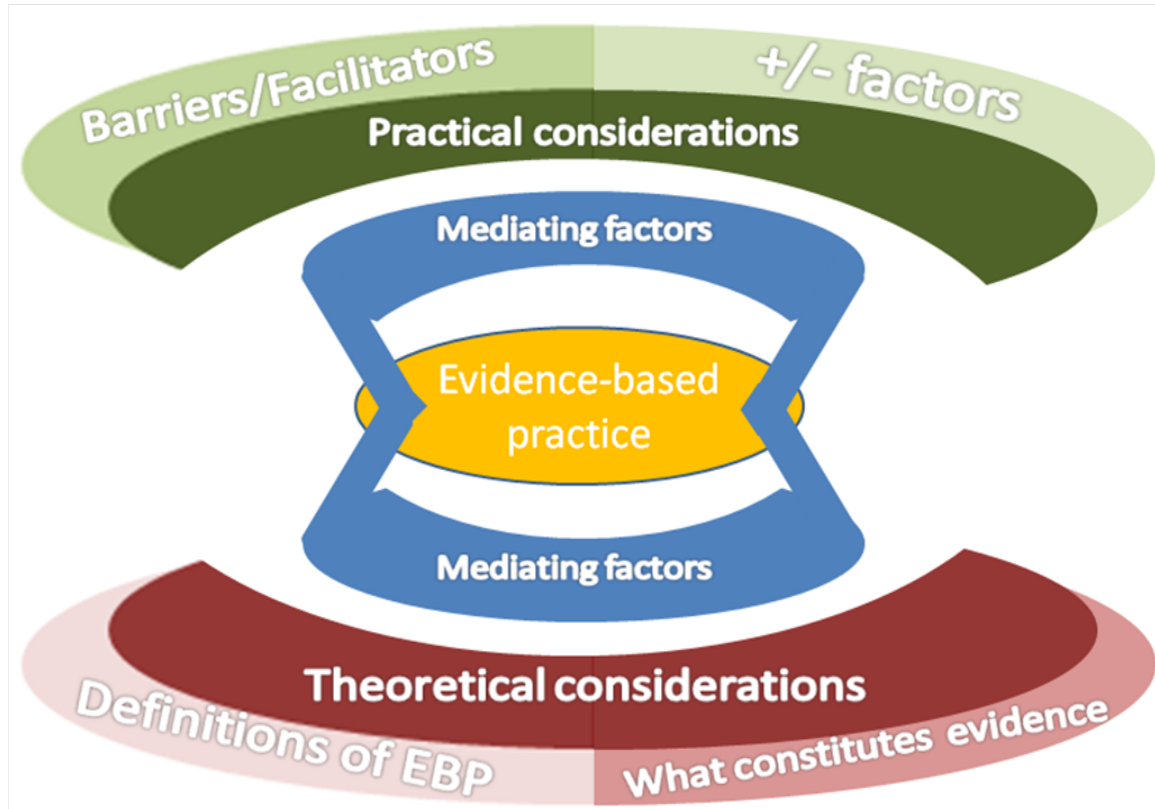
- 1. I feel I have been given sufficient information about the study to make an informed choice before consenting.
- 2. I know how the data I provide will be used.
- 3. I understand that the information I provide may be represented in an anonymous way in a publically available document at some future point.
- 4. I understand that I may withdraw any consent I provide until the data is aggregated (you will be notified by the researcher prior to this date).

**I consent to the information I provide at various stages in the current study to be used anonymously, in accordance with the procedure outlined above.**

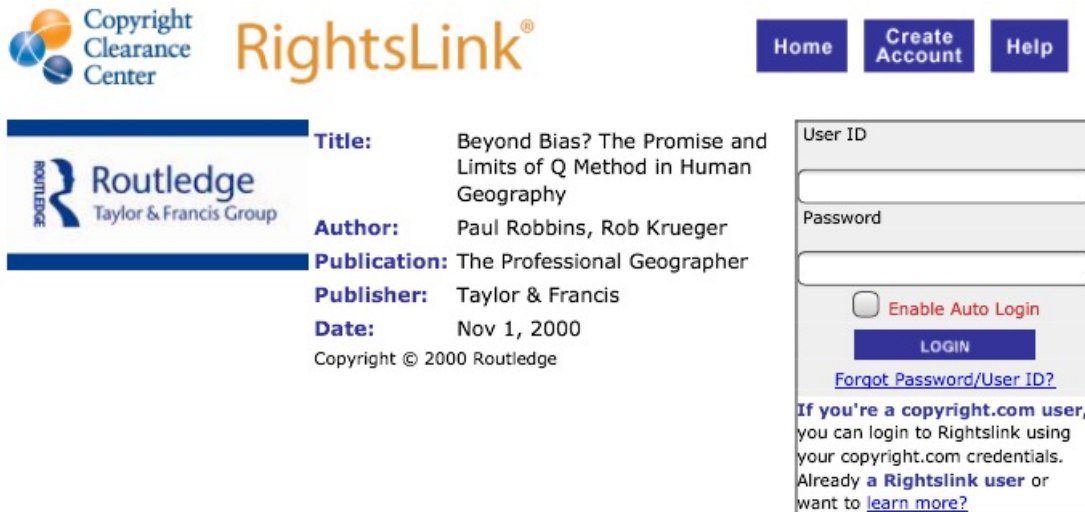
Signed: \_\_\_\_\_

Date: \_\_\_\_\_

**Appendix N Thematic Map**



**Appendix O Publisher Permission for Robbins & Krueger (2000) (Table 7)**



The screenshot shows the RightsLink website interface. At the top left is the Copyright Clearance Center logo. In the center is the RightsLink logo. To the right are navigation buttons for Home, Create Account, and Help. Below the logos is a blue horizontal bar with the Routledge Taylor & Francis Group logo on the left. To the right of the bar, publication details are listed: Title: Beyond Bias? The Promise and Limits of Q Method in Human Geography; Author: Paul Robbins, Rob Krueger; Publication: The Professional Geographer; Publisher: Taylor & Francis; Date: Nov 1, 2000. Below the details is a copyright notice: Copyright © 2000 Routledge. On the right side of the page is a login form with fields for User ID and Password, an Enable Auto Login checkbox, a LOGIN button, and a link for Forgot Password/User ID?. Below the form is a note: If you're a copyright.com user, you can login to Rightslink using your copyright.com credentials. Already a Rightslink user or want to learn more?

**Thesis/Dissertation Reuse Request**

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**Appendix P Permission for Brown (1972) (Illustration 1)**

From: **Steven Brown** <[sbrown@kent.edu](mailto:sbrown@kent.edu)>  
Date: 5 March 2012 20:40  
Subject: Re: Diagram permission  
To: Callum Urquhart <[edp09cu@sheffield.ac.uk](mailto:edp09cu@sheffield.ac.uk)>

Callum,

I now recall that Teachers College Press reverted the copyright to me and the late Donald Brenner (the volume's co-editors). I've already given you permission so that's all that is needed.

Steven

-----  
Steven R Brown <[sbrown@kent.edu](mailto:sbrown@kent.edu)>  
Department of Political Science (Emeritus)  
Foundations, Leadership, & Administration  
Graduate School of Education  
Kent State University  
Kent OH 44242-0001 (USA)  
mobile: (330) 524-6117  
office: (330) 672-2060  
-----

On 3/4/12 3:50 PM, "Callum Urquhart" <[edp09cu@sheffield.ac.uk](mailto:edp09cu@sheffield.ac.uk)> wrote:

> Hi Professor Brown,  
>  
> I hope this email finds you well.  
>  
> I was wondering who I should contact about permission for the diagram  
included  
> in this email, which I found while looking at your article about the history  
> of Q.  
>  
> I think it provides a really accessible notion of what the differences between  
> 'q' and 'r'.  
>  
> Thanks again for all your help,  
> Callum

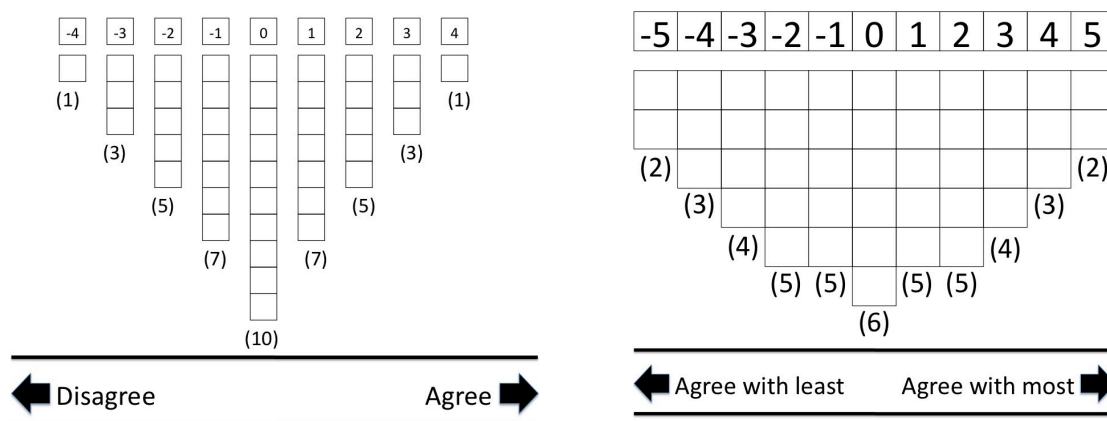
## **Appendix Q Q-Sort Piloting**

- Aims** *A pilot Q-sort procedure was carried out in order to:*
- a) refine the procedure*
  - b) identify 'missing' statements*
  - c) trial post-sort questions*
  - d) explore how well the Q-sort procedure followed 'good practice' in relation to the principles of Q-Methodology*
- Method** *Two groups were targeted: a 'practitioner group' (Three Trainee Educational Psychologists and one University Tutor ) that could provide feedback in relation to aims (a), (b) and (c), and a 'methodology group' (Two Trainee Educational Psychologists and one University Tutor who had used Q-Methodology in their Doctoral research) who focused on (a) and (d).*
- Results** *Amendments were suggested for the introductory video and procedural information to clarify the functionality of Q-Assessor. The email address used to make contact with participants was changed to the University address. The post-sort questionnaire was amended to explore different aspects of the sort. A number of statements were amended because they contained more than one idea or required editing to make them more intelligible. The total number of statements was increased from 42 to 44. The shape of the distribution was changed as was the dimension used to sort the statements (discussed below).*

### **Specific amendment(s) requiring additional elaboration.**

The standard procedure for sorting the statements contained in the Q-Set is well established (Brown, 1980; McKeown and Thomas, 1988). Participants are provided with individual cards that contain the items in the Q-set as well as a grid on which to place them (following an initial sort into three piles that relate to the dimensions along which the items are grouped). Generally the grid conforms to a quasi-normal distribution, although variations in the literature exist (Brown, 1971; Block, 1961). Initially a 42 item grid was presented to the 'practitioner' group in the pilot, which was later amended to

accommodate 44 items (see Figure 1).



