

DATA USE IN EVIDENCE-INFORMED POLICYMAKING (EIPM) AS A TEACHING SUBJECT: CHALLENGES AND PITFALLS

Igor Tkalec and Gaby Umbach

Robert Schuman Centre for Advanced Studies, European University Institute

Gaby.Umbach@eui.eu

This article examines evidence-informed policymaking from a teaching perspective. It especially focuses on data use within it. Based on the authors' practical experience, the article proposes a conceptual frame for designing teaching materials anchored in three dimensions: acquiring/possessing (data literacy) skills, understanding the benefits of evidence-informed policymaking, and creating channels for evidence-informed policymaking implementation. Moreover, it outlines challenges and pitfalls in developing such learning materials for data-driven evidence-informed policymaking. The findings suggest that the inherent weakness of evidence-informed policymaking understood as an approach to policymaking, i.e., its conceptual ambiguity, also influences the development of data-focused evidence-informed policymaking learning materials.

INTRODUCTION

The success of policymaking requires those involved in policy support and advice to manage different forms of knowledge and skills. In such processes, reliable information plays a vital role, and data take over important functions in policy design and implementation. This paper discusses a tangible way in which such data-related skills may be obtained, notably by examining evidence-informed policymaking (EIPM) as a teaching subject. Existing literature that specifically examines EIPM as a teaching subject is scarce. On related topics, for instance, Brown, Schildkamp, and Hubers (2017) discuss how data-based decision making and research-informed teaching practice can improve teachers and schools, and Brown (2014) elaborates ways to advance policymakers' expertise through usage of evidence in educational policy. Hence, a nuanced focus on teaching EIPM in this article potentially stimulates scholars to engage in further academic appraisals of such topic.

The aim of the article is to detect topic-specific challenges and pitfalls in the process of developing EIPM learning materials based on our practical experience. Both challenges and pitfalls build on the inherent complexity of EIPM in terms of its implementation in a policy process. We frame the analysis into a model of behavioural change that consists of *capability*, *motivation*, and *opportunity* components. The model is adapted to an EIPM teaching and learning environment in which the components translate into what we deem as teaching dimensions of EIPM: *skills*, *benefits*, and *channels*, respectively.

The article is structured as follows. First, we introduce EIPM as an approach to policymaking and outline its weaknesses. We then briefly reflect on increased demand of EIPM as a teaching subject, notably in the context of data literacy. Subsequently, we depict the analytical framework for the analysis. Prior to concluding remarks, we elaborate on concrete challenges and pitfalls in developing EIPM learning materials.

EVIDENCE-INFORMED POLICYMAKING (EIPM)

EIPM represents a rational and scientifically rigorous approach to policymaking. In its operation, it informs the policymaking process without, yet, affecting objectives of certain policies (Sutcliffe & Court, 2005). The idea that underpins EIPM is that evidence from more rigorous scientific designs better informs policy decisions than from less rigorous designs (La Caze & Colyvan, 2017). Hence, the mission of evidence and data use in EIPM is to justify and support specific policy options and objectives through the rational assessment of available evidence (see Du Toit, 2012 and Marston & Watts, 2003). Types of evidence *inter alia* include abstract, practical, and subjective knowledge (Bannister & O'Sullivan, 2014); judgement (Hammersley, 2005); and experience (Fleming & Rhodes, 2018). The potential utility of scientific evidence and data for policy considers three dimensions: credibility (adequacy of evidence and arguments supported by it), salience (issue relevance and assessment of decision-makers' needs), and legitimacy (respecting stakeholders' often divergent values and beliefs). The three dimensions make "good evidence for policy" (Parkhurst, 2017, p. 107).

Existing empirical analyses of EIPM demonstrate its complexity and, consequently, unravel its weaknesses. For instance, Newman, Cherney, and Head (2017) showed that public administrations tend to be unprepared to engage with various types of evidence, data, and academic research in the Australian context. Moreover, El-Jardali et al. (2014) demonstrate a wide gap between policymakers and the research community in policymaking processes in the East Mediterranean (see Jakobsen et al., 2018 and Kleibrink & Magro, 2018 for further empirical examples).

Uncompelling trends in utilising advantages of EIPM feed into its critique. From a policymaking perspective, Cairney, Oliver, and Wellstead (2016) claim that EIPM is uncertain, ambiguous, and permeated by “bounded rationality” where policymakers cannot consider all available evidence that may inform policy solutions. Similarly, Du Toit (2012) argues that EIPM is anti-democratic and offers inadequate guidance on real purpose of policies. Hence, EIPM is too technical/technocratic. Instead, policymaking processes should foster deliberation, social relations, and inclusiveness (see Gavine et al., 2018 and Head, 2010). From a research perspective, insight from clinical medicine shows that EIPM often suffers from a lack of causal evidence and non-reliable research (Leuz, 2018). In addition, research concerned with EIPM tends to disregard the (policy) context (see Aro et al., 2008; Asdal & Moser, 2012; and Head, 2016 on the importance of context in EIPM).

