Received: 20 January 2022 | Revised: 15 September 2022 | Accepted: 24 September 2022

DOI: 10.1111/puar.13567

RESEARCH ARTICLE

PAR PUBLIC ADMINISTRATION REVIEW ASPA

What counts as evidence for policy? An analysis of policy actors' perceptions

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Abstract

Evidence plays a growing role in public administration worldwide. We analyze the perceptions of policy actors, using Q methodology and a structured questionnaire, which reveals four types of profiles. Most policy actors did not fit neatly into an Evidence-Based Policy-Making (EBPM) group. Instead, they either had a pragmatic view where context and policy issues influence what counts as evidence, an inclusive position which emphasized the importance of considering a range of different types of evidence, or a political perspective where power relations and politics influence what counts as evidence. Our research also illustrates how different actors in the same community can have different perceptions of evidence, and how this can change over time due to experience and career trajectory.

Evidence for Practice

- Academic debates reflect the variety of meanings over what counts as evidence for policy. Our article uses Q methodology to demonstrate how many policy actors espouse a pragmatist and permissive approach to evidence.
- What counts as evidence depends on the context, the nature of the questions that are being addressed, and the evidence that is available.
- Policy actors' perceptions of what counts as evidence often change as their careers progress, and are influenced by the roles they take on, the organizations they work in, and the policy issues they work on.
- Understanding the breadth and mutability of policy actors' perceptions of evidence is important for both policy-makers and scholars as this can help them better communicate and negotiate with each other.

Despite some populist pushbacks, it is often taken for granted across many policies and political systems that evidence ought to inform policy (Cairney et al., 2016; Van-Landingham & Silloway, 2016). What is meant by evidence, however, varies according to who is asked, the context, and the policy problem being addressed, amongst other factors (Crowley & Taylor Scott, 2017). Therefore, understanding what different policy actors—from policy-makers to producers of knowledge (e.g., think tanks and advocacy groups)—mean by evidence and what they believe ought to be the process for producing and using evidence, is important.

Existing research has examined how evidence is used or mobilized and how that might impact on the content and process of policy-making. Some of these studies tackle what is meant by evidence and who is considered a policy-maker (Stewart et al., 2017). Studies rooted in the Evidence-Based Policy-Making (EBPM) school often focus on making recommendations about what scholars or policy-makers could/should do better, rather than examining meanings and processes of evidence in the real world (Oliver et al. 2014; Oliver & de Vocht, 2017). Publications examining policy-makers' perceptions of evidence are predominantly produced in health policy but less so in other areas of policy where evidence is often seen as being more contested (Campbell et al., 2009; Oliver et al. 2014; Vogel et al., 2013; Wallace et al., 2012). There is a growing body of research on the uses of evidence by

policy-makers, with studies mobilizing surveys and interviews within case studies (Oliver & de Vocht, 2017).

This article aims to add to this body of research, mobilizing data collected across the Welsh policy community using Q methodology (which we refer to as Q). This is a mixed method aimed at measuring people's perceptions and attitudes toward a given topic. These perceptions matter because they will impact on why evidence is used or not by different policy actors and ultimately on how policy is formulated. Our results reveal four archetypes of perceptions toward the meanings and roles of evidence in policy-making: EBPM Idealist, Political, Pragmatist, and Inclusive. By identifying how different attitudes toward evidence and its role in policy are composed of different meanings, our research contributes three key findings. First, the majority of policy actors do not espouse a simple EBPM view of evidence. They instead have a much broader understanding of what counts as evidence, something that scholars and knowledge brokers need to keep in mind when mobilizing evidence. Second, different actors in the same policy community have different views of what counts as evidence. Third, policy actors' views of what counts as evidence change over time, with experience and career trajectory being potential factors.

The article is structured as follows. First, we summarize the key discussions in the existing literature on what counts as evidence. We then explain our methodology before outlining our findings. We conclude by discussing the article's contributions to the literature, empirics, and practice.

WHAT COUNTS AS EVIDENCE

The literature discussing what counts as evidence for policy is vast, with different methods being used to try and answer this question. We searched it using the phrases "what counts as evidence," "what is evidence" and "role of evidence" combined with the search term "policy." To these results, we added other relevant studies. This targeted search of the literature revealed three main perspectives. At opposite ends of the spectrum, one was based on an EBPM view of the world while another one highlighted the importance of politics in determining what counted as evidence. However, most of the literature provided a more pragmatic and nuanced perspective where what counts as evidence is context-specific and varied.

Studies on evidence use, which illustrated the pragmatic view suggest, for example, that "there are many possibilities for what constitutes evidence, possibilities that go well beyond the social science distinction between randomized control trials and quasi-experimental designs" (Hall & Jennings, 2008; Jennings & Hall, 2012). These studies show what counts as evidence and how it is defined has multiple answers and schools of thoughts, with varied methods used for accessing those perceptions (Adams et al., 2015; Cairney & Oliver, 2017; Wilkinson, 2019). For example, research has shown how public agencies draw on different sources of evidence to make decisions using a survey across 12 agencies in the United States. They find that the political environment and scientific capacity in each organization matters, as well as the ecosystem within which this organization sits, in influencing how evidence is used (Jennings & Hall, 2012). Availability, credibility, and relevance of the evidence also play a part in whether and how evidence is used (Nutley et al., 2013).

Those articles reflecting a more EBPM-based approach are most represented in the medical and health services literature. They often emphasize how what counts as evidence can be determined a priori, based on criteria such as quality, accuracy, credibility, and objectivity. However, many of these recognize that EBPM is an ideal, more than a reality. For instance, one suggests that:

> [g]iving RCTs (Randomised control trials) precedence has been questioned. Focusing narrowly on the "what works question" and very seldom on the "what works for whom in which context question" and the "why question" has been questioned (Hansen & Rieper, 2010, 134).