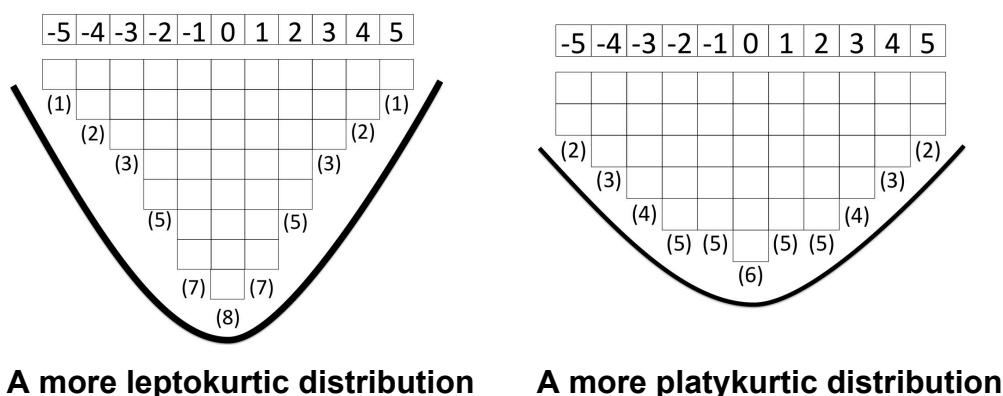
**Figure 1-** The 42 item Grid on the left (-4/4) was used by the ‘practitioner’ group in the pilot. The 44 item Grid on the right (-5/5) was used in the study proper.

The final grid used (the 44 item grid seen on the right in Figure 1) took into account two comments put forward by the ‘practitioner’ group. Firstly, the participants felt that they could make more subtle distinctions between statements than the 42 item grid allowed (specifically they said that some items that were placed below ‘zero’ could have been placed further towards the extremes). Secondly, the participants said that they also felt uncomfortable placing some items that they agreed with towards the ‘disagree’ end of the grid.

These two feelings in participants are not uncommon in Q-methodological studies. In respect to the first issue Brown (1993) claims that, “both the range and distribution of the shape are arbitrary and have no effect on the subsequent statistical analysis” (p. 102). However the shape of the distribution may be adapted for the participant’s benefit, to provide either a greater sense

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of distinction between items as it flattens (a platykurtic distribution) or conversely, a greater sense of similarity between the majority of items when the mid-range contains a relatively greater proportion of the statements (a leptokurtic distribution). Watts and Stenner (2012) suggest that a platykurtic distribution should be preferred when the participants in the study have an expertise in relation to the topic area as it gives them the sense that finer distinctions between the items can be made, where as a more leptokurtic distribution should be used for those who may be less able to meaningfully distinguish between items. A graphic representation of two examples of these distribution shapes are shown in Figure 2 below.



**Figure 2- A comparison of distribution shapes for a 44 item Q-Set.**

Given that the Educational Psychologists could be considered a relatively expert group, and that the ‘practitioners’ in the pilot group had noted that they felt more able to discriminate between items than the 42 item grid had allowed, the more platykurtic grid was preferred.



In relation to the second point raised, the face valid dimension the 'practitioner' pilot participants originally used ("Agree"/"Disagree") was changed to "Agree with *most*"/"Agree with *least*". This was felt to overcome the anxiety some participants felt in placing items that they agreed with towards the 'disagree' end of the distribution and served to emphasise the holistic relationship between the sort items where they were organised specifically by their relationship to one another rather than their potential membership to absolute categories such as "Agree" "Disagree". This type of unipolar distribution (least to most) is favoured in a number of published studies (i.e. John & Montgomery, 2011; Boot, van Exel, & van der Gulden, 2009; Gaebler-Uhing, 2003; Ramlo, 2005).

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## **Appendix R Expert validation procedure**

### **Summary**

Aim	<i>To obtain the views of an expert panel relating to both the breadth and balance of coverage in the Q-Set.</i>
Method	<i>5 experts in the field of Educational Psychology were contacted to complete the Q-Sort activity and to comment on the degree to which they felt the statements represented the breadth of wider discourse around evidence-based practice and whether they felt the coverage was balanced</i>
Results	<i>4 of 5 experts replied. Participants felt that the Q-Set provide both breadth and balance. Some suggested amendments the wording of some items, to the post-sort questionnaire and the procedure.</i>

### **'Pen portrait' of the experts**

Expert 1	<i>Principal Educational Psychologist for geographically diverse Council who has experience both within Education but also Clinical settings.</i>
Expert 2	<i>Expert 2 is a practising Educational Psychologist who has previously held senior roles including Principal Educational Psychologist.</i>
Expert 3	<i>A widely read and cited author of a number of articles written in relation to the work of Educational Psychologists. Expert 2 is also affiliated to an Educational Psychology training provider.</i>
Expert 4	<i>A widely read and cited author of a number publications in the field of Educational Psychology. Expert 4 is also a practising Educational Psychologist.</i>

### **Email Request**

Hi XXXXXXXX,

Thanks so much for agreeing to help out. As a bit of background...

I am currently in the third year of my Doctorate in Educational and Child Psychology which I am completing through the University of Sheffield. For my doctoral thesis (which has received ethical approval from the University's ethics committee), I am exploring the perceptions of evidence-based practice within a group of educational psychologists (n=21) using focus groups and Q-methodology. Through thematic analysis, the Focus Group aspect of my research

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revealed 186 codes relating to the discourse around evidence-based practice within a group of EPs. I have also generated additional codes from the literature around evidence-based practice until I reached a point of saturation (i.e. no new codes emerged from the subsequent literature review). The combined codes from the Focus Groups and the literature review are said to represent the 'concourse' of perspectives that exist around evidence-based practice. The next stage in my study is to select a manageable number of statements for participants to sort that can be said to be representative of this wider discourse. I am concerned that the methods outlined in the literature used to achieve this are problematic and may limit the robustness of my final statement selection (Q-set). This is where you come in!

I would like you to be part of an expert panel (n=5) I have selected to answer the following three questions:

1) Based on the statements I have included in the sort that I will send to you (it will be arriving as an electronic link and will read as intended for the participants), **in your opinion are there any omissions from the discourse around evidence-based practice?**

2) **How balanced do you think the statements were in relation to discourse that exists around evidence-based practice?**

3) **Do you feel the procedure was clear?**

Based on your input I will add and amend the statements I include in the Q-sort that I send to the participants for the final study. I feel that with your input, and the input from the other experts on the panel, I can say with more credibility that the statements that are included in the final Q-sort represent the range of discourse that exists-around evidence-based practice within practising EPs and that it is also provides a balanced account of the range of discourse that exists.

In terms of what will happen with your responses, none of the data will be used in the analysis of the sort or reported in anyway within the thesis write up. The only discussion of your input will occur in the methods Section where I describe the procedure by which I arrived at the final selection of statements. It is likely to be reported as "a view from Expert 1 was that there was little mention of X in the statements presented".

I intend to provide a brief bio for each of the 5 members of the panel to support my selection of them as experts. I would like to identify you as...

It may be that you would prefer a more ambiguous biography, as such if you would like to add or omit anything please let me know. Once I have written up the draft I will send you the biographic description to check if you are comfortable with it.

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If you are happy for this please return a signed copy of this for my records to the address below, or by signing the document electronically and emailing back to me.

If you have any questions before consenting please email me ([edp09cu@sheffield.ac.uk](mailto:edp09cu@sheffield.ac.uk)). Should you have a concern that you do not feel comfortable raising with myself directly please contact the University's Registrar and Secretary [registrar@sheffield.ac.uk](mailto:registrar@sheffield.ac.uk).

I consent to the input I provide being reflected within the doctoral thesis described above.

Printed Name \_\_\_\_\_

Signature \_\_\_\_\_ Date \_\_\_\_\_

Return Address:  
Callum Urquhart  
XXXXXXXXXX

### **Response from participants**

Expert 1 (Email)

*My impression is that you have more than adequately covered the main threads regarding evidenced based practice. It was worthwhile for me to review, personally, to help me to think through all of these issues in greater depth than I had allowed/enabled myself to do over the last year or more. Several questions raised interesting paradoxes for me, as I am sure they may have been intended to do.*

Expert 2 (Email)

*I wonder whether there is a need to use absolute statements or whether some equivocation is allowed - like 'psychologists usually think.....' rather than 'psychologists think'? Or maybe the whole point is to force the person to make a choice based on what is actually said .... which then begs the question whether those doing the sorting put their own (unwritten) spin on things .... and so sort things AS IF the word (usually) was in the sentence - and if some do and some don't then this will skew the results.*

*I found the actual sort quite difficult also because I could only see a limited number of statements at a time - albeit that I could swap things around to illuminate 3 at a time and hover over things etc.. However, if I'd been doing it on paper I'd have been able to*

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*view/scan multiple statements at a time and move them around in relation to each other as a whole and make those fine judgements more easily. I think this is a flaw in the design and, at least, you need to discuss this in your methodology section.*

Expert 3

(Email)

*I do feel your statements are representative of the area and cover the main issue. You might like to think if there should be some more future oriented questions e.g. In the future I think EPs will need to rely on EBP or In the future I am hoping that there will be a move away for EBP. This might helpful give some other dimensions and thinking around the issue.*

*In terms of the questionnaire I think Q5 is very difficult and wonder if it could be split or simplified.*

Expert 4

(Face to face)

*The coverage and balance of the statements in relation to evidence-based practice is very thorough.*

*The initial categorising in to three piles was quite time consuming and I would have preferred to go straight to the overall sort.*

### **Amendments made**

Based on the input provided the wording of several items was amended to reflect the comments of the participants. More significant changes were made to the introductory video in order to clarify the procedure. The post-sort questionnaire was also amended.