Despite its complexities and weaknesses, EIPM has become an integral approach to policymaking especially since the 1990s in the developed world (Solesbury, 2001). International organisations such as the The Organisation for Economic Co-operation and Development (OECD), The United Nations (UN), and The European Union (EU) have had a prominent role in promoting and advocating for EIPM (see OECD, 2020). Hence, arguably, EIPM has become a ‘gold standard’ in public governance notably in normative terms (Walker & Bukhari, 2018). This has increased the need for evidence- and data-literate policymakers and public officials to ensure potential benefits of EIPM (i.e., informing a policy process with [scientific] evidence). Consequently, this has generated the demand for EIPM as a learning and teaching subject. Within it, data literacy is the main criterion to assess stakeholders’ readiness and capabilities, and an essential part of teaching necessary skills for EIPM. For the purpose of this article, we understand data literacy in a narrow sense that focuses on skills (e.g., reading, analysing, managing, and arguing with data) as opposed to a broader understanding that entails societal and political functions of data, the role of data citizenship and corresponding rights, and the political economy of digital platforms (see Data-Pop Alliance & Internews, 2015; Pangrazio & Sefton-Green, 2020; and Umbach, 2022).

Against this backdrop, in the below analysis, we suggest that the complexity of EIPM and its weaknesses are also reflected in developing learning materials for EIPM-focused modules and courses. Moreover, we highlight data literacy as a prerequisite for engaging in substance of EIPM.

ANALYTICAL FRAMEWORK: EIPM AND TEACHING

We align the discussion on developing EIPM learning materials with the notion that behavioral change (of relevant stakeholders involved in EIPM) towards the integration of evidence and data is a pre-requisite for a successful implementation of EIPM. Therefore, we build on a simplified version of the capability, opportunity, motivation-behavior (COM-B) framework (Michie et al., 2011, p. 4) for understanding behavior in order to highlight challenges and pitfalls in developing learning materials. *Capability* (C) is the general capacity of individuals to acquire and apply skills and knowledge. *Motivation* (M) regards emotional responses, habitual processes, and analytical decision making, whereas *opportunity* (O) entails factors outside an individual that make certain types of behavior possible. The interaction between the three components affects behavior (B) and prompts changes therein.

In the present research context, based on their baseline definition, we translate the COM components into an EIPM learning environment, turning the COM model into the SBC model. In this context, *capability* concerns knowledge of research methods and ability to work with data and statistics. Thus, the focal point of the *capability* component is to acquire and possess data-related, EIPM-relevant *skills* (S). *Motivation* involves activities linked to engaging and embracing EIPM in policy design and implementation. In the data-driven EIPM context, this component concerns understanding and acknowledging its *benefits* (B). Finally, *opportunity* reflects communication between science/data and policy communities as this is arguably an external (contextual, non-

individual) factor that potentially inspires behavioural change. Concretely, this concerns detecting and creating *channels* (C) for operationalisation and implementation of data-driven EIPM. For the purpose of this article, each component of the SBC model represents a relevant teaching dimension of data-driven EIPM. Figure 1 summarizes the analytical framework.