At the other end of the discursive spectrum, there is a more political understanding of evidence. Here, the research emphasizes the "inherent nebulosity of EBPM", concluding that "what counts as evidence is politically and socially contested" (Dunlop, 2017, 33). Authors explain how conflict and negotiation determine what is counted as evidence and how "actors may contest what is meant by 'evidence'" (Pearce et al., 2014, 161) and hold different understandings of the same evidence. Here, it is argued how "prior assumptions and values shap[e] decisions on what will be measured and how evidence will be used" (Rickinson & McKenzie, 2020, 483). Evidence from this perspective is often contested, relational and situated, and can have important implications. In a study of NICE guidance in the United Kingdom, Boswell argued how "clashing values and incommensurable claims about what counts as knowledge" create conflict in policy work (Boswell, 2018, 201).

In many countries worldwide, there have been government commitments for the last few decades to "what works," favoring (at least rhetorically) what the evidence says over other decision-making criteria (Smith, 2013). However, many have noted how politics remains an important driver in the question of what counts as evidence and its value in the policy-making process (Cairney, 2019). In disciplines where politics is acknowledged as playing a role in what counts as evidence—for example, migration studies, public health—a more politicized view of evidence is discussed (Kislov et al., 2019; Parkhurst, 2017; Sanderson, 2006). For many policy-makers, evidence is just one factor in the policy-making process in evaluating the problem and solutions (Stoker & Evans, 2016). Some studies also emphasize that the differences and frontiers between policy and evidence are porous (Wehrens, 2014) and what counts as evidence varies according to people and policy questions. Some studies emphasize the importance of context and individual cases

to understand what counts as evidence. For example, in a study of a UK government department making policy, "15 types of evidence … were entered into policy debates", spanning government data and academic research, to "*The Wire* […] personal experience and opinion" (Stevens, 2011, 240). In this body of literature, studies often highlight the broad and varied meanings of evidence. For some, "the concept of evidence is elastic" (Hansen & Rieper, 2010, 102), recognizing that "research is only one component of what counts as evidence, from the policy-maker's own experience to institutional capacity" (Baldwin-Edwards et al., 2019, 2147). Covid-19 has shown that the way in which a problem is framed "dictates the kind of variables considered, and, by extension, the findings that result…The science we follow is not static, but fluid and changing in response to changing conditions (Hall, 2021, 362). Many factors influence how policy actors think about evidence and how they might define and evaluate it: their institutions, networks, resources, and capabilities, as well as their pre-existing ideas and values around evidence (Cairney, 2016; Cairney et al., 2016; Lorenc et al., 2014), and research on co-production has emphasized the flexible and contextual nature of evidence and what counts as evidence (Miszczak & Patel, 2018).

Systematic reviews touching on the topic of what counts as evidence are particularly useful in demonstrating how varied understandings cohabitate and mix in policy communities, and how factors such as organizational/institutional context, networks, academic background, policy area, time, resources, and politics matter in answering the question "what counts as evidence for policy" (Oliver et al., 2014; Oliver et al., 2017; Stoker & Evans, 2016). Using statements on the use of evidence from these papers in our review, our study examines policy actors' perceptions of evidence, using Q methodology as a new way to access these views and add to the existing empirical data.

ASSESSING MEANINGS OF EVIDENCE WITH Q METHODOLOGY

This paper mobilizes a methodology not previously used to assess policy actors' attitudes and understandings toward evidence. We use Q methodology, which is a mixed method developed in psychology to study attitudes and perceptions of individuals (Brown & R., 2008; Watts & Stenner, 2012) to answer our research question: what counts as evidence for policy? Q has been used across disciplines, from health and psychology, to political science and policy studies (Dryzek & Berejikian, 1993; Durose et al., 2015; Jeffares & Skelcher, 2011; Mathur & Skelcher, 2007; Molenveld et al., 2019; Van Exel & De Graaf, 2005). In our study, it involved participants ranking a set of statements on what evidence is and its role in policy-making—into an agree and disagree pyramid structure (see Figure 1 for an example). The aim was to develop categories of perceptions, using factor analysis, allowing us to understand different participants' attitudes toward evidence.

THE Q SET: STATEMENTS

Our Q set—the statements ranked by all participants—includes extracts from journal articles gathered from the literature review outlined above, interview quotes from a project on knowledge brokering (Author), and newspaper cuttings. Q methodology suggests that there are different methods for devising statements to form part of the concourse and, eventually, the Q set, that participants will be asked to sort. Some studies focus on selecting statements based on current discourses on a particular topic, thus moving from discourses or ontologies about how things work to the statements selected. Others are more deductive and aim to represent as many views, facts and ideas around a topic as possible, without—as far as possible—imposing particular discourses onto how the statements were produced. We chose a hybrid approach because we felt that there are some clear discourses that exist around what evidence means, but also that there are other statements around evidence that might be seen as more factual or definitional. Our literature review outlined a limited number of discourses as to how evidence is understood and this helped to guide our selection of statements so as not to overrepresent a theme (Dryzek & Berejikian, 1993; Van Exel & De Graaf, 2005). We eschewed pre-categorizing statements according to given ontologies (Eden et al. 2005) yet ensured, in line with Dryzek and Berejikian (1993), that statements combined normative, descriptive, factual, and value judgment proposals (Curry et al., 2013). This meant that there was space for participants to express different views. We initially selected more than 50 statements. A pilot Q sort was organized with five policy actors in Wales to test the statements. As a result, we eliminated some statements and clarified/reviewed others, which reduced the number of statements to 40 (Sneegas et al., 2021). We also consulted with two experts in Q methodology to discuss our Q set and general approach to check that this was robust. Appendix 1 reproduces the final 40 statements from our Q set.

