



Piddington, G. V. A., MacKillop, E., & Downe, J. (2024). Do policy actors have different views of what constitutes evidence in policymaking? *Policy and Politics*, 52(2), 239-258. Advance online publication. <https://doi.org/10.1332/03055736Y2024D000000032>

Peer reviewed version

License (if available):  
CC BY

Link to published version (if available):  
[10.1332/03055736Y2024D000000032](https://doi.org/10.1332/03055736Y2024D000000032)

[Link to publication record on the Bristol Research Portal](#)  
PDF-document

This is the accepted author manuscript (AAM) of the article which has been made Open Access under the University of Bristol's Scholarly Works Policy. The final published version (Version of Record) can be found on the publisher's website. The copyright of any third-party content, such as images, remains with the copyright holder.

## University of Bristol – Bristol Research Portal

### General rights

This document is made available in accordance with publisher policies. Please cite only the published version using the reference above. Full terms of use are available:  
<http://www.bristol.ac.uk/red/research-policy/pure/user-guides/brp-terms/>

# DO POLICY ACTORS HAVE DIFFERENT VIEWS OF WHAT CONSTITUTES EVIDENCE IN POLICY-MAKING

Grace Piddington, Wales Centre for Public Policy, Cardiff University, United Kingdom  
Eleanor MacKillop, Wales Centre for Public Policy, Cardiff University, United Kingdom  
James Downe, Wales Centre for Public Policy, Cardiff University, United Kingdom

## **Abstract**

*The role played by evidence in policy-making is hotly disputed and there is no agreement over how evidence is defined. This article examines whether policy actors have different views of what counts as evidence and which factors influence these perceptions (e.g. professional background, length of service, organisation setting, cultures of evidence)? In addressing this question, we contribute to the growing research focus on the context of evidence use. Q methodology – a mixed method approach to study people’s attitudes towards a topic – is used in interviewing 67 policy actors and comparing two countries, Scotland and Wales, to find out whether there are different cultures of evidence. In both countries, we identified four distinct profiles of attitudes towards evidence: the Evidence-Based Policy-Making (EBPM) Idealist, the Pragmatist, the Inclusive, and the Political. Our research highlights important differences between the two contexts, with a greater leaning towards EBPM views of evidence in Wales, and more pragmatism in defining evidence in Scotland. We illustrate how different cultures of evidence coexist in a same context and highlight their similarities and differences. We also contribute to the understanding of the value of Q methodology research by showing that it can be used to compare two datasets collected in different countries.*

## **Key words:**

Evidence; Evidence-Based Policy-Making, EBP, Q methodology; Scotland; Wales.

**\*\* THIS IS AUTHOR'S POST-ACCEPTANCE VERSION OF THE PAPER AND SHOULD NOT BE CITED. IT HAS BEEN ACCEPTED FOR PUBLICATION IN [POLICY & POLITICS](#)**

The role of evidence in informing policy is an enduring and growing topic of debate among policy-makers and others in the policy community (Cabinet Office, 2018; French, 2018; Gueguen and Marissen, 2022; Sanderson, 2002). Despite populist pushbacks, a common belief is that more and better evidence will lead to improved policies, although this is far from how all policy actors think about evidence (Oliver et al., 2014). While there has been an increase in demand for different types of evidence, its use is often challenged in practice.

The concept of evidence is itself in flux. There is no agreement over how to define it, even though this matters for what types of evidence are used in policy decisions and what kinds of evidence are ignored. Existing research has shown that there are three dominant discourses for understanding evidence which can be identified from the literature (MacKillop and Downe, 2023). First, an evidence-based policy-making (EBPM) discourse which views evidence as the solution to poorly designed policies. According to this view, evidence should be clear and well-presented and can be defined *a priori*. It should be robust, derived from scientific research and is defined by criteria such as quality, credibility, and objectivity. Evidence is produced using methods such as quantitative analysis, randomised control trials (RCTs), or systematic reviews.

Second, at the other end of the spectrum, evidence can be viewed as “politically and socially contested” (Dunlop, 2017, p. 33). According to this political perspective, evidence is the result of conflict and power plays between actors in the policy community. Multiple perspectives vie for hegemony and evidence is contextual and relational.

The third discourse encompasses a pragmatic understanding of evidence and can be seen to sit between the EBPM and political discourses (Adams et al., 2015; Cairney and Oliver, 2017; Jennings and Hall, 2012). It sees evidence as flexible and its meanings changing over time and place, with different methods being used to access ‘facts’. Policy organisations often draw on different types of evidence to make policies, and this is influenced by the context, organisational capacity, and politics at play. For this discourse, evidence availability, credibility and relevance play key roles in determining what counts as evidence.

Thus, we begin to see that what counts as evidence and how that is determined is subject to different logics. Factors that could inform what counts as evidence may include institutions, the wider policy and social eco-system and networks, resources, capabilities, as well as the values and ideas that people hold (Cairney, 2016; Lorenc et al., 2014). This suggests that viewing evidence and its meaning through a wider contextual and cultural lens might be useful in understanding its complexity. Furthermore, insights can be gained from doing comparative research in this field by examining whether context helps to determine how evidence is understood and mobilised in policy-making.

This study aims to improve understanding of evidence in practice which can help to inform knowledge mobilisation practices. Understanding the breadth 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.

In this research, we examine whether policy actors have different views on evidence, and what factors influence perceptions of what counts as evidence (e.g., professional background,

length of service, organisation setting, cultures of evidence). In addressing this question, we contribute to the literature's growing focus on the context of evidence use. Q methodology – a mixed method approach to study people's perceptions and attitudes towards a topic – is used to compare two countries, Scotland and Wales, to find out whether there are different cultures of evidence in those countries. Following factor analysis of the data, we distinguish four profiles of attitudes towards evidence – an EBPM Idealist, Pragmatist, Inclusive, and Political – in both Scotland and Wales. Thus, we confirm the existence of the three schools that can be gleaned across the literature, adding a fourth, 'inclusive', view of evidence. We add to the literature by improving understanding of what evidence means to policy actors. Given the continued call for more empirical investigation of cultures of evidence use (Oliver and Boaz, 2019; Pineo et al., 2021), our research aims to contribute to this literature by empirically examining whether there are different cultures of evidence in the contexts of Scotland and Wales, and what their characteristics are. The paper demonstrates how cultures of evidence are not bounded by institutional, professional, or territorial criteria. We find that they are much more fluid, with individuals and institutions evolving in how they understand and mobilise evidence. Individual cultures of evidence can be defined as general categories, but their composition will depend on where they are observed. We also contribute to the understanding of the value of Q methodology research by showing that it can be used to compare two datasets collected in different countries.

We begin by reviewing the literature on cultures of evidence before discussing the contexts of Scottish and Welsh policy-making and the role of evidence within those settings. Next, we outline our methodology before presenting our findings. We conclude by discussing and reflecting on our results and outlining avenues for future research.

### The concept of culture of evidence

In this section, we summarise the literature on a relatively new concept of culture of evidence which shows that there are different research strands. A normative strand, which could be linked to an EBPM discourse, argues in favour of the establishment of a single culture of evidence, with a clear definition of what counts as evidence and established rules as how to determine this. Another strand examines what might constitute a culture of evidence in a given context, with studies outlining factors that might play a role in helping to define an evidence culture.

As a starting point, the concept of culture of evidence can be understood as a combination of (1) rules and customs that determine how knowledge is used in a given system or context, (2) criteria for creating and labelling knowledge in a given system or context (Hill O'Connor et al., 2023), (3) attitudes and behaviours towards evidence and knowledge in a given system and context, and (4) definitions of concepts such as evidence, knowledge, data, information, or expertise and how these may differ across systems and contexts (SKAPE, 2022).

Our literature search examining 'culture[s] of evidence' as a key phrase distinguishes between two main views: scholars who argue in favour of a culture of evidence as a normative goal, and those focusing on the possible components of a culture of evidence. In the first category, Mirzoev et al. (2013) examined how different types of evidence are used in the policy process in China, India and Vietnam. Actors' preferences regarding different types of evidence were

affected by factors such as power, agendas, values, and perceived characteristics as to what counts as robust evidence. This research makes the normative case for developing a culture of evidence with clear and defined components that could be transferred to different contexts, but it also illustrates the variables at play in determining a culture.

Other authors have made the normative case for a culture of evidence – whether that is done in discussing the barriers to evidence use in sustainable development (McConney et al., 2016) or analysing the use of evidence and research culture in an English local authority (Homer et al. 2022). In the latter, the research discusses a culture of evidence being one where evidence matters rather than examining different evidence contexts with different views on evidence. Finally, Cochran-Smith (2009) explores how to develop a single culture of evidence in a teacher education organisation. This group of disparate studies covering a wide range of policy areas could be linked to the EBPM discourse that we discussed above, whereby evidence can be clearly defined, and this definition can be transferred across contexts.