### ***Appendix S Statements making up the Q-Set***

1. The drive towards evidence-based practice is influenced primarily by economic considerations.
2. The drive towards evidence-based practice is influenced primarily by a desire to improve outcomes for children.
3. There are some methods of practice that are more effective than others.
4. There are paradigms other than the 'scientific paradigm' that can produce an equally sound evidence base from which to practice.
5. My practice is predominately based on psychological research.
6. I am able to explicitly reference the evidence-base that my professional actions are based on.
7. Evidence-based practice suggests that there is one 'right' way.
8. Evidence-based practice seeks to find optimal ways of practicing in complex situations.
9. Some sources of evidence are more useful than others in guiding practice.
10. Because we work with unique individuals an evidence-based approach is of limited use.
11. Evidence-based practice is unachievable because of the complexity of our work.
12. The advantages evidence-based practice may bring outweighs the disadvantages.
13. I value creativity over evidence.
14. When faced with a conflict between published research and one's own judgement, Educational Psychologists should tend towards their own beliefs.
15. Evidence-based practice allows professionals to be more accountable.
16. There are too many barriers to make evidence-based practice feasible for Educational Psychologists.
17. The Educational Psychology Service has robust mechanisms for allowing Educational Psychologists to evidence their own practice.
18. I value individual autonomy over consistency across the service.
19. There is not enough 'gold standard' research available to Educational Psychologists that could allow them to practice in an evidence-based way.
20. Evidence-based practice is abused for political gain.
21. If we don't distinguish between evidence in terms of its quality then people are able to advocate for questionable practices.
22. I don't feel I have a good enough knowledge of research methods that can allow me to really evaluate the claims made in published articles.

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23. The practice of most Educational Psychologists is determined by their interests and what they like rather than a reflection of the evidence available to them.

24. Using numbers to evidence my practice is unsatisfactory to me.

25. Evidencing impact is incompatible with a model of service delivery that aims to have others carrying out the intervention.

26. The perception of Educational Psychologist as 'scientist practitioner' is something that we need to hold on to because we would not be paid simply to empower others.

27. Most EPs are explicitly aware of the psychology they are using.

28. What Educational Psychologists identify as evidence-based practice is often in conflict with other people's agendas.

29. I feel like I have the skills needed to undertake useful evaluations of my own practice.

30. As a practitioner it is difficult to know what sources of evidence can be trusted.

31. Educational Psychologists will often seek out evidence to justify their hypothesis rather than to falsify their hypothesis.

32. Medical practice has had a positive influence on how evidence-based practice is understood among Educational Psychologists.

33. Evidence-based practice offers Educational Psychologists a tool to reduce uncertainty

34. Evidence-based practice is achievable within a consultation model of service delivery.

35. Educational Psychology should have science at its core.

36. I feel becoming more evidence-based would limit my autonomy.

37. Identifying what worked in one situation won't help in another.

38. Consistency in practice has a better chance of improving outcomes for children than inconsistency in practice.

39. Rather than evidence our impact we should be trusted as professionals to be making a difference.

40. It is necessary to establish criteria to evaluate the quality of evidence.

41. I would like to practice in a more evidence-based way.

42. Educational psychologists have an ethical obligation to practice in an evidence-based way.

43. Opinion without an underlying source of evidence is not evidence-based practice

44. I feel that evidence I gain from client views has a significant impact on the final course of action agreed.



### **Appendix T Post-sort Questionnaire**

1. How many years post-qualification experience do you have? \*
2. Did you feel that the range of statements used in the Q-sort allowed you to express the range of view points you had about evidence-based practice? If not what words or phrases would you have liked to have been added to the statements already provided in the Q-sort: \*
3. You sorted two statements into the agree with most column. What was it about those two statements that you agreed so strongly with? \*
4. You sorted two statements into the “agree with least” column. What was it about those two statements that made you agree with them the least? \*
5. Within the focus group two dichotomies emerged: one between the notion of being mainly either a practitioner or researcher, and another between science as being the guiding paradigm that governed practice as opposed to the view that some other paradigm informing practice (i.e. practice as an art form) . Although there is inevitably overlap between the categories, which of the following labels do you believe best describes your practice (you can qualify your choice in the following question). The use of the term non-scientist is not intended to be pejorative but to distinguish between other paradigms that may guide practice. \*  
Scientist researcher  
Non-scientist researcher  
Scientist practitioner  
Non-scientist practitioner
6. Based on your answer to the previous question how would you like to qualify the label you gave yourself? \*
7. There are psychologists who would say that although they might not be able to identify the precise study, that their practice is based on years of accumulated evidence which although implicit, they can identify the research when provided with a range of options or the ability to search the literature. In what ways might this psychologist’s practice differ to a non-psychologist who firstly makes a judgement then seeks out evidence to support their opinion after the event? \*
8. Has participating in this study influenced your attitude towards evidence-based practice and if so in what ways. \*
9. “Evidence-based practice in psychology is the integration of the best available research with clinical expertise in the context of patient characteristics, culture and preferences”. *How closely is this definition of evidence-based practice aligned to your own? What amendments would you like to make to it?*

### ***Appendix U Q-sort sampling procedure***

#### **Structured sampling**

The main body of the thesis drew an important distinction between the scientific study of subjectivity and the notion of 'subjective science'. The numerical 'challenge' to *researcher* subjectivity and bias was an important factor in selecting Q-methodology within a realist ontology and epistemology. Consistent with this stance was the attempted incorporation of 'Structured Sampling' within the present study, and a brief discussion of the procedure provides an opportunity to make clear some of the more fundamental assumptions of Q-methodology.

Using the procedure outlined by Dryzek and Berejikian (1993) a 4 by 11 grid was produced, which contained 11 themes along the top (based on the thematic analysis of the Focus Group and 4 types of statement (using Toulmins's (1958) classification of claims). Using the discourse generated by the procedure outlined in the main body of the thesis, statements were selected for each cell in the grid.

The resulting 44 item Q-Set appeared to the researcher to be artificial and unbalanced, providing not enough coverage of some areas of the wider discourse and too much on others. However in a perverse sense this was a very satisfying outcome as the purpose of employing the technique was to avoid selecting a Q-Set based on the subjective preferences of the researcher (McKeown & Thomas, 1988).

It is difficult as an individual to judge the adequacy of a Q-sampling procedure

because of the inherent biases one brings to the process and although cell sampling produced an outcome that was very different from that which have arisen otherwise, that does not necessarily suggest it meets the brief of being a representative sample of the concourse. Moreover the actual process of cell sampling felt incompatible with the orientation of the present study for a number of reasons.

Firstly the existing statements from the concourse required substantial rewording in order to generate a statement for each cell. Given that significant time and effort had gone into generating naturalistic statements for the concourse this felt quite unsatisfactory, a feeling worsened when the process was viewed through the participatory action research lens guiding the research.

More significantly the process felt at odds with the underlying principles of Q-methodology. By identifying *a priori* themes and generating apparently arbitrary semantic conjugations of pre-existing statements to fit a grid appeared to shift the research towards a more R-methodological approach.

The purpose of the current study was to explore how Educational Psychologists understood evidence-based practice, in which the “Q” aspect was selected to identify any common groupings of subjective perspectives based on a comprehensive and balanced sample of statements from the concourse of discourse that exists around the topic. The Q-Set generated from the structured cell sampling procedure, while intuitively appealing to a

realist researcher, appears to conflict with the 'curious' and 'exploratory' aim of the current research and as such was not utilised.

### **Unstructured sampling**

The second method used in the literature to reduce the large discourse down to a manageable subset of statements is unstructured sampling. Although unstructured sampling does not use a formal fixed process for selecting statements (such a predefined grid) it should not be taken to mean 'random sampling'. Quite the contrary, unstructured sampling is an incremental process whereby differing combination of statements from the discourse are explored until they are judged to be representative of the breadth and balance of the discourse as a whole (Watts & Stenner, 2012). Based on this iterative process an initial Q-Set of 42 items was felt to be a balanced representation of the discourse. However in order to achieve a greater level of objectivity the 'Expert Validation' procedure described Appendix R was followed.

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### ***Appendix V Recruitment email sent by Q-Assessor***

#### **Invitation**

Hello!

Hello everyone,

Thanks again for agreeing to take part. Before proceeding to the study I highly recommend you watch this 4 minute clip that explains the **process** LINK. If you have any questions please don't hesitate to get in touch by email (edp09cu@sheffield.ac.uk). The statements you are about to sort have been selected from the literature surrounding evidence-based practice as well as from two focus groups comprising of Educational Psychologists from the Service. **You are going to be asked to sort statements that relate to evidence-based practice. It is important that you sort them based on your own views of evidence-based practice in terms of how you feel it relates to your work as an educational psychologist.**

The whole procedure lasts no longer than 30 minutes and needs to be completed in a single sitting. You may also want to have some **paper and a pen** to hand to make any notes on particular statements that you would like to send to me.