THE P SET: PARTICIPANTS

In Q studies, the P set refers to the research participants. We recruited 34 participants from across the Welsh policy community, from government Ministers, to civil servants at different levels, Senedd (Welsh Parliament) members and staff, as well as civil society organizations, member organizations such as trade unions, and scholars (see Appendix 2 for a list of participants). We used purposive sampling—recruiting across groups of policy actors—combined with some snowballing—where we asked some participants for recommendations of potential

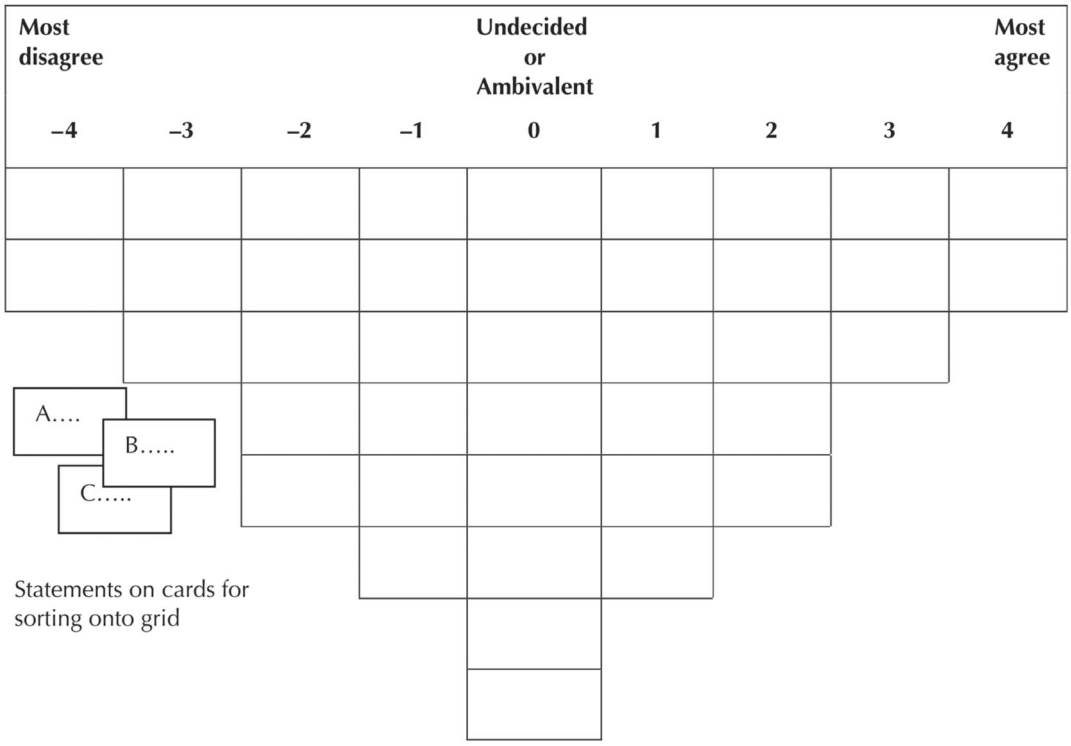

FIGURE 1 Example of Q sort grid (Eden et al., 2005, 415)

respondents. The authors work in an organization, which is closely involved in the Welsh policy community. This helped us to identify key policy actors to take part in the research and ensure that we were able to recruit participants from across the policy community. However, the authors do not have direct working relationships with the interviewees, which ensured that our own organization's role did not influence their responses.

Because of the Covid-19 pandemic, the study was conducted online. We sent a pack of statements (ordered randomly in the envelope) in advance, asking interviewees not to open it until the virtual meeting. Q studies have been conducted by post by some researchers, but our online approach allowed a more interactive experience. Pilots were run using the online method to ensure the study would run smoothly on the day. Data were collected between December 2020 and May 2021. Each interview lasted around one hour and was audio recorded with participants being asked to (1) sort the statements in three piles—agree, disagree, and do not know or neutral, (2) rank the statements in the pyramid shape displayed in Figure 1 above, (3) take a photo of the final pyramid once they were satisfied with their ranking and send to the authors, and (4) take part in a short questionnaire. We chose a "forced ranking," meaning that participants had to follow the Figure 1 shape and could only most agree (+4) and most disagree (−4) with two statements each. This approach improves the chances of participants carefully deliberating on their ranking and making distinctions between statements, as well as offering more structure to participants (McKeown & Thomas, 2013, 66). A large majority of participants enjoyed taking part in the process and fed back that the method was interesting and had made them think in more depth about what evidence means and what their own views were.

The post-sort questionnaire (Appendix 3) gathered further data on each participant such as why they most agreed (+4) and most disagreed (−4) with certain statements, their thoughts on the normative function of evidence in policy, whether their views on evidence had changed and why (including a Covid-19-related prompt), length of service in current role, and category of employment. This questionnaire adds further qualitative and demographic data to our dataset and helps in discussing the findings from the statistical analysis. Furthermore, combining the Q study with the questionnaire data, as well as the transcripts of the interviews, ensures participants were able to express their views on evidence in their own words and reflect on the study process.