Linked to this normative endeavour, several studies also approach the concept of a culture of evidence by examining barriers and enablers. This research tends to discuss what is stopping a culture of evidence from being established in each context. For instance, Orton et al. (2011) examine barriers to the use of research evidence in public health decision-making. They identify common barriers such as decision-makers' perceptions of research evidence, the culture of decision-making, and competing influences on decision-making. Thus, rather than examining a culture of evidence in isolation and analysing what it is composed of and how it works, the focus is put on what is stopping an appropriate and single culture of evidence from being established and embedded.

The second group of studies investigates what constitutes a culture of evidence and how they manifest in different contexts. Lorenc et al. (2014) discuss for example how 'cultures of evidence' differ among decision-makers between health and non-health sectors. They argue that policy-makers, and by extension actors in the policy community, "may use and understand evidence differently, and the relation between evidence and decision-making processes is likely to vary between sectors" (p. 1042). Various factors are teased out which influence different cultures of evidence, such as the nature of the decision being taken, the decision-makers' background and training, the organisational context and history within which the evidence is used, and differences across disciplines.

In a UK government context, research has shown that although civil servants are committed to the use of evidence, they are faced with a huge amount of different types of evidence, with much academic research being unsuitable to answering policy questions. Therefore, evidence is used to develop convincing policy stories, getting rid of methodological uncertainty and using 'killer charts' (Stevens, 2011). This research points to a predominantly ideological culture of evidence in this organisation. In another study, Smith and Joyce (2012) look at how differences and competition between policy networks might shape how and whether research evidence is utilised, suggesting that different policy networks may lead to different cultures of evidence emerging and co-habiting (or competing). Finally, using evidence from a systematic review, Liverani et al. (2013) conclude that factors such as democratisation, centralisation, influence of external donors, and the organisation and function of

bureaucracies can determine how evidence is used and understood, and play a role in determining a culture of evidence.

Existing literature which examines components of a culture of evidence is invariably focused on the types of evidence policy actors use in local settings, and is dominated by research in public health. For example, a survey of 152 policy-makers in health found that they use a much wider range of evidence than usually thought, with local data being the most used and most valued, followed by practice guidelines (Oliver et al., 2014; Oliver and de Vocht, 2017). Academic evidence often only constitutes one (small) part of what counts as evidence and practitioners view evidence differently depending on criteria such as acceptability, deliverability, sustainability, and local information. These are all factors that might play a role in determining a culture of evidence (McGill et al., 2015). Also in health, research has shown that nurses use a wide range of practice knowledge which tend not to be research-based nor allied to the traditional EBPM definition of evidence that one might associate with a culture of evidence in nursing (Estabrooks, 1999).

Context is key to the concept of a culture of evidence. Dobrow et al.'s study (2004) examined how it influences what constitutes evidence using a process model of evidence utilisation that summarises how evidence is introduced, interpreted and applied in a given context. A study of tobacco control policy in the UK and Japan confirms that the evidence does not speak for itself, and requires policy actors to interpret and make sense of it within a given policy environment (Cairney and Yamazaki, 2018). This illustrates how elements of the political and pragmatic discourses on evidence we outlined above might influence how a culture of evidence is defined.

This summary of literature on a relatively new concept of an evidence culture shows that there are different research strands: a normative strand, linked to an EBPM discourse, and another strand examining what might constitute a culture of evidence in a given context, with studies outlining factors that might play a role in helping to define an evidence culture. Lorenc et al. (2014, p. 1046) emphasise the need for “more focused attention to the institutional and socio-political context through which knowledge passes, and to the cultural differences that may impact on the generation and use of evidence”, echoing Weiss's (1979) exhortation to examine how research is used. Following the call for more empirical investigation of cultures of evidence use (Oliver and Boaz, 2019; Pineo et al., 2021), we contribute to this literature by empirically examining whether there are different cultures of evidence in the contexts of Scotland and Wales, and what their characteristics are.

### [Comparing the Scottish and Welsh policy-making and evidence use contexts](#)

Since 1999, UK Government powers have progressively been devolved to an elected Parliament in Scotland and to the National Assembly for Wales (renamed Senedd Cymru in 2020) with both institutions later acquiring primary legislative powers on devolved policy areas, such as health. The UK is now considered a ‘quasi-federal’ system (Lesch and McCambridge, 2021) with a growing divergence, in terms of institutions but also practices. Over decades, these countries have developed unique cultures and policy communities, and this may determine perceptions of what counts as evidence and how that knowledge ought to inform policy and practice.

In contrast to the UK Government, both Scotland and Wales have favoured a more collaborative and consensus-building approach to policy-making. The smaller geographical scale and propensity for policy and social actors to interact and often hold multiple positions impacts on how evidence filters into the policy process. Due to the restricted capacity of both governments, officials rely on external policy advice. In Wales, the policy advice and evidence function within the Welsh Government is particularly small, with only a few small Welsh think tanks (Power and Winckler, 2020). Since 1999, Wales has developed its own governing culture, but its civil service is still comparatively small with under 6,000 full-time equivalent staff (Scotland has over 8,000) (Connell et al., 2023). Yet, what Wales lacks in these areas, it makes up with its ability to draw on strong and tight networks within civil society, with policy actors who know each other, are often present in the same spheres, and have worked in different roles in local/national government or third and education sectors (Andrews, 2022, 2017). Wales has developed what Cole and Stafford (2015) call a discourse of small country governance whereby it looks to other small countries for evidence and policy learning. These other 'small countries' might include Nordic countries, New Zealand, Canada, Ireland, and Spanish regions. This focus on looking for evidence of what works abroad might help to explain why EBPM is favoured as a discourse in Welsh policy actors' understanding of evidence in comparison to Scotland (MacKillop and Downe, 2023).

Since 2007, Scotland has developed a particular style of policy-making – the so-called Scottish Approach (Cairney, 2016; Coutts and Brotchie, 2017), or Scottish Policy Style (Cairney, 2008; Keating, 2010). This started under the Labour-Liberal Democrat government (1999-2007) and has been developed under the Scottish National Party (SNP). This approach involves significant engagement with citizens/stakeholders in the policy-making process (Hill O'Connor et al., 2023) so that services are designed with, and for, people and communities - not delivered 'top-down' for administrative convenience (Christie Commission, 2011). In Scotland, policy advice and evidence functions are more resourced within each government department. In addition, Scottish think tanks are more developed and numerous than their Welsh counterparts, with UK think tanks having Scottish branches such as IPPR (Institute for Public Policy Research) Scotland. Similarly to Wales, Scottish ministers and officials tap into close-knit networks and form close relationships with other organisations such as local councils, voluntary groups, unions, and citizens.

On the type of evidence used in Scotland, there has been a steer away from hierarchies of evidence with a greater focus on user and practitioner evidence. According to one Scottish academic, "[t]his attitude to RCTs reinforces findings in the comparative literature that, although RCTs and systematic review may represent the 'gold standard' in EBPM, they have a limited impact on communities of civil servants seeking research, or professions focused on everyday practice" (Cairney, 2017, p. 503). This contrasts to Wales where it is argued that "[r]andomised control trials for the development of policy have been a feature in Welsh policy-making for some time" (Andrews, 2017, p. 3), although evidence of Welsh policies based on RCTs are rare in practice.

This brief review of the policy-making context in Scotland and Wales suggests that both countries "pursue similar agendas on evidence-informed, collaborative, and long-term policy-making" (Cairney, 2023, p. 5) where any differences in cultures of evidence are likely to be

influenced by a multitude of factors – e.g., historical, political, geographical, or cultural. This context makes a comparison between the two nations advantageous, with Scotland and Wales both being devolved nations in the UK with similar consensus-building styles of policy-making, and limited advisory capacity (Connell et al., 2023). Interestingly for our findings, devolution in Scotland and Wales begins to set the context for how and why similar cultures of evidence exist in the two countries, as well as whether they diverge (notably on how evidence is obtained).

## Q methodology

To analyse cultures of evidence in Scotland and Wales, we mobilise Q methodology (or Q). Q is a mixed-method approach to access people's perceptions and attitudes towards a topic (Andrews, 2022, 2017). Q has been used in an array of disciplines, from psychology and health research, to public policy and political science (De Wulf et al., 2023; Jeffares and Skelcher, 2011; Van Exel and De Graaf, 2005). Q involves participants ranking a set of statements on a given topic from most agree to most disagree (see Figure 1). Once all participants have completed their individual ranking, categories of perceptions towards the topic can be developed, using inverted factor analysis. Using Q allows us to identify shared perceptions that exist on what evidence means, where there is consensus as well as areas of disagreement, and allows for the inclusion of a wide range of participants. This mixed-method study enables us to combine the rigour of statistical analysis with the richness of qualitative data.

*Figure 1 here*

There are four main elements to conducting our Q study: the statements selected (Q set), the participants (P set), how the study is run, and collecting Q data in two contexts. We will now discuss these elements in turn.