Once you have sorted the statements there are a few short questions that will help me to analyse the way the statements have been sorted. I should emphasise that the your individual responses will be anonymised within the body of my research and no one will be identifiable.

To complete the study please follow this LINK

Thank you once again.

Callum

## ***Appendix W Q-Sort introductory Video***

### **Transcript**

Hello everyone. This is just a quick video to introduce the Q-Sort. There is no right or wrong way to sort the statements. I am interested in how all the statements compare to one another. Please send me some notes on any statements you wish to elaborate on.

For the next section try and sort the statements as quickly as possible. My advice is to sort the statements into the three boxes based on your initial gut reaction. Drag each statement into the corresponding box using the mouse. You can scroll through each of the statements if you are unsure about the one on top. I would emphasise though, that on this screen the way you sort the statements does not affect the data.

You can also scroll through the statements once they have been sorted into the bins. It is also possible [1.00] to exchange statements between the bins and return it to the original position.

To summarise it's a case of scrolling through the statements and sorting them into the appropriate bins. I really wouldn't spend too long on this section however.

Once you have sorted the items, you will be presented with the option of going back to review your sort or proceeding to the next stage. I would suggest immediately proceeding to the next stage as we will have a chance to re-sort your items then.

The next section is the 'Sort Proper'. Although there seem to be many places you can place the statement, you have to immediately place 'agree with most'. Drag the statement under 'agree with most' until the orange rectangle appears. Don't worry too much at this stage whether that is the statement you feel you agree with most: it will be far easier to sort once you have more statements within the grid.

Once you have selected the two statements you agree with [2.00] most, you have to repeat the same process with the two statements you feel you agree with least. As before you can scroll through each of the statements to compare them to one another. I wouldn't spend too long doing this as you will find it much more efficient to sort the statements once they are in the grid.

Now that you have sorted both the 'agree with most' and 'agree with least' statements you will notice that the other rectangles have turned from grey into white. This means you now have the opportunity of a 'free sort'.

The sooner you can take down the statements from above into the grid below, the sort becomes a lot easier. You will notice that if you hover the mouse over each statement, it expands so it becomes more readable. Once they are placed side by side it is easier to make relative judgements between them. As you can see, it is [3.00] also very easy to exchange statements and swap them round. You can also replace the statements you agree with most and agree with least at this stage.

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Once you have sorted your statements you are given the opportunity to review them. I would take this opportunity and just hover the mouse over each statement to make sure you are quite happy with how they have been arranged. Once you are happy with how they have been arranged, please proceed to the final stage. The final stage involves answering a **[4.00]** few very brief questions that will allow me to interpret the way you have sorted your statements. I can't emphasise how grateful I am that you have taken part in this research. I'm so excited about it and the findings so far have been quite riveting. I'm really looking forward to sharing it with you once I get the data in.

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**Appendix X Idealised sort of Factor uA sent to participants**

-5	-4	-3	-2	-1	0	1	2	3	4	5
11	37	7	14	24	38	40	21	9	15	42
16	10	13	17	20	28	35	41	44	3	33
	36	25	1	27	31	26	5	29	12	
		39	22	32	6	34	43	8		
			18	30	19	23	2			
					4					

**← Agree with least                      Agree with most →**



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***Appendix Y Questions used to prompt the shared factor interpretation***

When the q-sorts completed by the other Educational Psychologists were compared the majority had a high amount of consensus in terms of how the items were sorted. Does this surprise you?

What areas do you feel there is most agreement?

What areas do you feel there is likely to be the most disagreement?

When additional analysis was carried out your sort contributed to a specific subset of views within the broader area of consensus. Why do you feel the items at 5 were ranked so highly?

Why do you think the items at -5 were ranked so low?


The following items seemed to set the factor you contributed most to apart from the others: [distinguishing items]. Why do you think this is the case?

Based on my initial interpretation of the factor it seems to suggest ... Would you say this is a fair reflection of your understanding of evidence-based practice?

What would you add to the interpretation to more closely reflect your view?

Looking at the sort that is said to characterise the perspective you share with [n] others are there any item rankings that surprise you?

**Appendix Z Publisher permission Braun and Clarke (2006) (Table 8)**

	<b>Title:</b> Using thematic analysis in psychology	<table border="1"><tr><td>User ID</td></tr><tr><td><input type="text"/></td></tr><tr><td>Password</td></tr><tr><td><input type="text"/></td></tr><tr><td><input type="checkbox"/> Enable Auto Login</td></tr><tr><td><input type="button" value="LOGIN"/></td></tr><tr><td><a href="#">Forqot Password/User ID?</a></td></tr><tr><td colspan="3"><b>If you're a copyright.com user,</b> you can login to Rightslink using your copyright.com credentials. Already a <b>Rightslink user</b> or want to <a href="#">learn more?</a></td></tr></table>	User ID	<input type="text"/>	Password	<input type="text"/>	<input type="checkbox"/> Enable Auto Login	<input type="button" value="LOGIN"/>	<a href="#">Forqot Password/User ID?</a>	<b>If you're a copyright.com user,</b> you can login to Rightslink using your copyright.com credentials. Already a <b>Rightslink user</b> or want to <a href="#">learn more?</a>		
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<a href="#">Forqot Password/User ID?</a>												
<b>If you're a copyright.com user,</b> you can login to Rightslink using your copyright.com credentials. Already a <b>Rightslink user</b> or want to <a href="#">learn more?</a>												
<b>Author:</b> Virginia Braun, Victoria Clarke												
<b>Publication:</b> Qualitative Research in Psychology												
<b>Publisher:</b> Taylor & Francis												
<b>Date:</b> Jan 1, 2006												

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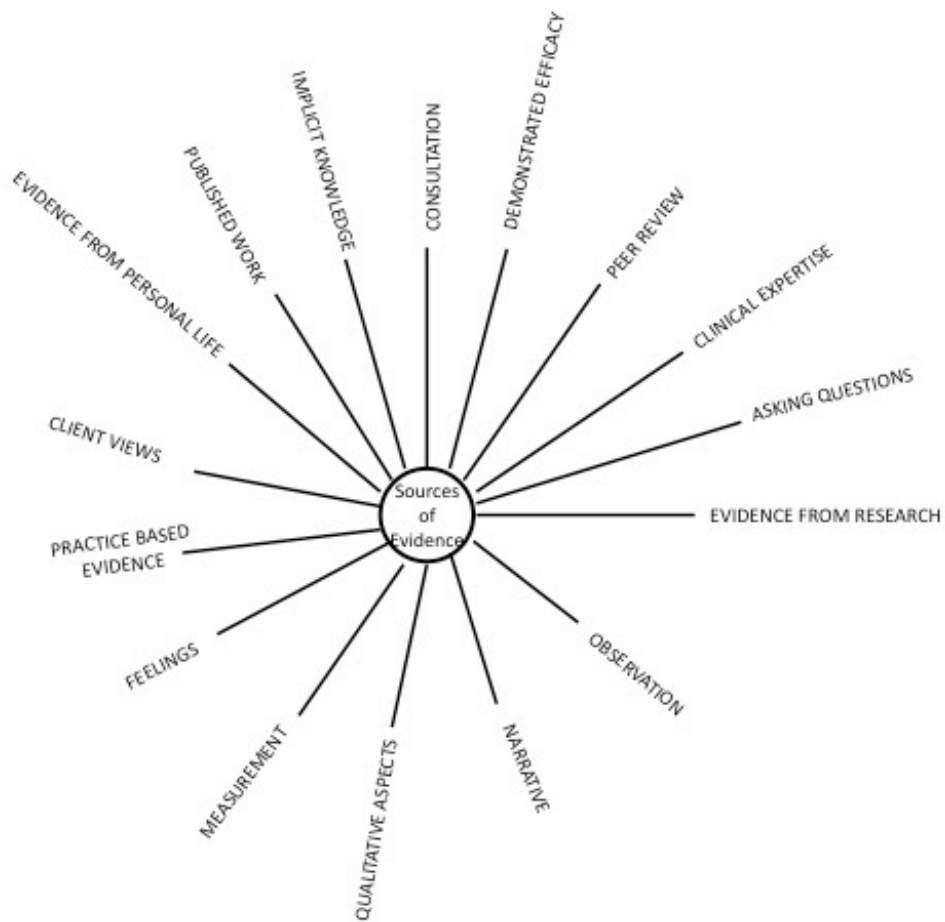
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**Appendix AA Graphic representation of the codes that make up the theme "Sources of evidence"**