RESULTS

We used KenQ Analysis to conduct the factor analysis (Newman & Ramlo, 2010; Stevens et al., 2021) and included factors that had an eigenvalue above 1 and more than two respondents in each factor (Sneegas et al., 2021; Watts & Stenner, 2005). The eigenvalue is equivalent to the sum of squared factor loadings, highlighting the variance explained by the factor. For a

factor to be useful to include, its eigenvalue must be above 1 as it would explain more variance than a Q sort on its own. Based on those criteria and following multiple factor extractions using Varimax, four factors—or profiles—were retained with 27 out of 34 respondents significantly loading with one factor (see Appendix 4 outlining how each statement is ranked within each profile). The explained variance is 54 percent, which represents a good Q analysis (Jeffares & Skelcher, 2011; Stevens et al., 2021). We built crib sheets for each profile (see Appendix 5 for an example) which provide a systematic way to interpret profiles as well as a holistic interpretation by focusing on each statement within a profile. It also helps to see which statements polarize viewpoints (whether they sit at the extremes or not) and how these viewpoints are polarized versus other profiles (Watts & Stenner, 2005). We then coded the data from the post-sort questionnaire using NVivo to extract quotes that help characterize each profile.

As discussed in the literature review, three discourses—pragmatic and open-ended, EBPM and political—were visible from existing research. These discourses helped us to begin to make sense of the factor analysis, where we eventually distinguished four main profiles, the pragmatic and open-ended discourse becoming split into Inclusive and Pragmatist. During the data analysis, analyzing each profile ranking, we focused on the extreme statements (most agreed/least agreed with) as well as distinguishing statements—statements ranked in a significantly different way compared to the other factors—and consensus statements—statements that have been ranked similarly across the four factors (using crib sheets and factor arrays for instance). Individual Q sorts—how each participant ranked all the statements —were checked within the four profiles to take account of individual nuances; these were cross-checked using NVivo to sort and extract quotes from each interview to make the profiles more "alive" and detailed–for example, how individuals within the EBPM Idealist profile had more or less strong views on the role and definition of evidence; or how an individual reacted to a particular statement. It is important to note that participants linked to a particular profile may have similar views amongst themselves on some statements but more contrasting views on other statements, meaning that some participants are more or less EBPM, or Political, or another profile, rather than being clearly aligned on all statements. Having contrasting ideal types may not mean that they have clearly divergent views across all statements. These four profiles are presented and analyzed next.

EBPM idealists

The EBPM Idealist profile included 12 of the 34 participants and explains 17 percent of study variance (eigenvalue of 12.14). All the participants in this ideal-type had masters or higher degrees, with most of them working in government (local or national) or the Welsh Parliament. They tended to have a varied professional background (see Appendix 2 for participant information). Paramount to this ideal-type are the principles of EBPM, where evidence ought to be rigorous, clear and well-presented (ranked at +4), and that policy-makers have a responsibility to use evidence in an impartial way (+4). The post-questionnaire quotes revealed that, in line with the EBPM literature, there was a belief that evidence could be likened to truth and facts. For instance, one participant explained how:

> As officials, our job is to tell the truth. You must always give an honest representation of the facts. (EBPM7)

For these idealists, the cannons of the EBPM toolkit such as testing and replication (+3), evidence needing to be underpinned by research (+2), the need for a hierarchy of evidence (+2) and seeing RCTs as the gold standard (+1), were all ranked higher than in any other factor. The belief that science can help solve our evidence conundrums was also a key distinguishing statement (+2). In contrast to other factors, these participants rejected the idea that evidence was always going to be contested (0) or that it can include anything in the pursuit of understanding an issue (−1). These idealists also vehemently rejected the idea that "if something gets repeated enough, it can be treated as evidence" (−4) as well as seeing evidence as ever being a luxury (−4). Participants exclaimed that this latter view was "b******s" (EBPM18), "immoral" (EBPM28), and that evidence "was an essential part of how we make decisions in every day of our lives" (EBPM6).

Participants in this profile were not however fully wedded to the precepts of EBPM, for instance making it clear that RCTs "are useful but I don't think that they are the gold standard" (EBPM33), that they would "not work so well with issues of behaviour" (EBPM6). Such observations highlighted how, although they subscribed to the general ideas of EBPM, these rules should be interpreted within the real world of policy. The same feeling was echoed regarding hierarchies of evidence where one participant stated that "they don't have to be fixed" (EBPM30). Classic EBPM principles such as quantitative evidence being the most important (−2) and evidence being what can be counted and measured (−1) were not ranked positively.

Political

At the other end of the spectrum, the Political profile had four participants significantly loading onto this factor and explains 12 percent of the study variance (eigenvalue of 1.19). These participants were spread across organizations,

from Welsh Government to the third sector and research, with their educational level varying from degree to PhD and their professional background spanning charity, academia and policy. They were especially polarized around ideas such as evidence always being contested (+2), evidence being political in the way it is articulated (+2), and evidence reflecting power relations (+2)—"inevitably true" (POL22)—which they ranked higher than in any other factor. Other statements such as who decides what counts as evidence being important (+1) and evidence being what helps to answer a policy question (+1) were also ranked positively.

Alongside believing in the politics of knowledge and evidence, these participants strongly agreed that the definition of evidence changes depending on what we want to know and for what specific purpose (+4). On this latter statement, a respondent explained how:

> It underpins most of my views on evidence and explains some of the reasons why I put the RCTs and quantitative evidence in the most disagree [column]. You need to know what it is you want to find out before you can decide. (POL1)

This profile also stressed the difficulties of determining what counts as evidence with "the sum of evidence on a particular topic is necessarily complex" (+3) and "there isn't always clear evidence over what works on an issue" (+4) being ranked highly. The Politician strongly rejected the idea that evidence is anything that supports a proposition (−4). Differing from the EBPM factor, it rejected the idea that evidence can offer objective solutions to political problems (−1) that it should be rigorously tested and capable of replication (−2) or that RCTs are the gold standard (−2). But like the EBPM Idealist profile, this Political profile did not deny all aspects of EBPM. For instance, one participant explained how they:

> Sort of agree[d] with that [the statement that policy-makers have a responsibility to use evidence in an impartial way] but sometimes we need to recognize that we serve certain political masters with a certain political bent. So the kind of evidence that they value might be different from party to party. […] We can't be completely impartial. (POL20)

Pragmatists

The Pragmatist profile included five participants and explains 13 percent of the variance (eigenvalue of 2.77). Pragmatists were spread across different types of organizations, having levels of education that spanned from degree to PhD, with a wide variation in professional backgrounds. These Pragmatists believe that the answer to "what counts as evidence" will vary according to context. This variation is especially evident via the two most agreed with statements: "not all evidence can be measured" (+4) and "what counts as evidence varies between professions" (+4). As this profile sits within the EBPM-politics spectrum, it combines attitudes and perceptions from both types, although it leans more closely toward the political end. For instance, Pragmatists agreed more with statements such as "evidence is what policy officials and Ministers see as acceptable" (0) and "who decides what counts as evidence is important" (+3), ranking them higher than in any other profile. Although policy-makers do not see evidence as being a luxury, one participant explained that they may not have the time or budget to invest in highly expensive and time-consuming evidence" (PG32), hinting at the idea that for Pragmatists, evidence needs to be good enough for the situation.

This pragmatic attitude toward evidence was also seen in statements such as "if something gets repeated enough, it can be treated as evidence" (−1), what counts as evidence depending on the policy area (+2), evidence being what Ministers and policy officials see as acceptable (0) and their inclusion of individual stories (+3)—"adding colur to the evidence that you are gathering" (PG14)—all ranked higher than in any other factor. Pragmatists illustrate the difficulty of working with evidence, with the evaluation of the quality of the evidence being difficult (+3), how not all evidence can be measured (+4) and that there is not always clear evidence about what works on an issue (+2). For one participant, it was "difficult to take a view on the quality of the evidence. It depends on who the evidence is from" (PG12). Another added how "there is a danger to only consider what can be measured" (PG32). One Pragmatist's quote epitomizes this ideal-type:

> Having been in the policy process and received various sources of evidence, I don't think I have ever felt that I can deduce a course of action easily from the evidence. There is always judgment involved. (PG32)

Many of the tenets of the EBPM Idealists' definition of evidence were ranked lower by the Pragmatists, such as "evidence is what can be counted and measured" (−3), "evidence must be rigorous, clear and well-presented" (−1), "evidence should be underpinned by research" (0), and "quantitative evidence is the most important evidence" (−4). Instead, Pragmatists invoked the importance of case studies (PG14), how even an "individual's muddled experience" should not be disregarded (PG32) and that "qualitative evidence had an important place to play" (PG29). Pragmatists stressed the variations in views

over what counts as evidence by stating that "there is always judgment and rarely agreement over what is important" (PG32). Pragmatists disagreed that "there is agreement over what constitutes rigorous evidence" scoring it lower than in other ideal types:

> There is no right or wrong. Just when you see policy-makers hitting the political level, they will use evidence to suit their purpose. What might be evidence one day, they won't use the next day because it doesn't suit their argument. (PG29)

Overall, the Pragmatists rejected the idea that what counted as evidence was set in stone, with statements including "need," "must," "should" and "necessarily" being ranked lower than in other profiles (e.g., "evidence is anything that helps draw a rich picture of an issue" (+2)).

Inclusive

This final profile included six participants and explains 12 percent of the variance (eigenvalue of 2.07). Also sitting in between the EBPM and politics ends of the spectrum, those in favor of an inclusive (or all-encompassing) understanding of evidence tended to work for the Welsh Government, with the dominant professional background being that of policy. This ideal-type believes that what counts as evidence should be as broad and open as possible, with "evidence [being] anything that helps draw a rich picture of an issue" (+4), evidence being any observation that supports a proposition (+1), evidence needing to be actionable (0) and evidence being what helps to answer a policy question (+3), as all of these statements were ranked higher than in any other factor. One participant illustrates this viewpoint:

> I was a policy-maker for forty years so anything that will give you that rich picture of a policy area is very useful evidence, regardless of how it is obtained. (INC16)

This view was supported by another member of the policy community who said that, "[a]nything that can provide insight into policy is relevant and therefore falls into the category of evidence" (INC31). In contrast with the Pragmatists, this Inclusive viewpoint of evidence leaned more toward EBPM, with the need for evidence to be systematically generated and drawn from a wide range of studies (+4) and evidence being seen as offering objective solutions to political problems (+3) being ranked high. Also ranked higher than in any other factor was the belief that "evidence is what can be counted and measured" (0) and "quantitative evidence being the most important evidence" (0). This ideal-type stressed "the need for a broad spectrum of evidence, the need for different methods to get a full picture" (INC25).

Further linking this ideal-type to the EBPM Idealists was the rejection of ideas of evidence being politically defined, such as evidence being a box ticking exercise for policy-makers (−4). Participants in this profile thought that this was "heresy" (INC31), "a very dismissive statement" (INC16), or just "wrong because evidence should be forming their decision and not box ticking" (INC4). Participants disagreed that evidence is what policy officials and Ministers see as acceptable (−3)—"I agree this is what happens but it should not be the case" (INC34)—, evidence reflecting power relations (−2) or who decides what counts as evidence being important (−2). Overall, this ideal-type emphasized the need for evidence to include a wide arsenal of tools, methods, and elements to be able to respond to different policy needs regarding evidence, with a preference for EBPM-type ideas.