### The Q set: statements

We initially mobilised Q in a study focussed on Welsh attitudes towards evidence (MacKillop and Downe, 2023) and use the same statements for this study so we could collect comparative data across two countries. The first component of a Q study is to develop a set of statements (40 in our case) that all refer to the same topic. We collected as many statements as possible relating to what counts as evidence from newspapers, including tabloids, academic journal articles, and quotes from interviews we had conducted with policy actors on evidence use and policy-making. There are different ways of selecting statements, with some studies aiming to represent a set number of discourses on a topic, whilst others aim to represent as many views on a topic as possible (Dryzek and Berejikian, 1993). We followed the latter option and started by collecting as many statements as possible to represent the totality of discourse on a given topic. Yet, when we began whittling down the number of statements to 40 (based on previous research and how many statements can fit on the grid shown in Figure 1 above), we also took account of the three discourses identified above about what evidence means: political, EBPM and pragmatic. Thus, we adopted a mixed approach to selecting statements, collecting statements to represent as many views, facts and ideas as possible, combining normative, factual, descriptive and value judgements, as well as those reflecting the three discourses that we had identified (Curry et al., 2013). A list



of these statements and how we categorised them is available in Appendix 1. A pilot study was conducted with five policy actors, as well as consulting with two experts on Q, to ensure that we had represented as many views as possible.

#### The P set: participants

There is no defined number of participants in Q studies (Watts and Stenner, 2012) as the aim is to identify existing viewpoints rather than all possible perceptions of evidence. As a rule of thumb, however, it is suggested that the number of participants be less than the number of statements in the Q set. We recruited 33 participants from the Scottish policy community to ensure comparison with the 34 participants from the Welsh study (MacKillop and Downe, 2023).

What was more difficult was ensuring that we had recruited participants from similar categories in the two contexts, such as politicians, civil servants including researchers, civil society, arm's length bodies, and academics. Appendix 2 and 3 lists the categories of participants in the two countries, with information regarding their role, organisation, and background. For both countries, we used purposive sampling, recruiting across groups of policy actors and combined this with snowballing from participants' recommendations.

#### How the study is run

We conducted the study online, sending packs of statements in advance of interviews, as well as a picture of the grid by email (Figure 1) so that participants could familiarise themselves with the process. We asked participants not to open the packs before the start of the interview so that they would not 'overthink' their responses (Brown, 2008). We collected data between August 2022 and April 2023 for the Scottish study. Data from Wales were collected between December 2020 and May 2021. Interviews lasted around one hour and were digitally recorded. Interviews consisted of three steps. First, participants sorted the 40 statements in three piles (agree, disagree, neutral (e.g., don't know or unsure)). This step helps to complete a first broad sorting. Second, participants ranked the statements using the grid format in Figure 1 and sent a photo to one of the authors by email. Third, a post-sort questionnaire was completed where questions were asked to contextualise the participant's responses such as why they had ranked certain statements as most agree or most disagree, what represented their view of evidence, whether this had changed over time and why, and demographic questions such as length of service in their current role and categories of employment (see Appendix 4 for a copy of the post-sort questionnaire). This questionnaire added further qualitative and quantitative data to our dataset and provided participants with the opportunity to express their views beyond the statement ranking. It allowed us to identify some of the finer differences between the profiles in Scotland and Wales which were less pronounced from the Q sorts as well as exploring the primary demographic factors of actors belonging to each profile.

#### Collecting Q data in two contexts

Some studies have used the same Q set across different nations but have not gone as far as to compare the results by country. For example, Jeffares and Skelcher (2011) constructed a single Q set used in the Netherlands and England but their study was not comparative. Robyn (2004) used the same Q set across seven European countries and had the added difficulty of translating the original French set into each national language. There are some difficulties in

this approach as “this is no way to establish equivalence across national contexts” (Coke and Brown, 1976; Kampschoff, 2007). We were interested in discovering whether or not the same profiles would emerge in Scotland as were found in Wales. We decided therefore to compare the two data sets rather than combining them into one analysis. We now analyse the findings examining how evidence is understood amongst our participants in Scotland before comparing the results to Wales.

### Findings: Scottish Cultures of Evidence

Using the KenQ Analysis software, we conducted factor analysis (Newman and Ramlo, 2010; Stevens et al., 2021) and included all factors with an eigenvalue above 1 and with more than two respondents in each factor (Sneegas et al., 2021; Watts and Stenner, 2005). The eigenvalue indicates the factor’s statistical strength and explanatory power. This means that the explanatory value of each profile is greater than the variation which could come from a single Q sort alone and ensures that there is sufficient difference in each of the profiles identified. Of the 33 Scottish participants, 27 were retained in our analysis, loading significantly onto one of the four factors, or profiles, which emerged from our analysis. Similarly, 27 out of 34 of Welsh participants were retained.

These profiles do not represent the only possible cultures of evidence in the Scottish policy community, but rather are four ways of thinking about what evidence means. Some participants did not load onto the four profiles, nor did the variance in their responses together form any additional profiles. This does not mean that these other ways of perceiving evidence are invalid, rather that they did not represent enough variation from the other profiles in their responses, or were not representative of enough participants, to be explored in this study.

In this section, we describe the results of the study in Scotland by analysing each profile in detail, before comparing the results to Wales.

#### **EBPM Idealist**

The EBPM Idealist profile accounts for five of the 27 participants in Scotland, with an eigenvalue of 2.88 (compared to 12/27 participants in Wales). Three of the participants in this profile were from arm's length bodies, with one coming from academia and another from Scottish Parliament. Most participants had continued beyond undergraduate studies. The professional backgrounds in this profile were varied and all have been in their current role for over three years, with the longest length of service being 20 years.

EBPM Idealists in Scotland agreed most strongly that “it is important to explain what we mean by evidence” and that “policy-makers have a responsibility to use evidence in an impartial way”. This profile sits very strongly within the EBPM tradition, ranking statements such as “evidence must be rigorous, clear and well presented” (+3), “evidence should be underpinned by research” (+3), and “evidence should be rigorously tested and capable of replication” (+2) higher than any other profile in the study.

The Scottish EBPM Idealists have a strong preference for “rigorous” evidence, however, the participants in this profile recognise that it is not just limited to quantitative evidence. Classic EBPM views such as quantitative evidence being the most important (-1) and evidence being what can be counted and measured (-2) were not ranked positively in either study, suggesting a recognition that these ideals do not apply in the real world. There was some support for RCTs being the gold standard of evidence (+1), but as one participant commented:

*“I don’t agree that only quants should count or RCTs or statistical analysis should be all that matters. More recently I am seeing more of a mix of data analysis and case studies. If you only do very scientific studies, you would be unlikely to be able to influence people.” (EBPM-12)*

## **Inclusive**

The Inclusive profile comprised of seven of 27 participants (very similar to 6 out of 27 participants in Wales), and an eigenvalue of 1.26. These participants mostly worked in Scottish Parliament or in arm's length bodies, with one working in Scottish Government. Their educational attainment is spread evenly from undergraduate to PhD levels, and their backgrounds included academia, policy, politics, and research. Participants’ length of service in their current roles spanned from 18 months to 16 years.

This Scottish profile most strongly agreed with the statements “what is evidence depends on what we want to know and for what specific purpose” and “there is not always clear evidence about what works on an issue”. Those belonging to this profile were more likely to believe that “what counts as evidence varies between professions” (+3), that “not all evidence can be measured” (+3) and supported the view that “evidence comes from talking to experts” (0). These results illustrate that the Inclusive profile’s approach to evidence is wider than other profiles.

This profile places emphasis on considering “a broad variety of evidence” (INC-9) in policy-making, suggesting that “[the policy community] need[s] to take all kinds of evidence into account” (INC-27). One participant discussed the place of research and the need to include other forms of evidence, stating that “there is an irreducible complexity to the world that research can help with but not resolve” (INC-24). Another suggested that the role of evidence is to “inform continuous improvement...[and] the way that good law is formed and shaped” (INC-8). Those people with an inclusive view of evidence value individual stories as evidence (+2), believe that evidence is anything that helps draw a rich picture of an issue (+2) and that policy-makers should use evidence in an impartial way (+2).

Participants in this profile ranked the statements “evidence must be rigorous, clear and well presented” (-1) and “it is important to explain what we mean by evidence” (+1) lower than any other profiles. Further, they disagreed most strongly (-4) that “evidence is a luxury nowadays” and that “evidence is just a box that needs ticking for policy-makers”. This profile sees value in a wide range of evidence as this may be better suited to answer different policy questions. The ranking of the various statements places it in a central position on the EBPM-political spectrum compared with the other profiles.

## Pragmatist

The Pragmatist profile included nine out of the 27 participants (5/27 in Wales), and an eigenvalue of 14.65. Pragmatists were spread across Scottish Government, Scottish Parliament, academia, and arm's length bodies. Most participants held master's degrees with one third also having PhDs. The participants in this profile had the least varied professional backgrounds with most participants coming from policy or academia before their current roles. Most participants had been in post between two and ten years, with the longest serving participant having been in the same role for 24 years.

