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# Using information science to enhance educational preventing violent extremism programs

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## Abstract

Educational preventing violent extremism (EPVE) programs have had (to date) little if any theoretical underpinning. Given their proliferation in jurisdictions such as Canada, Australia, the United Kingdom, and other European countries, such an absence is notable but not unexpected given the political sensitivities attached to them. These programs remain an emerging policy area which is still “finding its feet,” around which their legitimacy and efficacy is keenly debated. This paper argues for adopting theoretical principles drawn from information science research based upon information behavior models to provide a framework for the design and development of such programs and against which their efficacy can be tested. We demonstrate how this approach can be applied through thematic analysis of the theory of change models of EPVE programs implemented in England and Wales, designed to increase awareness and understanding of radicalization among young people, their carers, and professionals. This article is ground breaking and of international significance, being the first to apply learning from information science to practice in furthering policy goals around countering radicalization and extremism in the United Kingdom and other jurisdictions.

## 1 | INTRODUCTION

Countering the threat of terrorism and violent extremism by increasing individuals' understanding of radicalization and extremism is integral to Governments' policy responses in Canada, the United Kingdom, Europe, and Australia (HM Government, 2015; Ministers for the Department of Education, 2016; RCMP, 2017). The rationale for these *educational preventing violent extremism* (EPVE) responses are that “the more aware communities are of potential threats to their security, the more empowered they are to be resilient against it and the better prepared they can be to counter the threats themselves.” (Global Counterterrorism Forum, 2009). To date, there

has been limited examination of these programs' rationale and their efficacy—whether they work or not. For example, Pistone, Eriksson, Beckman, Mattson, and Sager's (2019) review of PVE interventions (more broadly) found few studies have examined outcomes; and of those which did, only two used a control group. Given this knowledge gap, our paper aims to advance the evidence base around EPVE programs by arguing that their design and delivery would be enhanced by a theoretical understanding about how the connections between knowledge, cognition, metacognition, and behavior (especially information behavior work). We turn to information science research, specifically *information discernment* (ID) to understand how these factors combine to improve

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individuals' ability to make well-calibrated judgments about the information they encounter (Walton, 2017; Walton, Barker, Pointon, Turner, & Wilkinson, 2018; Walton & Hepworth, 2011; Walton & Hepworth, 2013; Walton, Pickard, & Dodd, 2018). As noted by Estabrook et al. (2006, p. 25), "Theory is needed in the knowledge translation field...to develop testable and probably useful interventions." It is in the interests of governments and the public that EPVE programs receive such scrutiny. Furthermore, public understanding of their rationale and how they work may address resistance where these programs are viewed as unwarranted state control and/or stigmatizing of groups within society. Such transparency would support the legitimacy required to generate public support and cooperation as indicated in the procedural justice literature (Hough, Jackson, & Bradford, 2013; Tyler, 2010).

We commence our paper by examining the rationale for EPVE programs internationally and their implementation in the United Kingdom. We situate ID and its antecedent information behavior (Hepworth, 2004; Walton & Hepworth, 2011, 2013) within the discipline of information science. We then explain our application of ID as the framework for thematic analysis (Braun & Clarke, 2006, 2013; Swain, 2018) of the theory of change (TOC) models (Vogel, 2012; Weiss, 1995) of EPVE programs delivered by UK civil society organizations (CSOs). We follow this with the findings: the alignment/nonalignment between the EPVE program theories and ID. We discuss how and in what ways ID can improve the design and implementation of EPVE programs in the United Kingdom and internationally; and how ID can enhance their legitimacy. We conclude by proposing that ID can be transformative in offering a testable and defensible purpose for EPVE programs.

## 2 | THE RATIONALE FOR EPVE PROGRAMS

PVE policies argue for educational programs that increase individuals' awareness of the threat of violent extremism and avenues for help; risk factors that may indicate future violent extremism; and counter-violent extremism policies and activities (Radicalisation Awareness Network, 2019). Importantly, these EPVE programs are *not aimed* at those involved in violent extremism or at heightened risk. They are intended as a primary response (see Bjørge 2013, p. 10, Harris-Hogan et al. 2013) akin to a public health campaign. Assessing their effectiveness is important—given that people will avoid health information or treat it passively, even when beneficial (Case & Given, 2016); the same response could apply to EPVE programs.