Cross-profile comparison

The results suggest that respondents' views of evidence are contextual and variable. For example, focusing on the consensus statements (where statements have been similarly scored across profiles—see Appendix 5), all profiles agreed that it was important to explain what we mean by evidence (statement ranked either +1 or +2). All profiles disagreed with the statement that all evidence in the political process is equal (ranked −3 across all profiles) with one EBPM Idealist observing that "some of what you get is crap, tenuous, partial" (EBPM7). The other shared negative ranking of "evidence is a luxury nowadays" (ranked −2 to −4) and "evidence is just a box that needs ticking for policy-makers" (ranked −1 to −4) also suggests that most of our participants, regardless of the profile that they identify with, reject the idea that evidence is a performance or an add-on. For example, one Political profile participant explained in reference to the evidence is a luxury statement that:

> …politically that may be the view sometimes, but I disagree on a personal level very strongly on that. If you cannot back something up with some evidence, even a survey, then you have no justification to do something other than your opinion. (POL20)

Looking at the participants grid (Appendix 2), Welsh Government participants were represented across all profiles, with the Inclusive group representing the most of them (4/6). The EBPM Idealist profile included the highest number of higher degree qualifications, with all

participants having undergone postgraduate studies. This could suggest a relationship between length of time spent in academic training and a stronger belief in EBPM ideas (at least in this study). Interestingly and contrastingly, when comparing average length of service across profiles, the Inclusive (14.67 years) and the Pragmatist (11.4 years) profiles included the longest time spent working in their current role compared with the Political (8 years) and EBPM Idealist (7.6 years). This could suggest that the longer time one spends dealing with evidence questions in the "real world," the more inclined one will be to have a varied and contextual view of evidence.

When asked in the post-sort questionnaire about whether their understanding of evidence had changed over time (Appendix 3), all respondents agreed that it had, often illustrating the contrast their academic training had been to the roles they had held in terms of understandings of evidence:

> When you are more at the business end of crafting policy and advising on decisions, then your view of what we need to gather as evidence and useful knowledge matures and broadens over time. (INC31)

Another respondent explained how their academic training was in critical methodologies but that when they came into government as a civil servant "policy-makers didn't like researchers […]. A lot of that has changed [now] (EBPM30)." A Pragmatist, also talked of gaining experience over time in different roles when transitioning from econometrics to policy:

> … moving into a policy role has allowed to broaden my horizon. I have become more rounded in relation to gathering evidence for policy-makers. (PG29)

Finally, a member from the Political profile explains how, during their degree in a social science discipline, "things seemed rigorous, with peer-review" but when "I started working in policy, a lot of policy work in think tanks is looser than academia. It is hard to shift the mindset from degree to practice in relation to evidence" (POL5).

These quotes, representative of many others in the questionnaire responses, illustrate that individual and organizational journeys may influence people's understanding of evidence and what might change it.

CONCLUSIONS

In a world where evidence is perceived as playing a central role in policy-making, understanding what evidence means to policy actors is important. This paper adds to the current literature by exploring empirically what policy actors count as evidence and how they define it in their everyday work. The use of Q methodology enabled us to assess situated and personally-constructed understandings of evidence. By bringing together quantitative and qualitative methods to investigate this question, we have shown the diversity of conceptions of evidence that exist within the Welsh policy community and how these relate to schools of thought about evidence and evidence use in the academic literature.

Our approach provides a way of researching how policy-makers think and getting into the "black box" of policy formulation (Cairney, 2016, 122) by piecing together behaviors and perceptions toward evidence in policy found in different groups. It has illustrated how similar behaviors toward evidence may be garnered across the policy community, whilst opposite viewpoints– for example, EBPM and Political–may cohabitate in the same organization– for example, in government. The EBPM Idealist type dominates across organizations and professional backgrounds, followed by the Inclusive and Pragmatist profiles, with the Political being the least represented amongst our participants. However, most participants did not subscribe to an EBPM Idealist view, emphasizing how varied policy actors' attitudes and perceptions toward evidence were. Hierarchies of evidence and RCTs were not generally seen as the gold standard, even amongst the EBPM Idealists. In practice, policy actors juggle those normative ideals with other approaches to evidence which reflects what Boswell (2018) observes to be a dilution of EBPM.

The data obtained from the post-sort questionnaire show that what determines a particular culture or attitude toward evidence may be influenced by factors such as organizational settings, career path, experience or academic background (Lorenc et al., 2014). For instance, all participants agreed that their understanding of evidence had changed over time. Some could trace their journey from one ideal type to another, often recognizing that their understanding of evidence had become more nuanced, pragmatic, and contextual over time and contrasted their academic training with the use of evidence in their career. This echoes a recent finding that policy actors can occupy different coalitions of evidence and policy over time which highlights their "fluidity" (Montana & Wilsdon, 2021).

We have shown how the application of Q allowed us to get a breadth and depth of understanding regarding definitions of evidence. Further methodological experimentation, for example combining different tools such as focus groups, case studies, and action research during secondments, could build on this in future. There is also an opportunity to make practical recommendations for how different communities (scholars and policy-makers) could reflect upon how they define and use evidence.

Organizations involved in policy formulation–for example, governments, parliaments, think tanks, and so forth—should recognize that different actors have different perceptions of evidence and could use our findings to think about how different meanings of evidence may impact their work. For scholars and knowledge brokers, it is important to understand how policy actors who they are trying to influence determine what counts as evidence. Our results show that there might not be many EBPM Idealists and most policy-makers see evidence as being only one of several factors that influence the decision-making process. Evidence providers need to take account of this in order to understand whether and if so how policy actors are open to research evidence, whether they are Idealists who will only heed certain forms of evidence, or Pragmatists/Inclusive, who are working in a context and an issue which they see as amenable to research evidence or other types of evidence.