The Scottish Pragmatists strongly agree with the idea that “evidence is always going to be contested” and that “there is not always clear evidence about what works on an issue”. This profile sits between the EBPM and Political ends of the theoretical spectrum. This can be seen with support that “evidence is political in the way it is articulated” (+3) and “science is not perfect but is the best mechanism we have for generating evidence” (+2). These were ranked higher by pragmatists than participants in other factors.

One participant explained that policy-makers come to the role with preconceptions which should be challenged, and evidence is a valuable step in that process. They outlined three functions of evidence in the policy-making process:

*“...it can reaffirm the views that you took or decisions that you made...it has a very important challenge function...[and] it is important for all the different voices to be heard as equally as possible so that everyone gets the opportunity to participate in the democratic process.” (PG-23)*

These three functions helpfully illustrate some of the ways evidence is used in the policy process and highlights the fluid attitude towards the meaning of evidence for pragmatists.

Scottish Pragmatists disagreed most strongly with the idea that “evidence is just a box that needs ticking by policy-makers” (-4) and that “all evidence in the policy process is equal” (-4). This profile takes shape into an ideal type which moves dynamically between EBPM and political values and feels that evidence is a changing tool that can be used for different purposes within the policy community.

## Political

The Scottish Political profile included the remaining six out of 27 participants (4/27 in Wales) and had an eigenvalue of 1.17. The participants in this profile came from arm's length bodies, academia, and Scottish Government, with professional backgrounds in local government, research, and healthcare. All participants in this profile were educated to at least a master's level, with some also holding PhDs. Most participants who loaded onto this profile have been in their current roles for between four and eight years, with the longest serving participant in post for 17 years.

This profile most strongly agreed that “individual stories should count as evidence” and “what counts as evidence reflects power relations”, illustrating the politics of evidence. Though the ideal-type for this profile disagreed that “evidence is a luxury nowadays” (-2), and that “evidence is just a box that needs ticking for policy-makers” (-2), and was neutral toward the

idea that “evidence is what policy officials and Ministers see as acceptable” (0), these statements are ranked higher by this profile than any other in the study. This suggests a more cynical view of evidence and its use compared to other profiles. This profile nevertheless agreed that “evidence need[ed] to be actionable” (+1) and “evidence [was] anything that helps draw a rich picture of an issue” (+3). One participant elaborated that:

*“It is crucial to get a clear picture of the evidence, of what work is going in that space, what people's experiences are. I don't think you should be making policy otherwise.” (POL-5)*

This profile strongly disagreed that “quantitative evidence is the most important evidence” (-4) and that “there is a need for a hierarchy of evidence” (-4). Participants said, “those statements make me shudder, they make me so cross” (POL-5) and that “it's just completely untrue” (POL-19). Further, this profile ranked the ideas that “evidence should be rigorously tested and capable of replication” (-3) and “RCTs are the gold standard of evidence” (-3) lower than other profiles. Concerning RCTs, one participant commented that “some types of science use RCTs to delegitimise other forms of science” (POL-17). Though there are elements of this profile which speak to a more inclusive approach, their preferred placement of statements relating to power relations, and their strong rejection of views linked to the EBPM canon, place this profile closer to the political end of the ideological evidence spectrum.

### Comparing Scottish and Welsh cultures of evidence

The profiles which emerged in Wales – EBPM Idealist, Political, Pragmatists and Inclusive – were also found in Scotland, although in different proportions (see Appendices 6-9). While the Scottish respondents map easily onto these profiles, the two policy communities are distinct in several ways. For illustration, Appendix 5 shows a side-by-side comparison of the crib sheets (an analytical tool in Q) for the EBPM profiles in Wales and Scotland. While these two EBPM profiles resemble each other (see Figure 2 below), the two groups of respondents have not ranked all statements equally. This comparison allows us to identify similarities and differences between the same profiles across the two contexts. Figure 2 illustrates where each of the profiles in Scotland and Wales fall on the spectrum between an EBPM Idealist and a political attitude towards evidence. While the profiles in each context land close to each other on the spectrum, it is important to note that none of the profiles are wholly aligned with the literature in the EBPM or political traditions, and all reflect a more practical approach to evidence use in policy-making. This is to be expected as ideal types do not often exist empirically.

*Figure 2 here*

We compared how each of the forty statements were ranked across the two countries to examine consensus and difference in general perceptions of evidence. This shows that participants across the two countries disagreed on a series of statements such as “quantitative evidence is the most important type of evidence” or “if something gets repeated enough it can be treated as evidence”. Similarly, they disagreed that “evidence is a luxury nowadays” and “evidence is just a box that needs ticking for policy makers”. These results show that our participants value evidence in its' many forms and agree it should be a key part of policy-making. Equally, we can see that there is general agreement that “there isn't always clear evidence about what works on an issue”, and “it is important to explain what we

mean by evidence”. Participants in both countries also agreed that “individual stories should count as evidence”. This suggests that respondents across the two contexts believe that evidence is complicated to develop and mobilise on an issue, that it is difficult to define, and that lived experience is increasingly seen as an important element of what counts as evidence.

The comparison of data across the two countries reveals that Scottish respondents were more dispersed across the four profiles than Welsh respondents (see Figures 3 and 4 below displaying the profile spread in the two countries). A third of the Scottish sample were Pragmatists, followed up by 26% belonging to the inclusive profile, with the EBPM Idealists as the least popular profile. In Wales, the most popular profile was the EBPM Idealists (44%), with the other three profiles quite evenly split. As we discussed in the section on the policy systems, there are historical, political, and cultural reasons for Scotland and Wales simultaneously having similar cultures of evidence and differences within each culture. Nevertheless, our research illustrates how cultures of evidence in Scotland, according to the array of participants that we recruited across the policy community, are more dispersed than in Wales. These results may suggest that the conversation and practice surrounding evidence definition and use in Scotland is more open and fluid, which could be linked to the ‘Scottish approach’ to policy-making and the greater role of consensus-building in Scotland than in Wales.

*Figures 3 and 4 here*

The EBPM Idealists in both Wales and Scotland believed that policy-making ought to be evidence-based, and that evidence should play a major part in policy-making. Participants in Scotland most strongly disagreed with the view that “evidence is a luxury nowadays” and “if something gets repeated enough, it can be treated as evidence”. One participant suggested that these two statements were “against the idea of evidence in policy” (EBPM-18). Scottish participants called evidence “vital” (EBPM-7) and said its use in policy needed to be a “constant” (EBPM-16). Representatives from both countries believe in the canons of the EBPM toolkit such as testing, replication and evidence needing to be underpinned by research. They expressed strong support for the view for example that “policy makers have the responsibility to use evidence in an impartial way”, both ranking this statement as +4. The EBPM profiles in each country ranked the statement that “Randomised Control Trials (RCTs) are the gold standard of evidence” higher than any other profiles. While Scottish EBPM Idealists agreed that “Evidence should be systematically generated and drawn from a wide range of studies” (+3), this was not a distinguishing statement for the EBPM Profile in Wales.

Though the Scottish Inclusive profile leans towards the EBPM end of the spectrum, it does so less than the equivalent Welsh profile. The Scottish and Welsh profiles were closely aligned in the statements which they disagreed with. Both profiles placed “what counts as evidence is what works” and “there is agreement over what constitutes rigorous evidence” at -2, “evidence is what policy officials and ministers see as acceptable” and “if something gets repeated enough it can be treated as evidence” at -3, and “evidence is a luxury nowadays” and “evidence is just a box that needs ticking” at -4. Disagreement with these statements indicate a preference for a broad range of evidence in both countries. The profiles in both countries agreed that “individual stories should count as evidence”, “what counts as evidence will depend on the policy area”, and “policy-makers have the responsibility to used evidence

in an impartial way”. While they both lean fractionally closer to the EBPM end of the spectrum, the Inclusive profiles in Scotland and Wales believe that policy can be evidence based without showing preference for a particular kind of evidence.

The Pragmatists profile combined attitudes and perceptions found in both the EBPM and Political types, but there are some differences between countries. For example, the statement “evidence is anything that helps draw a rich picture of an issue” (0) which ranked lower in the Scottish profile than in any other factor, was rated higher than other factors in Wales (+2). While pragmatists in both Wales and Scotland disagreed that quantitative evidence is more valuable than other types of evidence, Welsh Pragmatists placed this lower than their Scottish counterparts. Overall, Pragmatists in both countries view evidence as a tool for the policy community which can include many types of evidence and be used for a multitude of purposes.

The Scottish Political profile mapped most closely to its equivalent profile in the Welsh study, and they sit very close together on our EBPM-Political spectrum (see Figure 2 above), with the Scottish Political profile emerging slightly closer to the political end. These two profiles diverge on statements such as “if something gets repeated enough, it can be treated as evidence” which was ranked neutrally in Scotland (0) but most disagreed in the Welsh Political profile (-4). The two profiles agreed that “it is important to explain what we mean by evidence” (+2), that “evidence is political in the way it is articulated” (+2), and both disagreed that “there is agreement over what constitutes rigorous evidence” (-2). The Political profile in Scotland and Wales believe in using a broad range of evidence, but unlike other profiles in the study is more comfortable with the idea of using evidence politically. As with the EBPM profile on the other end of the spectrum, those in the Political profile have a perception of evidence which aligns with the canons of political thinking used to inform this study, but have been translated for more practical, real world uses.