ANALYSING FOCUS GROUP DATA

COLUMN 1

**SOURCES OF EVIDENCE**

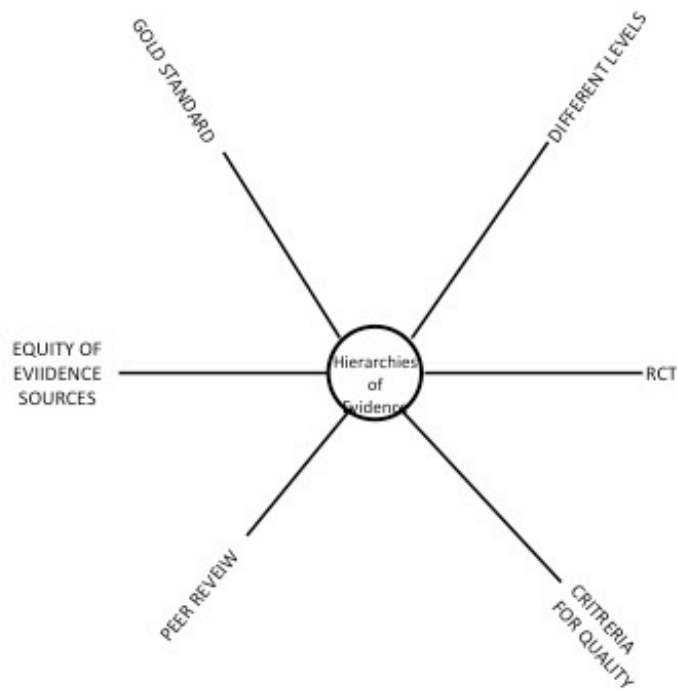


**Appendix BB Graphic representation of the codes that make up the theme “Hierarchies of evidence”**

ANALYSING FOCUS GROUP DATA

COLUMN 2

HIERARCHIES OF EVIDENCE

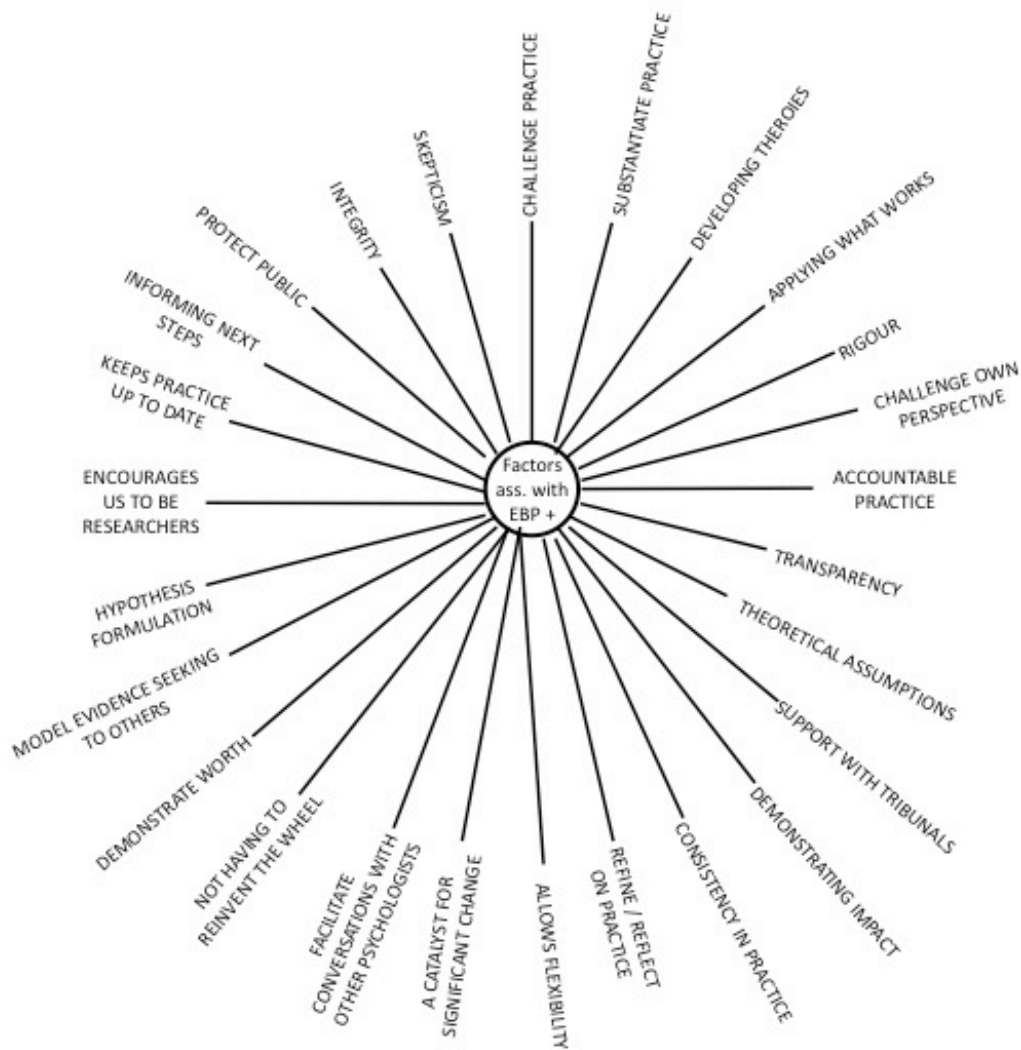


**Appendix CC Graphic representation of the codes that make up the theme “Factors associated with EBP (+)”**

ANALYSING FOCUS GROUP DATA

COLUMN 3

**FACTORS ASSOCIATED WITH EBP +**

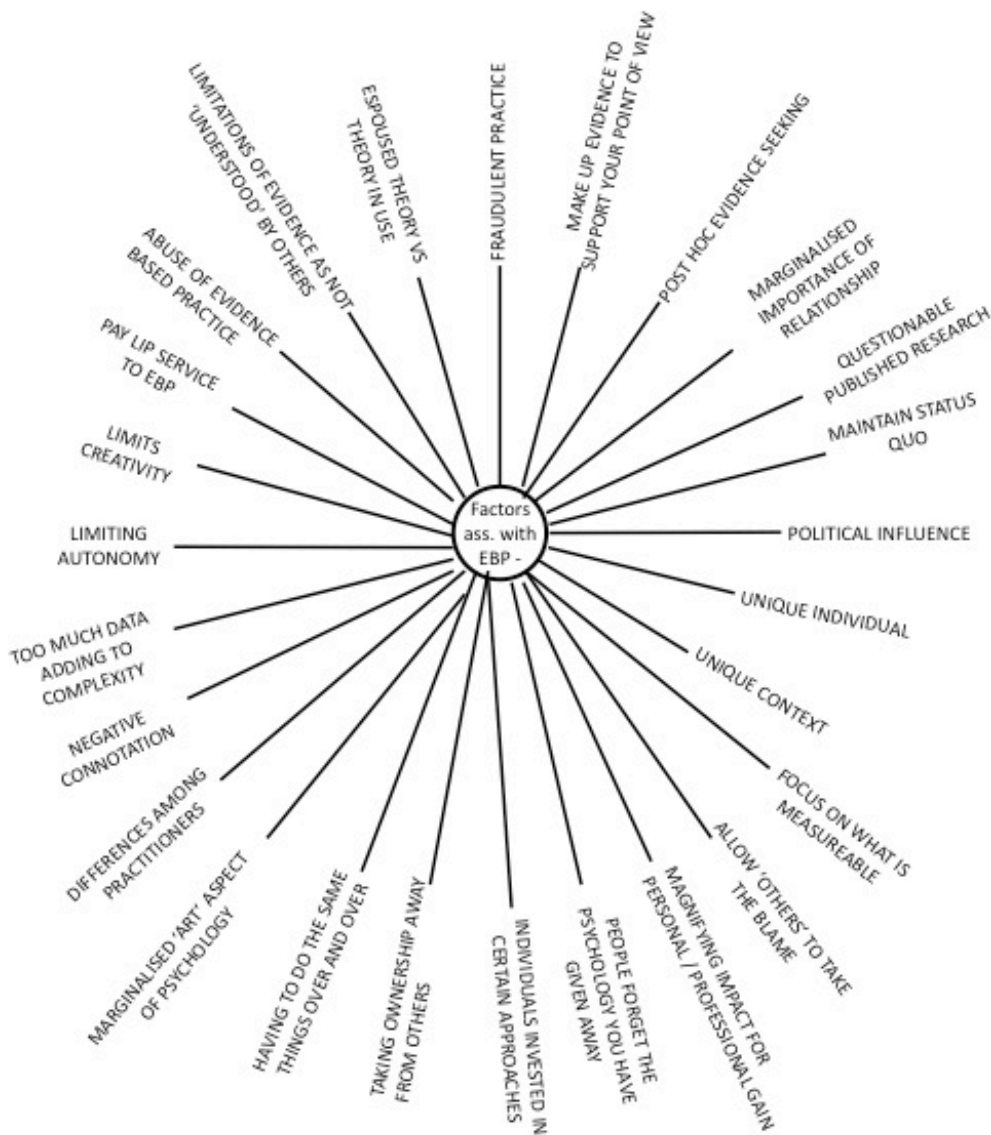