Our study has several limitations, notably in the statement selection, participant selection, (which will inherently be influenced by the authors' biases) and what this study can tell us about what counts as evidence more broadly. We have focused on examining the four profiles and the comparisons between them, rather than examining whether EBPM Idealists gave more normative responses than Pragmatists. Future research might usefully probe this question. While the viewpoints of our participants should be understood within the context of the Q set they were presented with, one could expect similar clusters of views on evidence for policy to be found in other contexts (Watts & Stenner, 2012). Indeed, our literature review highlighted the presence of similar discourses to our study. This study design could be used in other contexts (in the UK and beyond) to see whether, and if so, how, discourses and perceptions toward evidence vary according to context. We are aiming to test whether these profiles are applicable or relevant to other contexts–for example, in Scotland. Our access to the Welsh policy community and to elite participants may have positively impacted on our ability to undertake the study; future studies mobilizing Q method should reflect on their potential access to participants and how to improve this, for example, collaborate with other researchers with good access. Studies could further explore comparatively what might influence those policy communities and situated understandings–for example, academic training, career paths, institutions, experiences. More research could also be conducted into elucidating whether patterns emerge as to how different factors influencing attitudes toward evidence are combined. These studies could help better target knowledge exchange and capacity-building initiatives in and across organizations involved in policy formulation. Understanding these various evidence cultures is important for comprehending whole systems of policy formulation and evidence use.

To conclude, by identifying the different attitudes and perceptions across a policy community, our research has contributed to developing a greater understanding of how evidence is defined in practice and this can help to inform future knowledge mobilization activities. By focusing on cultures of evidence, rather than the dominant barriers/enablers of evidence use, we also offer an opportunity to deconstruct how policy actors understand and use evidence. Finally, our research demonstrates how, even though most of our respondents believe that evidence matters to policy-making, their individual perceptions of its influence vis-à-vis other factors vary greatly. These differences provide an important focus for future research on the evidence-policy/practice relationship.

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How to cite this article: MacKillop, Eleanor, and James Downe. 2022. "What Counts as Evidence for Policy? an Analysis of Policy Actors' Perceptions." *Public Administration Review* 1–14. https://doi.org/10.1111/puar.13567

APPENDIX A

Appendix 1: The Q set

1. Evidence is anything that helps draw a rich picture of an issue
2. Evidence is what helps to answer a policy question

General normative statements

3. Quantitative evidence is the most important evidence
4. Evidence must be rigorous, clear and well-presented
5. Individual stories should count as evidence
6. Evidence should be systematically generated and drawn from a wide range of studies
7. It is important to explain what we mean by evidence
8. Who decides what counts as evidence is important
9. Evidence should include professional judgement

Definitions of evidence

10. Evidence is what can be counted and measured
11. There is agreement over what constitutes rigorous evidence
12. If something gets repeated enough, it can be treated as evidence
13. What counts as evidence is what works
14. Evidence is any observation that supports a proposition

Variation of definitions

15. What is evidence depends on what we want to know and for what specific purpose
16. What counts as evidence will depend on the policy area
17. All evidence in the policy process is equal
18. What counts as evidence varies between professions

EBPM discourse

19. Randomised controlled trials (RCTs)are the "gold standard" of evidence
20. Evidence should be rigorously tested and capable of replication
21. Evidence can offer objective solutions to political problems
22. Evidence should be underpinned by research
23. Science isn't perfect but it is the best mechanism we have for generating evidence
24. There is a need for a hierarchy of evidence

Politics of knowledge discourse

25. Policy-makers have a responsibility to use evidence in an impartial way
26. Evidence is what policy officials and Ministers see as acceptable
27. Evidence is political in the way it is articulated
28. Some types of evidence are considered more valid than others
29. What counts as evidence reflects power relations

Instrumental discourse

30. Evidence needs to be actionable
31. Evidence just needs to be "good enough" for the purpose
32. Evidence comes from talking to experts

No simple answer/it's complicated discourse

33. Not all evidence can be measured
34. Policy-makers and researchers disagree over what counts as evidence
35. The sum of evidence on a particular topic is necessarily complex
36. There isn't always clear evidence about what works on an issue
37. It is difficult to evaluate the quality of evidence
38. Evidence is a luxury nowadays
39. Evidence is always going to be contested
40. Evidence is just a box that needs ticking for policy-makers

Appendix 2: List of participants (anonymised)

Types	Participant	Organisation	Highest degree	Professional background	Current role	Length of service
EBPM Idealist	EBPM6	Other	PhD (Hon)	Education and Policy	Other	1
	EBPM7	Other	PG	Academia, Business and Policy	Other	3.5
	EBPM9	Other	MD	Medicine	Other	4
	EBPM10	WG	Masters	Analytics	Civil service	3
	EBPM11	Senedd	Masters	Academia	Politics	10
	EBPM13	Senedd	PG	Medicine	Politics	16
	EBPM15	LG	Masters	Statistics and Finance	Civil service	8
	EBPM18	Senedd	Masters	Academia and Politics	Politics	20
	EBPM19	Other public body	PG	Teaching and Policing	Other	1
	EBPM28	WG	Masters	Economics	Civil service	15
	EBPM30	WG	Masters	Academia and Policy	Civil service	8
	EBPM33	Academia	Masters	Law and Politics	Academia and Other	2
Pragmatist	PG3	Academia	PhD	Academia	Other	12
	PG12	Senedd	Degree	HR and LG	Other	12
	PG14	Third sector	Degree	Policy and Trade body	Other	7
	PG29	WG	Degree	Economics	Civil service	15
	PG32	None	Masters	Academia and Policy	Politics	11
Inclusive	INC4	Third sector	Apprenticeship	Engineering	Other	15
	INC16	Business	Degree	Policy	Other: Business, Education and Charity	3
	INC25	WG	Degree	Policy and Law	Civil service	5
	INC26	WG	Degree	Policy and Civil service	Civil service	30
	INC31	WG	Masters	Civil service and Policy	Civil service	15
	INC34	WG	PhD	Policy and Civil service	Civil service	20
Political	POL1	Research	Degree	Charity and Academia	Research	3
	POL5	Third sector	Degree	Policy	Trade body and Policy	3
	POL20	WG	Masters	Research and Policy	Civil service	20
	POL22	Other public body	PhD	Practice and Academia	Other	6

Appendix 3: Post-sort questionnaire

1. Looking at the two items you have placed at the far-right of your Q sort (most agree with), please tell us what these items mean to you? Why do you feel strongly about them?