## Conclusion

Our research has identified four profiles with regards to how evidence is understood in both Scotland and Wales. Regarding whether policy actors have different views of what counts as evidence, we empirically confirm the existence of the three schools that can be gleaned across the literature, adding a fourth, ‘inclusive’, view of evidence. Using Q to build understanding empirically (with members of policy communities ranking statements as they see fit rather than in line with given discourses on evidence), we were able to test out whether there are different cultures of evidence in different countries.. Regarding what factors influence cultures of evidence, the similarities between the two systems in Scotland and Wales can be explained by both countries being part of the UK, their devolved nature, their size, their consensus-building style of policy-making, and their limited advisory capacity. The differences between each profile – e.g., EBPM in Scotland having a different ‘flavour’ to EBPM in Wales and different iterations of what the Pragmatist profiles look like – can be explained by the specific context within which they evolve.

Our findings support existing definitions of cultures of evidence (Lorenc et al., 2014; SKAPE, 2022). We find that that a mix of rules and customs help to determine how knowledge is used – for instance RCTs being the gold standard for determining evidence. Secondly, cultures of

evidence involve criteria for creating and labelling knowledge. We find this for instance, through the recent use of individual stories as a label to refer to some types of lived experience evidence. Third, our Q study as well as analyses of the perceptions and attitudes gathered through the post-sort questionnaire has examined attitudes and behaviours towards evidence and knowledge. Finally, we find that different definitions of concepts such as evidence are mobilised by participants across the two countries.

We found the Q approach to be effective for accessing how policy actors think about evidence which enabled us to study the different meanings of evidence in two policy communities. This approach, which requires participants to stop and think in depth about their views on evidence demonstrates that policy actors are interested in these issues and able to articulate their views on evidence. Using this method, we have developed a comparative lens across Scotland and Wales to allow us to move beyond seeing evidence as a uniform, non-contentious, and generic term that doesn't vary across individuals or contexts. Our post-sort questionnaire which included questions such as whether and why someone's understanding of evidence has changed over time, also begins to delineate what factors might play a role in determining an individual's understanding of evidence, and by extension the sum of these within a given culture of evidence. Here, factors such as academic background, organisational context, career trajectory, and wider changes in the policy context (e.g., Covid-19 pandemic) emerged as variables influencing cultures of evidence. These changes over time were measured through participants' own reflections and were found in both policy communities. Many respondents in Scotland expressly highlighted that their perceptions of what could be considered evidence had specifically become broader over time, illustrating the pragmatist trend in Scotland.

More qualitative data such as case studies of government departments or other policy actors would provide greater explanatory value. More research is needed on the informal ways of working and patterns of behaviour as this would help us to better understand and define a culture of evidence. An ethnographic research design could help observe how policy actors work and use evidence in their day-to-day work. Finally, it would be useful to examine (with Q methodology) whether different cultures of evidence exist and how they differ across policy sectors as well as across countries in different political systems.

The culture of evidence concept is relatively new and a work in progress, but it has allowed us to focus on different understandings of evidence and what influences this. In that way, the concept was useful to pay more attention to the context within which evidence is present. Combining this focus with Q methodology has helped us to dig deeper into the ideas, values, norms, and behaviours underpinning people's comprehension of evidence. Even though results such as Scotland having a more pragmatic attitude towards evidence and Wales being more closely linked to EBPM might not be surprising to some, our research nevertheless empirically documents how those broader beliefs operate at the level of individual policy actors. By collecting views of what evidence means to different people in two countries, we have started to collate important data regarding the various and contradictory meanings of evidence that can coexist in in different systems.



**Funding details:** This work was supported by the Welsh Government, the Economic and Social Research Council (ESRC) and Cardiff University who fund the Wales Centre for Public Policy (ES/X005674/1).

**Conflict of interest:** The authors declare that there is no conflict of interest.

**Acknowledgements:** We would like to thank the constructive comments of the referees and support from the co-editors.

## References

- Adams, D., Colebatch, H.K., Walker, C.K., 2015. Learning about Learning: Discovering the Work of Policy. *Australian Journal of Public Administration* 74, 101–111. <https://doi.org/10.1111/1467-8500.12119>
- Andrews, L., 2022. Performing Welsh Government 1999–2016: how insider narratives illuminate the hidden wiring and emergent cultural practices. *Contemporary British History* 36, 124–156.
- Andrews, L., 2017. How can we demonstrate the public value of evidence-based policy making when government ministers declare that the people ‘have had enough of experts’? *Humanities and Social Sciences Communications* 3. <https://doi.org/10.1057/s41599-017-0013-4>
- Brown, S., 2008. Q Methodology, in: Given, L.M. (Ed.), *The SAGE Encyclopedia of Qualitative Research Methods*. SAGE Publications, Thousand Oaks, CA.
- Cabinet Office, 2018. *The What Works Network: Five Years On*. Cabinet Office, London.
- Cairney, P., 2023. Report: What is effective government? Finance and Public Administration Committee Inquiry ‘Public Administration - Effective Scottish Government decision-making’, Scottish Parliament.
- Cairney, P., 2017. Evidence-based best practice is more political than it looks: A case study of the ‘Scottish Approach.’ *Evidence & Policy* 13, 499–515.
- Cairney, P., 2016. *The Politics of Evidence-Based Policy Making*. Palgrave Macmillan UK, London.
- Cairney, P., 2008. Has Devolution Changed the ‘British Policy Style’? *British Politics* 3, 350–372.
- Cairney, P., Oliver, K., 2017. Evidence-based policymaking is not like evidence-based medicine, so how far should you go to bridge the divide between evidence and policy? *Health Research Policy and Systems* 15. <https://doi.org/10.1186/S12961-017-0192-X>
- Cairney, P., Yamazaki, M., 2018. A Comparison of Tobacco Policy in the UK and Japan: If the Scientific Evidence is Identical, Why is There a Major Difference in Policy? *Journal of Comparative Policy Analysis: Research and Practice* 20, 253–268. <https://doi.org/10.1080/13876988.2017.1323439>
- Connell, A., Downe, J., Durrant, H., MacKillop, E. and Martin, S. 2023. Externalising Policy Advice within Sub-national Governments, *Policy & Politics*, 51:4. 628-646 <https://doi.org/10.1332/030557321X16883943592187>
- Christie Commission, 2011. *Commission on the future delivery of public services*. Edinburgh.
- Cochran-Smith, M., Team, B.C.E., 2009. “Re-Culturing” Teacher Education: Inquiry, Evidence, and Action. *Journal of Teacher Education* 60, 458–468. <https://doi.org/10.1177/0022487109347206>
- Coke, J.G., Brown, S.R., 1976. Public Attitudes about Land Use Policy and Their Impact on State Policy-Makers. *Publius* 6, 97–134.
- Cole, A., Stafford, I., 2015. *Devolution and Governance: Wales Between Capacity and Constraint*, 1st ed, Palgrave Pivot. Palgrave Macmillan UK, London.
- Coutts, P., Brotchie, J., 2017. *The Scottish approach to evidence: A discussion paper*. Carnegie Trust UK.
- Curry, R., Barry, J., McClenaghan, A., 2013. Northern Visions? Applying Q methodology to understand stakeholder views on the environmental and resource dimensions of

sustainability. *Journal of Environmental Planning and Management* 56, 624–649. <https://doi.org/10.1080/09640568.2012.693453>

De Wulf, N., Voets, J., Molenveld, A., 2023. Policy coordination and integration in local government: perspectives on barriers. *Policy & Politics* 51, 530–549. <https://doi.org/10.1332/030557321X16844319692777>

Dobrow, M.J., Goel, V., Upshur, R.E.G., 2004. Evidence-based health policy: context and utilisation. *Social science & medicine (1982)* 58, 207–17. [https://doi.org/10.1016/s0277-9536\(03\)00166-7](https://doi.org/10.1016/s0277-9536(03)00166-7)

Dryzek, J.S., Berejikian, J., 1993. Reconstructive Democratic Theory. *American Political Science Review* 87, 48–60. <https://doi.org/10.2307/2938955>

Dunlop, C., 2017. Pathologies of policy learning: What are they and how do they contribute to policy failure? *Policy & Politics* 45, 19–37.

Estabrooks, C.A., 1999. Will Evidence-Based Nursing Practice Make Practice Perfect? *Canadian Journal of Nursing Research Archive*.

French, R.D., 2018. Is it time to give up on evidence-based policy? Four answers. *Policy & Politics* 47, 151–168.

Gueguen, D., Marissen, V., 2022. Science-based and evidence-based policy-making in the European Union: Coexisting or conflicting concepts? (No. 88/2022), *Bruges Political Research Papers*. College of Europe.