**Appendix DD Graphic representation of the codes that make up the theme “Factors associated with EBP (-)”**

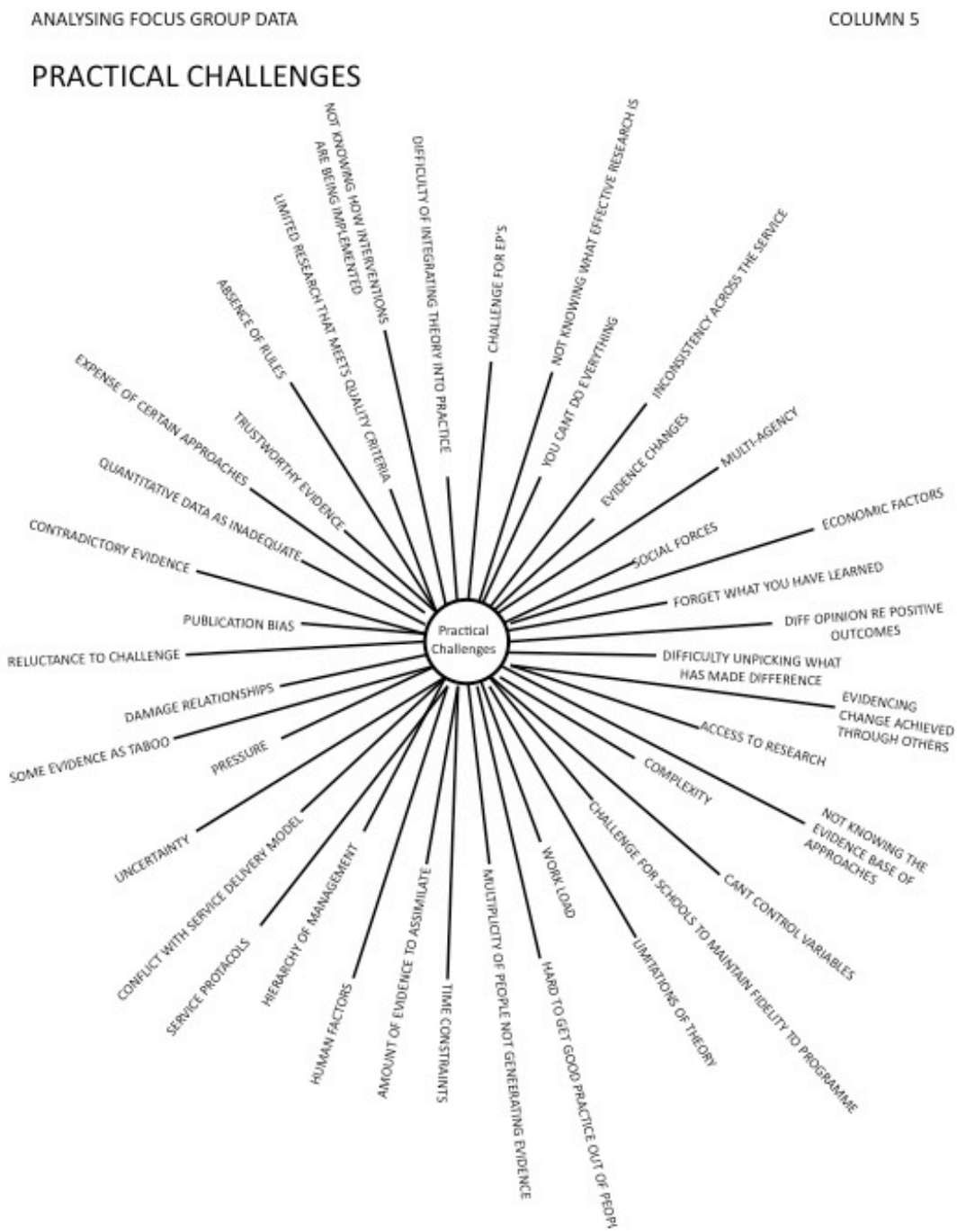
ANALYSING FOCUS GROUP DATA

COLUMN 4

**FACTORS ASSOCIATED WITH EBP -**



**Appendix EE Graphic representation of the codes that make up the theme "Practical challenges"**



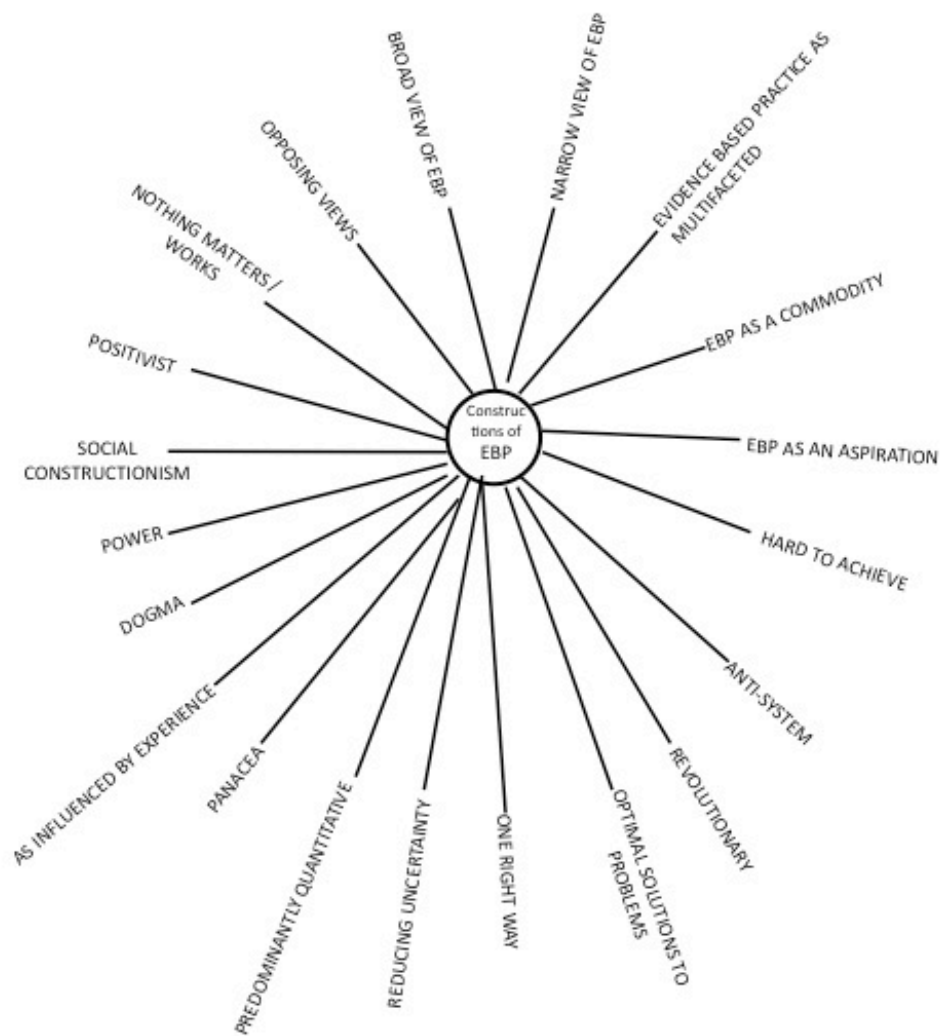
Educational Psychologists.

**Appendix FF Graphic representation of the codes that make up the theme “Constructions of EBP”**

ANALYSING FOCUS GROUP DATA

COLUMN 6

**CONSTRUCTIONS OF EBP**





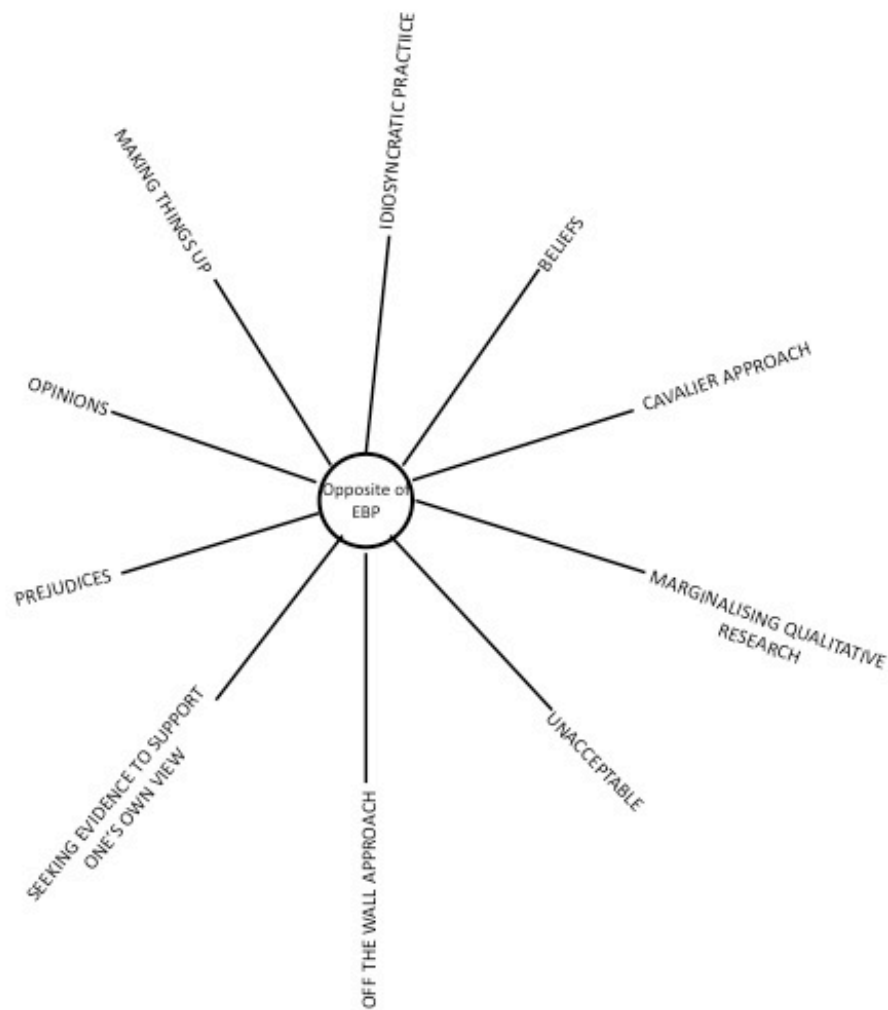
Educational Psychologists.