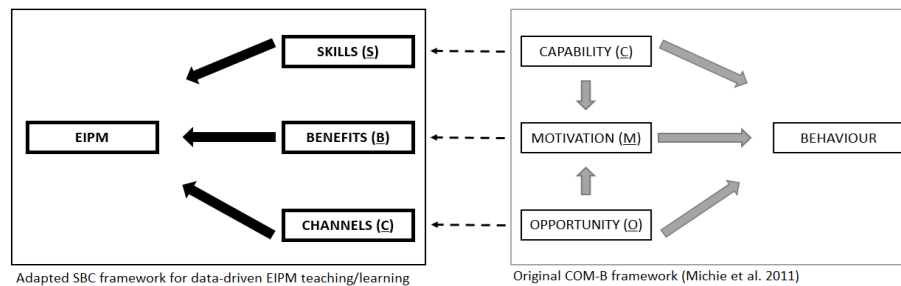


Figure 1. SBC framework for data-driven EIPM teaching/learning. Source: authors

CHALLENGES AND PITFALLS IN DEVELOPING DATA-DRIVEN EIPM LEARNING MATERIALS

For each of the three teaching dimensions, we outline and assess challenges and pitfalls in developing learning materials for data-driven EIPM (see Table 1). It should be noted that the main audience for our development of EIPM learning materials were staff members of an international organization. Regarding the first teaching dimension—acquiring/possessing *skills* (S)—we highlight the identification of the data literacy level of the target group as the main challenge. This is pertinent for tailoring and adjusting the content of learning materials notably along the ‘beginner-advanced’ dimension. In this context, a pertinent pitfall from the teaching perspective is to assume specific and, importantly, consistent levels of data literacy skills across the target group. Instead, while creating learning materials, one may opt for a balanced approach, which discusses content in a gradually ascendant way from beginner to advanced level. Here it is vital to include chapter/section summaries that continuously highlight beginner level content to ensure that those with the relatively least developed skill sets understand the main concepts and ideas. To prevent the data skills pitfall, ideally, a pre-course survey on skills levels should be conducted. For example, the European Commission Joint Research Centre’s (2017) requirements for EIPM data literacy skills may serve as a guideline in creating the pre-course survey. In particular, the synthesizing research cluster that *inter alia* includes skills on meta-analysis, systematic review, experimental methodologies, and thinking ‘out-of-the-box’ may be of particular interest. From a profession perspective, such surveys can be based on (entry-level) job requirements and descriptions for data analyst/scientist positions. Here the focus is on data wrangling and manipulation, predictive analytics, data visualization, and analytical thinking. Overall, in addition to identifying specific skills levels, pre-course surveys ought to include questions on experience with data and data-based projects.

Table 1. Challenges and pitfalls in developing learning materials for data-driven EIPM. Source: authors

EIPM teaching dimension	Challenge	Pitfall
Acquiring/having <i>skills</i> (S)	Level of data-relevant skills	Assuming consistent levels of data skills
Understanding and acknowledging EIPM <i>benefits</i> (B)	Defining EIPM in an operational way	Conceptual ambiguity of EIPM
Detecting and creating <i>channels</i> (C) for implementation of EIPM	Exact contribution of evidence/data in policy design and implementation	Science-policy communication

Within the second teaching dimension—understanding and acknowledging EIPM *benefits* (B)—the main challenge is to argue for a concrete and operational definition of EIPM notably due to its conceptual ambiguity. In this context, having in mind that EIPM has a strong political component (i.e., policymaking processes are inherently political), we aimed to balance the learning materials between what Parkhurst (2017) operationalizes as politicization of a scientific process (misuse of evidence for a political purpose) and depoliticization of the policy process (obfuscating values and beliefs in policymaking). At least from a teaching perspective, this role of politics adds a layer of complexity to EIPM as it is rather difficult to define/illustrate the turning point when evidence is ‘sufficiently politicized’ (i.e., compromising its scientific rigor and objectivity). Moreover, the political nature of EIPM arguably overshadows its benefits in terms of policy design and implementation. Consequently, the main pitfall in this dimension is the conceptual ambiguity and complexity of EIPM. To this end, conceptualizing EIPM ideally ought to be tailored to the context of the targeted audience. For example, if the target audience is from an international organization, the conceptualization of EIPM may be more focused on types of evidence, data and outputs, and/or issue salience instead of, for instance, methodological and scientific design issues. The latter would be more pertinent for an academic and research institution target audience.

The third teaching dimension—detecting and creating *channels* (C)—for the implementation of EIPM raises a crucial challenge notably from the policymaking perspective. The challenge lies in the difficulty to assess to what extent evidence and data have contributed to policy design, implementation, and, importantly, the outcomes. In other words, the challenge is to explain how and where (i.e., in which phase of a policy cycle) a concrete piece or collection of evidence contributed to a policy. This links to data literacy skills (S) and the issue of communication between science and policy communities, both of which should have the same understanding of the purpose of evidence and data in a specific policy as well as of the potential impact of evidence for (ideally) different phases of a policy process. Here, the puzzling part for the policy community can be to read and understand presented evidence/data and its implications, whereas the science community might find it difficult to adapt the utility of evidence and data to policy needs and various policy contexts. Hence, the assumption that science and policy communities necessarily ‘speak the same language’ is the main pitfall in developing learning materials for data-driven EIPM within the third teaching dimension (Hinkel, 2011). The science-policy interface (see Kaaronen, 2016) as a communication link between the two communities, which is ideally rather free of political pressure (Engels, 2005) has the capacity to improve the necessary communication between the two worlds.

CONCLUSION

Building on a model of behavioural change that we deem a pre-requisite for understanding successful data-driven EIPM, we proposed a conceptual SBC framework for conceptualizing learning materials for data-driven EIPM. Moreover, this article gives an overview on challenges and pitfalls in developing such learning materials. The three teaching dimensions of our SBC framework build the focus of reflection—data literacy skills, benefits of EIPM, and channels for EIPM implementation. In sum, challenges and pitfalls in teaching data-driven EIPM have to target its inherent weakness, i.e., its conceptual ambiguity, as an approach to policymaking.

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