Hill O'Connor, C., Smith, K., Stewart, E., 2023. Integrating evidence and public engagement in policy work: an empirical examination of three UK policy organisations. *Policy & Politics* 51, 271–294. <https://doi.org/10.1332/030557321X16698031794569>

Homer, C., Woodall, J., Freeman, C., South, J., Cooke, J., Holliday, J., Hartley, A., Mullen, S., 2022. Changing the culture: a qualitative study exploring research capacity in local government. *BMC Public Health* 22, 1341. <https://doi.org/10.1186/s12889-022-13758-w>

Jeffares, S., Skelcher, C., 2011. Democratic subjectivities in network governance: A methodology study of English and Dutch public managers. *Public Administration* 89, 1253–1273. <https://doi.org/10.1111/j.1467-9299.2010.01888.x>

Jennings, E.T., Hall, J.L., 2012. Evidence-Based Practice and the Use of Information in State Agency Decision Making. *Journal of Public Administration Research and Theory* 22, 245–266–245–266.

Kampschoff, M., 2007. Robyn, Richard (ed.), *The Changing Face of European Identity*, London: Routledge, 2004, 256 pp. *European Studies* 9, 301–312.

Keating, M., 2010. *The Government of Scotland: Public Policy Making after Devolution*, 2nd ed. Edinburgh University Press, Edinburgh.

Lesch, M., McCambridge, J., 2021. Lesch M, McCambridge J. Waiting for the wave: Political leadership, policy windows, and alcohol policy change in Ireland. *Soc Sci Med.* 2021 Aug;282:114116. doi: 10.1016/j.socscimed.2021.114116. Epub 2021 Jun 10. PMID: 34192619; PMCID: PMC8287590. *Social Science & Medicine* 114116.

Liverani, M., Hawkins, B., Parkhurst, J.O., Goodwin, N., Simwaka, Bn., 2013. Political and institutional influences on the use of evidence in public health policy: A systematic review. *PLoS ONE* 8, e77404. <https://doi.org/10.1371/journal.pone.0077404>

Lorenc, T., Tyner, E., Petticrew, M., Duffy, S., Martineau, F., Phillips, G., Lock, K., 2014. Cultures of evidence across policy sectors: Systematic review of qualitative evidence. *European Journal of Public Health* 24, 1041–1047. <https://doi.org/10.1093/eurpub/cku038>. Epub 2014 Mar 27. PMID: 24681818

MacKillop, E., Downe, J., 2023 What counts as evidence for policy? An analysis of policy actors' perceptions, *Public Administration Review*, 83:5, 1037-1050

McConney, P., Fanning, L., Mahon, R., Simmons, B., 2016. A First Look at the Science-Policy Interface for Ocean Governance in the Wider Caribbean Region. *Front. Mar. Sci.* 2. <https://doi.org/10.3389/fmars.2015.00119>

McGill, E., Egan, M., Petticrew, M., Mountford, L., Milton, S., Whitehead, M., Lock, K., 2015. Trading quality for relevance: non-health decision-makers' use of evidence on the social determinants of health. *BMJ Open* 5, e007053. <https://doi.org/10.1136/bmjopen-2014-007053>

Mirzoev, T., Green, A., Nancy, G., Stephen, P., Philippa, B., Ha, B.T.T., Ramani, K., Qian, X., Yang, X., Mukhopadhyay, M., Soors, W., 2013. Role of evidence in maternal health policy processes in Vietnam, India and China: findings from the HEPVIC project. *Evidence & Policy* 9, 493–511. <https://doi.org/10.1332/174426413X669845>

Newman, I., Ramlo, S., 2010. Using Q methodology and Q factor analysis in mixed methods research, in: Tashakkori, A., Teddlie, C. (Eds.), *Handbook of Mixed Methods in Social & Behavioral Research*. pp. 505–530.

Oliver, K., Boaz, A., 2019. Transforming evidence for policy and practice: creating space for new conversations. *Palgrave Communications* 5, 60. <https://doi.org/10.1057/s41599-019-0266-1>

Oliver, K., Innvaer, S., Lorenc, T., Woodman, J., Thomas, J., 2014. A systematic review of barriers to and facilitators of the use of evidence by policymakers. *BMC Health Services Research* 14, 2. <https://doi.org/10.1186/1472-6963-14-2>

Oliver, K.A., de Vocht, F., 2017. Defining 'evidence' in public health: a survey of policymakers' uses and preferences. *European journal of public health* 27, 112–117.

Orton, L., Lloyd-Williams, F., Taylor-Robinson, D., O'Flaherty, M., Capewell, S., 2011. The use of research evidence in public health decision making processes: systematic review. *PLoS One* 6, e21704. <https://doi.org/10.1371/journal.pone.0021704>

Pineo, H., Zhou, K., Niu, Y., Hale, J., Willan, C., Crane, M., Zimmermann, N., Michie, S., Liu, Q., Davies, M., 2021. Evidence-informed urban health and sustainability governance in two Chinese cities. *Buildings and Cities*. <https://doi.org/10.5334/bc.90>

Power, S., Winckler, V., 2020. *The Rise and Fall of Think Tanks in Wales*. Bevan Foundation, Cardiff.

Robyn, R., 2004. *The Changing Face of European Identity A Seven-Nation Study of (Supra)National Attachments*, 1st ed. Routledge, London.

Sanderson, I., 2002. Making sense of 'What Works': Evidence Based Policy Making as instrumental rationality? *Public Policy and Administration* 17, 61–75. <https://doi.org/10.1177/095207670201700305>

SKAPE, 2022. SKAPE Workshop 2022: Are there distinct national policy 'cultures of evidence'? Presented at the SKAPE, University of Edinburgh.

Smith, K.E., Joyce, K.E., 2012. Capturing complex realities: understanding efforts to achieve evidence-based policy and practice in public health. *Evidence & Policy* 8, 57–78. <https://doi.org/10.1332/174426412X6201371>

Sneegas, G., Beckner, S., Brannstrom, C., Jepson, W., Lee, K., Seghezze, L., 2021. Using Q-methodology in environmental sustainability research: A bibliometric analysis and systematic review. *Ecological Economics* 180, 1–14.

Stevens, A., 2011. Telling policy stories: An ethnographic study of the use of evidence in policy-making in the UK. *Journal of Social Policy* 40, 237–255.

- Stevens, V., Klijn, E.H., Warsen, R., 2021. Branding as a public governance strategy: A Q methodological analysis of how companies react to place branding strategies. *Public Administration Review* 81, 752–762.
- Van Exel, J., De Graaf, G., 2005. Q methodology: A sneak preview [WWW Document]. URL <http://reserves.library.kent.edu/courseindex.asp>; (accessed 10.28.19).
- Watts, S., Stenner, P., 2012. *Doing Q Methodological Research: Theory, Method and Interpretation*. Sage, London.
- Watts, S., Stenner, P., 2005. Doing Q methodology: Theory, method and interpretation. *Qualitative Research in Psychology* 2, 67–91.
- Weiss, C.H., 1979. The Many Meanings of Research Utilization. *Public Administration Review* 39, 426–431. <https://doi.org/10.2307/3109916>