**Appendix GG Graphic representation of the codes that make up the theme "Opposite of EBP"**

ANALYSING FOCUS GROUP DATA

COLUMN 7

**OPPOSITE OF EVIDENCE BASED PRACTICE**

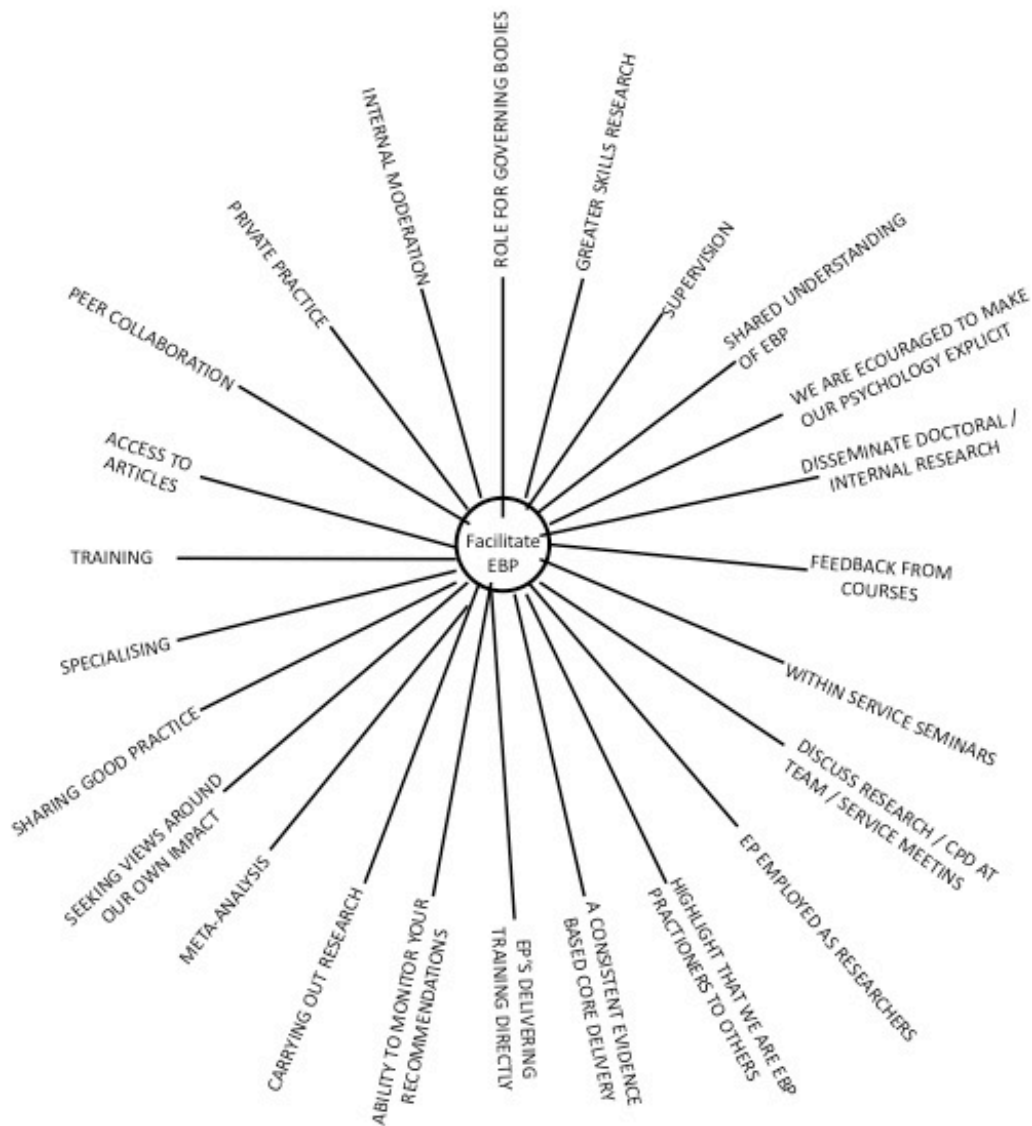


**Appendix HH Graphic representation of the codes that make up the theme "Facilitate EBP"**

ANALYSING FOCUS GROUP DATA

COLUMN 8

**FACILITATE EVIDENCE BASED PRACTICE**

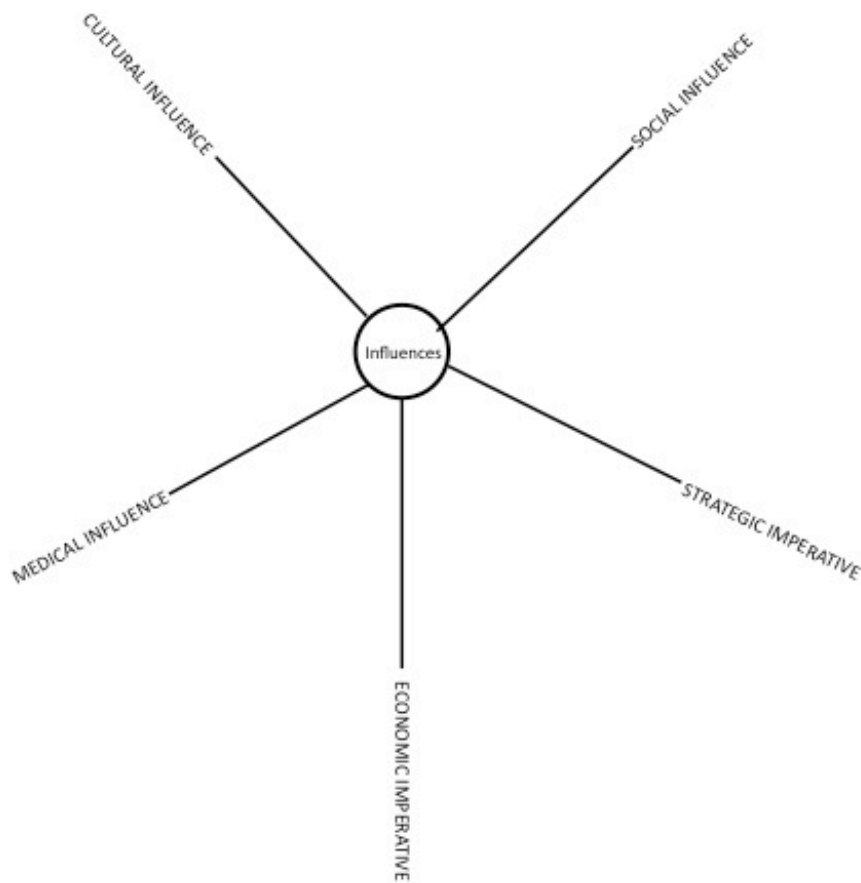


**Appendix II Graphic representation of the codes that make up the theme “Influences”**

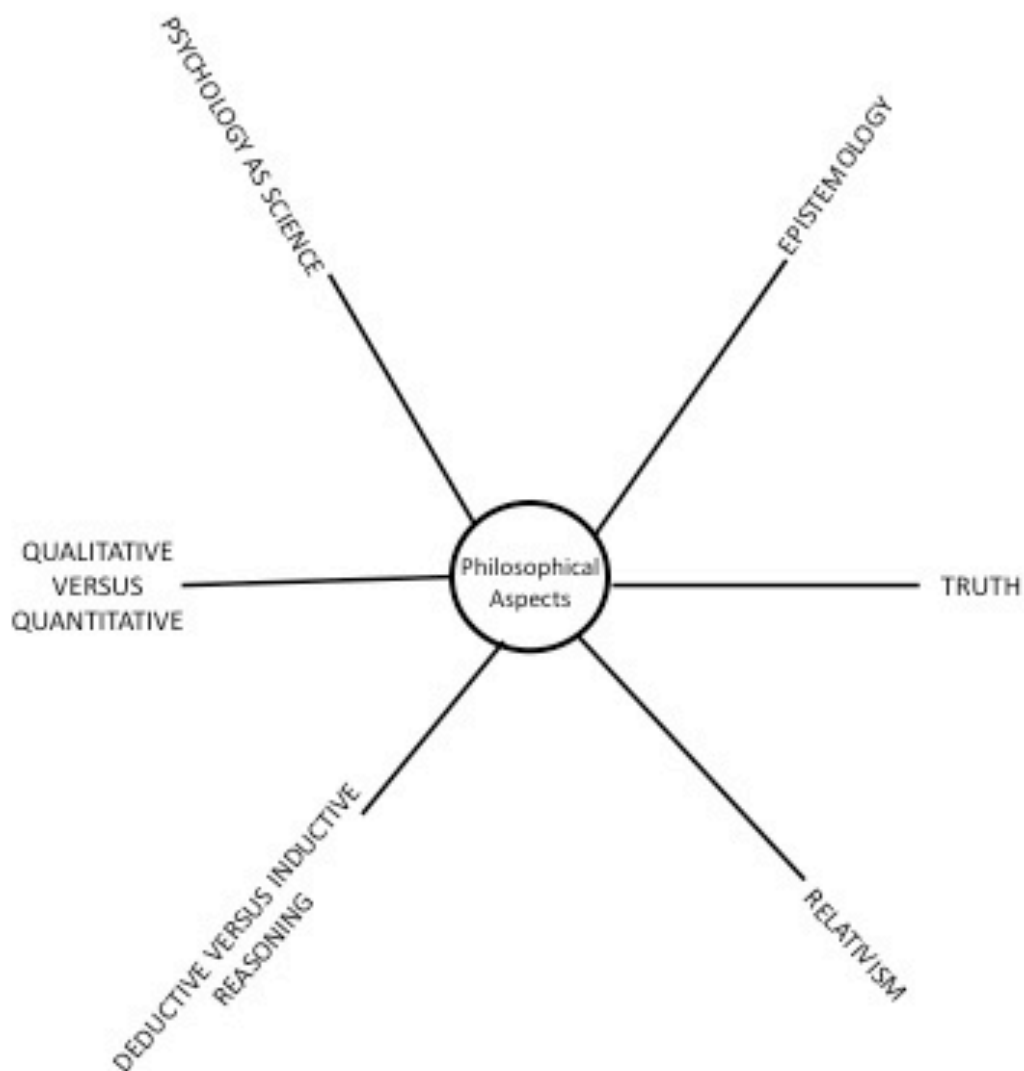
ANALYSING FOCUS GROUP DATA

COLUMN 9

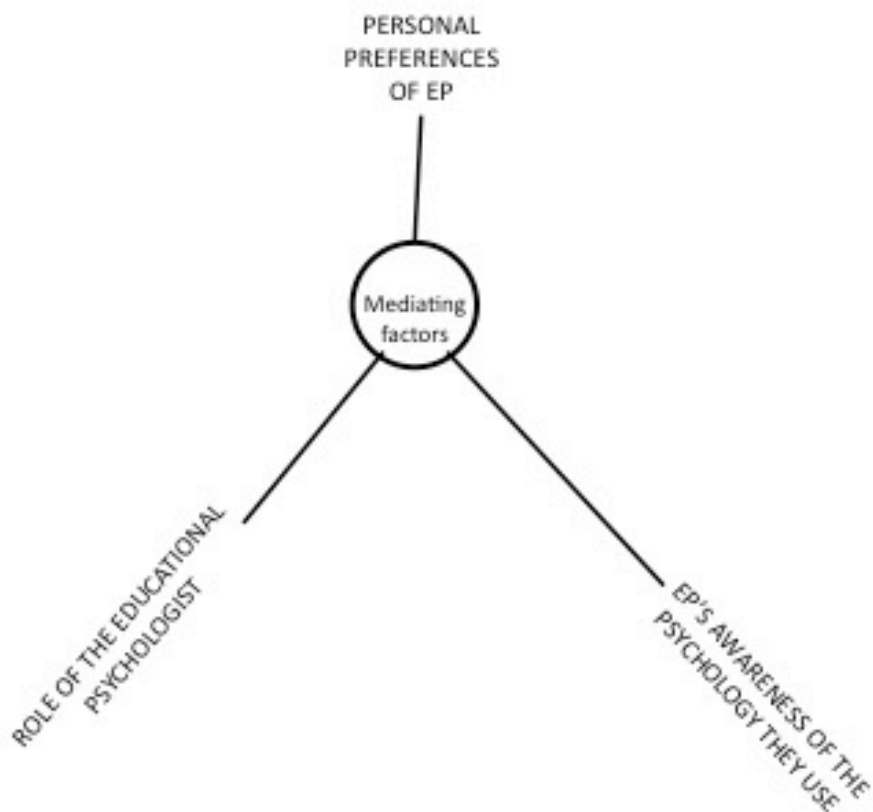
**INFLUENCES**



**Appendix JJ Graphic representation of the codes that make up the theme “Philosophical Aspects”**



**Appendix KK Graphic representation of the codes that make up the theme “Mediating Factors”**



***Appendix LL Selecting the method of factor analysis.***

This appendix seeks to explore the two methods most commonly used in Q-methodological studies: Principal Component Analysis and Centroid Analysis.