Most agreed with statement 1
#

Most agreed with statement 2
#

2. Looking at the two items you have placed at the far-left of your Q sort (most disagree with), please tell us what these items mean to you? Why do you feel strongly about them?

Least agreed with statement 1
#

Least agreed with statement 2
#

3. Are there any other statements included in the study that you think particularly capture your views? (These might not be most agree/disagree statements) If so, please list them here with a brief explanation of what they mean to you.

#

#

#

4. What is the most important element or factor to you when thinking about what evidence means?

5. Are there any items which you struggled to place? Why?

6. Are there any statements which you would like to add? If so, please list a couple of them below.

7. We would now like to ask some more questions about you to understand your views.

a. Do you think your understanding of what evidence means has changed over time? Why? Coronavirus?

b. What role do you think evidence ought to play in policy and practice?

c. What is your highest degree? GCSEs; A-levels; Apprenticeship; Degree; Masters; PhD (or equivalent degree).

d. What is your professional background?

e. What is your current role? (circle the most appropriate category) Politics; civil service; third sector; education; other.

f. What is your length of service in your current role?

Appendix 4: Factor arrays for the four factors

Statement	Factor 1	Factor 2	Factor 3	Factor 4
Evidence is anything that helps draw a rich picture of an issue	−1	2	4	1
Evidence is what helps to answer a policy question	0	1	3	1
Quantitative evidence is the most important evidence	−2	−4	0	−3
Evidence must be rigorous, clear and well-presented	4	−1	0	3
Individual stories should count as evidence	0	3	1	0
Evidence should be systematically generated and drawn from a wide range of studies	3	0	4	0
It is important to explain what we mean by evidence	2	1	2	2
Who decides what counts as evidence is important	1	3	−2	2
Evidence should include professional judgement	1	0	2	0
Evidence is what can be counted and measured	−1	−3	0	−2
There is agreement over what constitutes rigorous evidence	−2	−4	−2	−2
If something gets repeated enough, it can be treated as evidence	−4	−1	−3	−4
What counts as evidence is what works	−2	−2	−2	−1
Evidence is any observation that supports a proposition	−3	−2	1	−4
What is evidence depends on what we want to know and for what specific purpose	0	2	−2	4

(Continues)

What counts as evidence will depend on the policy area	0	2	1	0
All evidence in the policy process is equal	−3	−3	−3	−3
What counts as evidence varies between professions	1	4	−1	0
Randomised controlled trials (RCTs) are the "gold standard" of evidence	1	−2	0	−2
Evidence should be rigorously tested and capable of replication	3	−1	−1	−2
Evidence can offer objective solutions to political problems	1	0	3	−1
Evidence should be underpinned by research	2	0	1	1
Science isn't perfect but it is the best mechanism we have for generating evidence	2	0	−1	0
There is a need for a hierarchy of evidence	2	0	−1	−1
Policy-makers have a responsibility to use evidence in an impartial way	4	1	3	1
Evidence is what policy officials and Ministers see as acceptable	-2	0	−3	−1
Evidence is political in the way it is articulated	-1	1	−1	2
Some types of evidence are considered more valid than others	2	2	0	3
What counts as evidence reflects power relations	-1	1	−2	2
Evidence needs to be actionable	-2	−3	0	−2
Evidence just needs to be "good enough" for the purpose	−1	−1	0	1
Evidence comes from talking to experts	−1	−1	0	0
Not all evidence can be measured	1	4	2	1
Policy-makers and researchers disagree over what counts as evidence	0	0	1	0
The sum of evidence on a particular topic is necessarily complex	0	−2	2	3
There isn't always clear evidence about what works on an issue	3	2	2	4
It is difficult to evaluate the quality of evidence	0	3	−1	−1
Evidence is a luxury nowadays	−4	−2	−4	−3
Evidence is always going to be contested	0	1	1	2
Evidence is just a box that needs ticking for policy-makers	−3	−1	-4	−1

Appendix 5: Factor interpretation crib sheet for EBPM

Idealist (based on Watts and Stenner, 2012)

Items ranked at +4 (strongly agree)

Evidence must be rigorous, clear and well-presented

Policy-makers have a responsibility to use evidence in an impartial way

Items ranked higher in Factor 1 array than in any factor array

Evidence should be rigorously tested and capable of replication (+3)

Evidence should be underpinned by research (+2)

RCTs are the gold standard of evidence (+1)

Science isn't perfect but it is the best mechanism that we have for generating evidence (+2)

There is a need for a hierarchy of evidence (+2)

Items ranked lower in Factor 1 array than in any other factor array

Evidence is always going to be contested (0)

Evidence is anything that helps draw a rich picture of an issue (−1)

Evidence is what helps to answer a policy question (0)

Items ranked at −4 (strongly disagree)

Evidence is a luxury nowadays

If something gets repeated enough, it can be treated as evidence