Figure 1: Example of Q sort grid

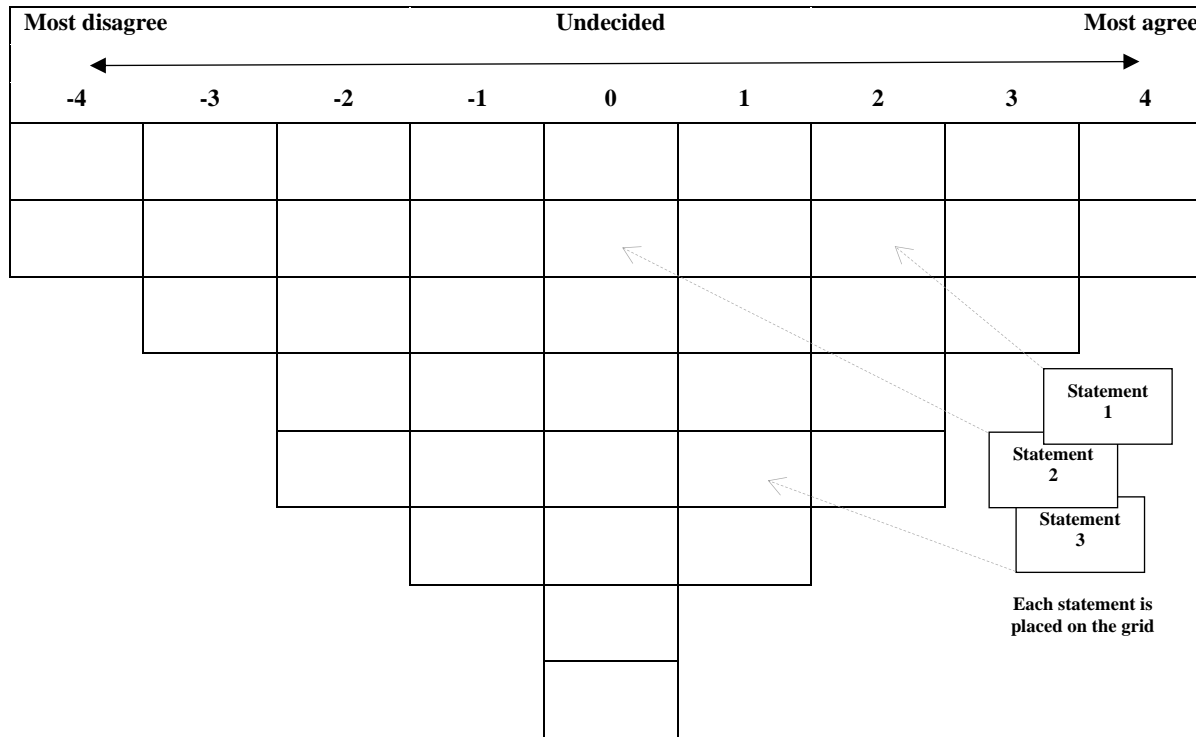
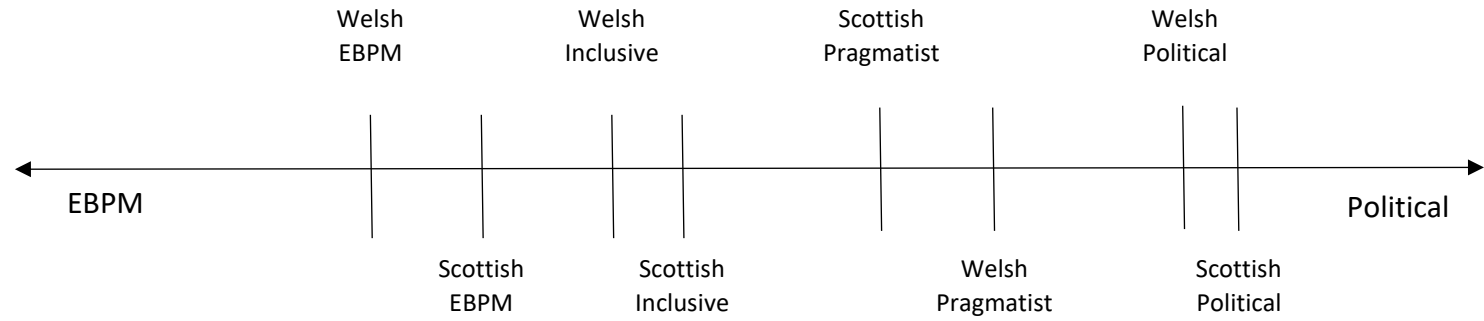
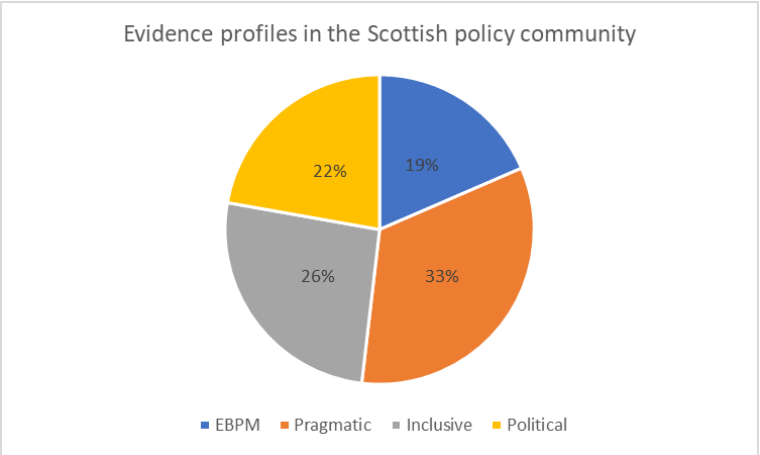


Figure 2: A spectrum of factors comparing Scotland's and Wales's attitudes towards evidence

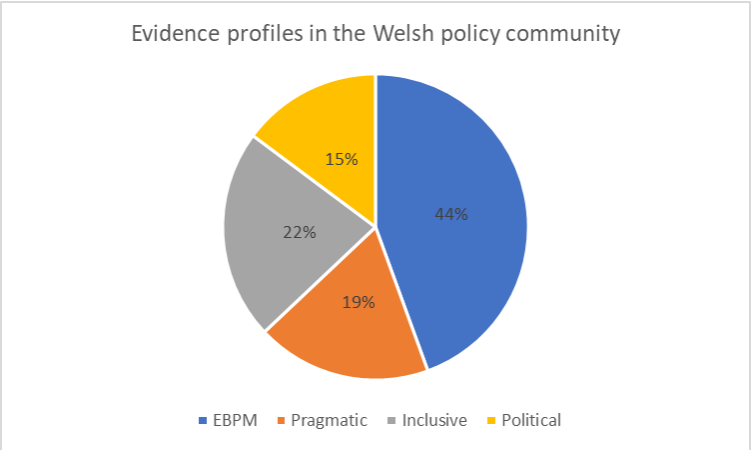


**Figure 3: Evidence profiles in the Scottish policy community**





**Figure 4: Evidence profiles in the Welsh policy community**



## Appendices

### Appendix 1: List of statements for the Q survey

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 – Scottish Study

Factor array	Participant	Organisation	Highest degree	Professional background	Current role	Length of service
<b>The EBPM Idealist</b>	EBPM1 S1	Scottish Parliament	Masters	Civil Service	Civil Service	4.5 Years
	EBMP S7	Academia	PhD	Private Sector, Teaching, Public Sector	Education	20 Years
	EBPM S12	Other	PG Diploma	Housing and Regeneration Practitioner	Arm's length Body	3.5 Years
	EBPM S16	Other	Undergraduate	Education/Local Government	Other	15 Years
	EBPM S18	Other	PhD	Researcher, manager, advisor	Education	Retired
<b>The Pragmatist</b>	PG S10	Scottish Government	Masters	Policy Making	Civil Service	10 Years
	PG S2	Academia				
	PG S33	Academia	Masters	Politics	Academia/Third Sector	4 years
	PG S31	Scottish Government	PhD	Academic, then Policy	Civil Service	7.5 Years
	PG S25	Other	Masters	Devolved environmental policy	Third Sector	2 years
	PG S21	Scottish Government	Undergraduate	Policy, TUC	Civil Service	6 Years
	PG S22	UK Government	Masters	Policy, NGO	Education	4 Years
	PG S23	Scottish Parliament	Masters	Clerk	Politics	24 Years
	PG S15	Other	PHD	Academia	Education	18 Months
	<b>The Inclusive</b>	INC S8	Scottish Government	PhD	Research in Government	Civil Service
INC S9		Scottish Parliament	Masters	Policing, Academia, Politics	Politics	4 Years
INC S30		Scottish Parliament	BSc	IT, Politics	Politics	12 Years
INC S32		Scottish Parliament	Undergraduate	Accountancy/Politics	Politics	12 years

	INC S27	Other	PG Diploma	Economic Research, Scottish Futures Trust	Civil Service	18 Months
	INC S24	Other	PhD	Policy, Academia	Third Sector/Think Tank	2 Years
	INC S4	Other				
<b>The Political</b>	POL S1	Academia	PhD	Academia, policy and NHS	Education	17 years
	POL S14	Other	PhD	Healthcare Professional Academic Research	Other	4 Years
	POL S17	Other	PG Diploma	Local Government, Local Authorities	Arm's length Body	7 Years
	POL S29	Scottish Government	Masters	Health services, local government, and national government	Civil Service	4 years
	POL S19	Other	Masters	Research	Civil Service	8 Years
	POL S5	Academia	PhD	Academic and a social scientist	Education	4 years

### Appendix 3: List of participants – Welsh Study (MacKillop and Downe, 2023)

Factor array	Participant	Organisation	Highest degree	Professional background	Current role	Length of service
<b>The EBPM Idealist</b>	EBPM W6	Other	PhD (Hon)	Education & Policy	Other	1
	EBPM W7	Other	PG	Academia, Business & Policy	Other	3.5
	EBPM W9	Other	MD	Medicine	Other	4
	EBPM W10	WG	Masters	Analytics	Civil service	3
	EBPM W11	Senedd	Masters	Academia	Politics	10
	EBPM W13	Senedd	PG	Medicine	Politics	16
	EBPM W15	LG	Masters	Statistics & Finance	Civil service	8
	EBPM W18	Senedd	Masters	Academia & Politics	Politics	20
	EBPM W19	Other public body	PG	Teaching & Policing	Other	1
	EBPM W28	WG	Masters	Economics	Civil service	15
	EBPM W30	WG	Masters	Academia & Policy	Civil service	8
	EBPM W33	Academia	Masters	Law & Politics	Academia & Other	2

<b>The Pragmatist</b>	P W3	Academia	PhD	Academia	Other	12
	P W12	Senedd	Degree	HR & LG	Other	12
	P W14	Third sector	Degree	Policy & Trade body	Other	7
	P W29	WG	Degree	Economics	Civil service	15
	P W32	None	Masters	Academia and Policy	Politics	11
<b>The Inclusive</b>	AE W4	Third sector	Apprenticeship	Engineering	Other	15
	AE W16	Business	Degree	Policy	Other: Business, Education & Charity	3
	AE W25	WG	Degree	Policy & Law	Civil service	5
	AE W26	WG	Degree	Policy & Civil service	Civil service	30
	AE W31	WG	Masters	Civil service & Policy	Civil service	15
	AE W34	WG	PhD	Policy & Civil service	Civil service	20
<b>The Political</b>	POL W1	Research	Degree	Charity & Academia	Research	3
	POL W5	Third sector	Degree	Policy	Trade body & Policy	3
	POL W20	WG	Masters	Research & Policy	Civil service	20
	POL W22	Other public body	PhD	Practice & Academia	Other	6

#### Appendix 4: 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?

Thank you for taking the time to fill in this questionnaire. Please hand it over to a member of the research team.