Essentially the two methods are different ways of achieving the same reduction in complexity from the correlation matrix to a more accessible indication of common groupings across the individual sorts. In fact a number of authors, while recognising that difference between the two methods exist, claim that, “it makes little difference whether the specific factoring routine is the principal components, centroid, or any other available method” (McKeown and Thomas, 1988, p. 49)

Where the main difference arises between the two methods is in their mathematical precision in terms of the factor solution they provide. PCA offers a single factor solution determined by its ability to explain the greatest amount of variance<sup>28</sup> among the completed Q-sorts. While many (particularly outside of the Q-community) see this as a strength of PCA, others (notably Stephenson himself (1953) felt that a mathematically correct solution was not optimal with the study of subjective opinion, an area of investigation felt to

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<sup>28</sup> In relation to Q-methodology notions of variance arise because the way in which individuals organise their sorts differs. If we found that all individuals sorted the Q-set in exactly the same way then we would have one factor that explain all the variety between the scores (which would be easy because there would be no variety). In practice however variation (variety) in the way people organize their sorts means that explaining 100% of the variance is highly unlikely (in the current study there were over 44 trillion ways in which the distribution could be effected (Brown, 1980). What PCA seeks to achieve is an explanation that accounts for the greatest possible amount of variance among the sorts.

embody the type of indeterminate quality associated with quantum theories of physics (i.e. Wolf, Good, Brown, Cuppen, Ockwell, & Watts, 2011). In the cases in which a rationale for the type of factor analysis is given, the indeterminacy of subjectivity is frequently invoked as a justification for Centroid factor analysis within Q-methodology:

This method [Centroid factor analysis] offers a potentially infinite number of rotated solutions. Indeed, it is exactly this openness and indeterminacy which appeals to the Q-methodologists, as it leaves them free to consider any data set from a variety of perspectives, before selecting the rotated solution which they consider to be most appropriate. (Watts & Stenner, 2005, p. 81)

However it is often unclear what precisely the authors take the indeterminacy of subjectivity to mean, and in a number of cases the relevant articles that prove instructive in the respect (i.e. Stephenson, 1982; Brown, 1993) are omitted from their reasoning.

In an attempt to avoid similar criticism, and by way of an explanation for the choice of Centroid analysis, a brief outline of how the concept of quantum indeterminacy was understood in the context of the present study follows below.

Put simply the notion of quantum indeterminacy relates to the inability to precisely specify all the components of a physical state (Albert, 1992). While there are a number of facets to this concept, Heisenberg's Uncertainty Principle is often used to illustrate the point. The Uncertainty Principle holds that the accuracy to which certain characteristics of a particle can be known is limited, whereby if the value for one physical property is known (i.e. its

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position) another is necessarily obscured (i.e. momentum). It is argued that the indeterminate state of particles is not simply a reflection of the limited sophistication of measuring devices but is seen as an intractable problem relating to quantum states. In fact Albert (1992) suggest that the process of measuring further influences the indeterminate states.

In the present study we are concerned with the understandings of evidence-based practice in a group of practising Educational Psychologists. There are a number of 'measures' used in the present study which are well suited to examine some aspects of 'understanding' (for example the range and breadth of subjective opinion) but not others (the range of agreement or disagreement that exists within the group) and vice-versa. While one might suggest that a single method could exist to examine both aspects at once, providing a 'definite' state of subjectivity, the author contends that an accurate measurement of both 'range/diversity' and 'agreement/disagreement' at once is unachievable, not because of poorly designed methods, but because subjectivity does possess an indeterminate quality that is simultaneously influenced by measurement. In relation to the present study specifically, while participants were revealing the range and diversity of their understandings of evidence-based practice during the Focus Groups, an examination of their levels of agreement was indeterminate precisely because the measurement activity itself (group discussion) was influencing individual dispositions moment by moment. Similarly, although the concourse (and resulting Q-Set) was carefully selected to represent the range of discourse that existed around evidence-based practice, it was necessarily 'fixed' to enable a measure of



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subjective levels of agreement (the Q-sort). Once again by measuring one aspect of 'understanding' (level of agreement) the opportunity to accurately measure another (aspects of the discourse not presented) was obscured<sup>29</sup>.

The key to Q-methodology, and the reason why Centroid analysis was selected for the present study, is in understanding that although the Q-Set is 'fixed' is it also at the same time 'open' to meaning-making in which each individual's subjective knowledge of the diversity and range of issues around evidence-based practice is impressed on to the items in front of them producing a coherent whole,

[the] Concourse has a set of characteristics such that a person who is engaging in it is engaging in social talk, as in a sea of communicability that is emerging even as the person is engaging- there are quantum elements to it. (Wolf et al., 2011)

Although one may not be able to directly access the process of meaning making, Centroid analysis, by virtue of its own indeterminate nature, provides the researcher with a means of exploring and speculating on this process.

While the author is satisfied with this attempt to explore some of the more abstruse theoretical assumptions that informed the choice of Centroid analysis, there is a danger that a lack of formal training and exposure to physics (particularly in its quantum form) may lead to poorly informed analogies as is the case in a number of domains within the social sciences (Sokal & Bricmont, 1998). As such it is also worth recognising two other considerations which influenced the preference for Centroid analysis, both

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<sup>29</sup> Of course opportunities to explore 'range' existed after the event.

pragmatic in nature.

The first is the difficulty in hand calculating a data set using PCA. The lack of accessible guidelines similar to that of Brown (1980) may reflect the significant time associated with performing hand calculations of PCA in comparison to Centroid analysis. Not having the opportunity to understand the mechanics of the analysis was seen to be a significant limitation associated with PCA.

Secondly, because Centroid analysis appears to be the more favoured method of analysis among Q-methodologists, there is more support available both in terms of written guidance and peer support. While this may be perceived to be an 'appeal to tradition', it is mentioned merely to provide transparency around the method of factor analysis selected and to act as a way marker for those readers considering Q-methodology in their own research.

### **Reference list**

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Wolf, A., Good, M, M, J., Brown, S, R., Cuppen, E, W, H, J., Ockwell, D and Watts, S. (2011) Q Methodology and its Applications: Reflections on Theory. *Operant Subjectivity*. 35 (1) 48-71

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**Appendix MM Publisher Permission for Shlonsky and Wagner (2005)  
(Table 14)**

License Number	<a href="#">2894760120169</a>
License date	Apr 23, 2012
Licensed content publisher	Elsevier
Licensed content publication	Children and Youth Services Review
Licensed content title	The next step: Integrating actuarial risk assessment and clinical judgment into an evidence-based practice framework in CPS case management
Licensed content author	Aron Shlonsky,Dennis Wagner
Licensed content date	April 2005
Licensed content volume number	27
Licensed content issue number	4
Number of pages	19
Type of Use	reuse in a thesis/dissertation
Portion	figures/tables/illustrations
Number of figures/tables/illustrations	1
Format	print
Are you the author of this Elsevier article?	Yes
Will you be translating?	No
Order reference number	Callum
Title of your thesis/dissertation	Understandings of evidence-based practice within a group of practicing Educational Psychologists

### **Appendix NN Publisher permission for Evans (2008) (Table 15)**

#### **1. Dual processing accounts of reasoning, judgment , and social cognition.**

<b>Publication year:</b>	2008	<b>Permission type:</b>	Republish or display content
<b>Publisher:</b>	Annual Review of Psychology	<b>Type of use:</b>	Dissertation
<b>Author/Editor:</b>	Evans, J	<b>Republication title:</b>	Understandings of evidence-based practice in a group of practicing educational psychologists.
<b>Volume:</b>	59	<b>Republication organization:</b>	It will not be published as such, simply presented as in my Doctoral Dissertation.
<b>Your reference:</b>	Callum Urquhart	<b>Organization status:</b>	For-profit
		<b>Republication date:</b>	10/17/2012
		<b>Circulation/ Distribution:</b>	2
		<b>Type of content:</b>	Chart
		<b>Description of requested content:</b>	Table outlining different dual process models
		<b>Page range(s):</b>	P257
		<b>Translating to:</b>	No Translation

***Appendix OO Focus Group Transcript for FGA***

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***Appendix PP Focus Group Transcript for FG1***

**Appendix QQ Themes and Codes exemplified**

Please refer to the Excel file that accompanies this thesis.

The file contains the themes found in the present study with all the codes that make up the theme collated beneath each theme. All the themes are defined and extracts from the transcripts are used to exemplify each of the constituent codes. An example is shown below.