**Appendix 5: Factor interpretation crib sheet comparing EBPM in Scotland and Wales  
(based on Stenner and Watts, 2012)**

	<u>Wales</u>	<u>Scotland</u>
<b>Items ranked at +4 (strongly agree)</b>	Evidence must be rigorous, clear and well-presented. Policy-makers have a responsibility to use evidence in an impartial way.	It is important to explain what we mean by evidence. Policy-makers have a responsibility to use evidence in an impartial way.
<b>Items ranked higher in EBPM array than in any factor array</b>	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)	Evidence is what helps to answer a policy question (+2) Quantitative evidence is the most important evidence (-1) Evidence must be rigorous, clear and well-presented (+3) Evidence should be systematically generated and drawn from a wide range of studies (+3) Randomised controlled trials (RCTs) are the gold standard of evidence (+1) Evidence should be rigorously tested and capable of replication (+2) Evidence can offer objective solutions to political problems (+2) Evidence should be underpinned by research (+3)
<b>Items ranked lower in EBPM than any other factor array</b>	Who decides what counts as evidence is important (-1) What is evidence depends on what we want to know and for what specific purpose (0) What counts as evidence varies between professions (0) Evidence is political in the way it is articulated (-2) Some types of evidence are considered more valid than others (+1) What counts as evidence reflects power relations (-1) Evidence comes from talking to experts (-2) There is not always clear evidence about what works on an issue (1)	Who decides what counts as evidence is important (-1) What is evidence depends on what we want to know and for what specific purpose (0) What counts as evidence varies between professions (0) Evidence is political in the way it is articulated (-2) Some types of evidence are considered more valid than others (+1) What counts as evidence reflects power relations (-1) Evidence comes from talking to experts (-2) There is not always clear evidence about what works on an issue (1)
<b>Items ranked at -4 (strongly disagree)</b>	Evidence is a luxury nowadays. If something gets repeated enough, it can be treated as evidence	Evidence is a luxury nowadays. If something gets repeated enough, it can be treated as evidence

**Appendix 6: Factor arrays of the four Scottish profiles (based on Stenner and Watts, 2012)**

No.	Statement	Pragmatist	EBPM	Inclusive	Political
1	Evidence is anything that helps draw a rich picture of an issue	0	2	2	3
2	Evidence is what helps to answer a policy question	-1	2	0	1
3	Quantitative evidence is the most important evidence	-2	-1	-3	-4
4	Evidence must be rigorous, clear and well-presented	0	3	-1	0
5	Individual stories should count as evidence	1	1	2	4
6	Evidence should be systematically generated and drawn from a wide range of studies	0	3	1	0
7	It is important to explain what we mean by evidence	2	4	1	2
8	Who decides what counts as evidence is important	3	-1	3	0
9	Evidence should include professional judgement	0	0	1	1
10	Evidence is what can be counted and measured	-2	-2	-2	-3
11	There is agreement over what constitutes rigorous evidence	-2	-2	-2	-2
12	If something gets repeated enough, it can be treated as evidence	-3	-4	-3	0
13	What counts as evidence is what works	-2	-1	-2	-1
14	Evidence is any observation that supports a proposition	-1	-2	-1	-1
15	What is evidence depends on what we want to know and for what specific purpose	2	0	4	1
16	What counts as evidence will depend on the policy area	1	1	2	1
17	All evidence in the policy process is equal	-4	-3	-2	-1
18	What counts as evidence varies between professions	2	0	3	2
19	Randomised controlled trials (RCTs) are the gold standard of evidence	0	1	-1	-3
20	Evidence should be rigorously tested and capable of replication	-1	2	0	-3
21	Evidence can offer objective solutions to political problems	1	2	1	-2
22	Evidence should be underpinned by research	1	3	-1	-1
23	Science is not perfect but it is the best mechanism we have for generating evidence	2	2	0	-2
24	There is a need for a hierarchy of evidence	0	0	0	-4
25	Policy-makers have a responsibility to use evidence in an impartial way	-1	4	2	-1

26	Evidence is what policy officials and Ministers see as acceptable	-3	-3	-3	0
27	Evidence is political in the way it is articulated	3	-2	0	2
28	Some types of evidence are considered more valid than others	3	1	2	2
29	What counts as evidence reflects power relations	2	-1	0	4
30	Evidence needs to be actionable	-2	0	-2	1
31	Evidence just needs to be good enough for the purpose	0	0	0	0
32	Evidence comes from talking to experts	-1	-2	0	-1
33	Not all evidence can be measured	1	1	3	2
34	Policy-makers and researchers disagree over what counts as evidence	1	0	1	0
35	The sum of evidence on a particular topic is necessarily complex	-1	0	1	1
36	There is not always clear evidence about what works on an issue	4	1	4	3
37	It is difficult to evaluate the quality of evidence	0	-1	-1	0
38	Evidence is a luxury nowadays	-3	-4	-4	-2
39	Evidence is always going to be contested	4	-1	-1	3
40	Evidence is just a box that needs ticking for policy-makers	-4	-3	-4	-2

## Appendix 7: Factor Characteristics

Factor Characteristics	Pragmatist	EBPM	Inclusive	Political
No. of Defining Variables	9	5	7	6
Avg. Rel. Coef.	0.8	0.8	0.8	0.8
Composite Reliability	0.973	0.952	0.966	0.96
S.E. of Factor Z-scores	0.164	0.219	0.184	0.2

## Appendix 8: Factor Score Correlations

	Pragmatist	EBPM	Inclusive	Political
Pragmatist	<b>1</b>	0.5149	0.7159	0.6119
EBPM	0.5149	<b>1</b>	0.5826	0.1558
Inclusive	0.7159	0.5826	<b>1</b>	0.5593
Political	0.6119	0.1558	0.5593	<b>1</b>

## Appendix 9: Factor Loadings

(N.B where \* indicates a Q Sort loading onto each factor)

Q sort	Pragmatist	EBPM	Inclusive	Political
Q1	0.263	-0.1286	0.052	0.7369*
Q2	0.4739*	0.1532	0.3905	0.3094
Q3	0.3943	0.2007	0.3199	0.3743
Q4	0.4379	0.1682	0.5163*	0.323
Q5	0.253	-0.0809	0.2275	0.7688*
Q6	0.2654	0.1049	0.4543	0.464
Q7	0.2242	0.8651*	0.2164	0.1108
Q8	0.2549	0.2705	0.5025*	0.0381
Q9	0.1276	0.2876	0.681*	0.3258
Q10	0.5464*	0.3076	0.2313	0.2363
Q11	0.2069	0.4973*	0.3751	0.3637
Q12	0.0127	0.8298*	0.1042	-0.1897
Q13	0.4866	0.2241	0.2526	0.404
Q14	0.1046	0.1628	0.3706	0.5344*
Q15	0.6219*	0.1748	0.2397	0.0913
Q16	0.3202	0.6582*	0.349	-0.194

Q17	0.0841	0.0151	0.1232	0.7166*
Q18	0.1472	0.6115*	0.4877	0.0341
Q19	0.3179	0.3671	0.3268	0.4871*
Q20	0.2581	0.4503	0.2671	0.2458
Q21	0.5239*	0.1483	0.2699	0.3603
Q22	0.5619*	0.3358	0.1742	0.3086
Q23	0.6375*	0.0369	0.2333	0.378
Q24	0.3781	0.3614	0.439*	0.2011
Q25	0.4355*	0.3256	-0.0455	0.1566
Q26	0.1727	0.2487	0.2891	0.329
Q27	0.2039	0.3239	0.6379*	0.303
Q28	0.1574	0.4219	-0.0448	0.1862
Q29	0.328	0.0564	0.2105	0.4155*
Q30	0.284	0.1308	0.5932*	0.1638
Q31	0.5345*	0.3326	0.3814	-0.0702
Q32	0.2994	0.0928	0.8087*	0.2289
Q33	0.5541*	-0.0553	0.2676	0.3171