Examples of such programs can be found in Australia's *Living Safe Together* program; Canada's *Awareness Guide* (RCMP, 2017); and within the United Nation (UN) and European Union's guidance (Radicalisation Awareness Network, 2019). These EPVE activities parallel how people are "taught to spot signs of drug use, depression, sexual abuse and criminal behaviour" (Green and Proctor 2016, p. 38). There are generally two audiences for EPVE programs: *professionals* and *nonprofessionals*. Illustrated by the UK's *Prevent* duty—professionals including: teachers, youth workers, social workers, lecturers, and the police are required to "demonstrate an awareness and understanding of the risk of radicalisation" and "know what measures are available to prevent people from becoming drawn into terrorism and how to challenge the [associated] extremist ideology" (Home Office, 2019). Huge numbers of these professionals have met this duty by undertaking on-line EPVE training programs. In the United Kingdom, this is augmented in "priority" local authorities with government funding for additional EPVE programs delivered by CSOs. These organizations are regarded by the Government as having a key role to play in countering the threat of terrorism (Home Office, 2018)—in part because the programs are delivered by CSOs and not a government agency. They are intended to work in two ways. Firstly, by increasing individuals' understanding of radicalization—increasing their knowledge and awareness of the causes and signs of radicalization, and the appropriate support and actions that they should take. Secondly, by increasing participants' resilience to radicalization, through the development of critical thinking skills in response to potential misinformation. Commissioned by local Prevent Coordinators, using Home Office funding, the audience for these programs have included *nonprofessionals*: school age children and their parents/carers; as well as teachers, social workers, and youth workers. It is the TOC models of these local EPVE programs that we consider later on, examined through the lens of information science.

EPVE programs (in the United Kingdom and other jurisdictions) have a mixture of provenances: adaptations or extensions of training and education used for bullying, addiction, low self-confidence, and online safety; and others better conceptualized as citizenship education, focusing on democracy, conflict, and identity (see Mattson, Hammaren, & Odenbring, 2016). In the United Kingdom, the latter have previously addressed violent extremism where political violence and side-taking (notably in Northern Ireland and the far-right in England) has been a concern. Additionally, newer projects have been developed, often by social entrepreneurs with a Muslim background, which begin with concerns for Muslim people and their particular experiences and problems.

What are the rationales for the EPVE programs as applied to the parent/carers and professionals? Firstly, straightforward education about threat and indicators can *motivate* an awareness response. Secondly, once awareness is raised individuals are better able to identify risks and *report* the risks to the responsible authorities: conditional on awareness of *and* trust in those authorities (Thomas, Grossman, Miah, & Christmann, 2017). Thirdly, that the trust in responsible authorities is predicated on them acting “fairly” to such reports; that reporting will not lead to an over-reaction from the authorities, driven, for example, by Islamophobia—perhaps the most common criticism of EPVE programs in the United Kingdom and in other jurisdictions (Cohen & Tufail, 2017). To counter the latter concern, some EPVE programs emphasize that political violence and terrorism has more than one “source” (HM Government, 2015; RCMP, 2017): thereby aiming to generate knowledge of *the range of potential risks* and to demonstrate that the state is not merely reproducing anti-Islamic tropes. A final rationale, is that the EPVE programs themselves are a demonstration that something is being done—to raise the awareness of nonprofessionals and professionals—the performativity of the programs.

And the rationale for targeting school children? This appears principally to be a policy response to the *stochastic terrorism* hypothesis as epitomized by Hamm and Spaaij (2017) but in the United Kingdom tempered by resource rationing. The hypothesis is that risk of radicalization—as a response to online and offline information—is spread, albeit unevenly, throughout society, and therefore EPVE programs which raises awareness of this risk is of benefit to everyone and can be used as a primary intervention. The logical response to this hypothesis would therefore be that everyone should receive an EPVE intervention. However, resource constraints dictates that this is not feasible, therefore as implemented in the United Kingdom—given the uneven spread of risk—programs are doubly targeted: at school populations that are deemed to be more at risk of radicalization—and which are located in the priority local authorities (as identified by government) where radicalization is more likely to occur.

How are EPVE programs intended to work with these “at risk” school populations? They are predicated on a conceptualization that there are individuals within all school populations that have a risk of future violence (Logan & Lloyd, 2018), however, small this risk may be. As this potential risk exists this means doing something—even if this is as small as extra school lessons devoted to PVE—for those school populations judged to have individuals with a higher probability of crossing a line to illegal activity, without knowing that they actually

will. Of course, this is problematic. Even if the EPVE interventions work at an aggregate level, with changes in attitudes among school populations leading to lower future involvement in extremist violence, this can still mean unintended negative consequences with this kind of targeting generating a large number of false positives of individuals who would not have been involved in extremism regardless of the intervention. Belief in the occurrence of false positives within (largely Muslim) communities who perceive themselves to be targeted by EPVE programs and government policy can impact on their perceptions of trust and fairness (Pantazis & Pemberton, 2009). Recognizing this, most EPVE programs contain an element of “myth busting” as a key part of awareness work, with the stereotype of “terrorist = Muslim” and “state = Islamophobia” being challenged by appropriate messaging. It remains, however, that EPVE programs are not universal to all school children and all parents/carers. This means that they have the potential to produce inequalities, including potential stigmatization, a sense of overpolicing and “self-censoring” (Rights Watch, 2016), and in the worst case scenario can create extremists where there were none. This adds weight to the need to better understand the effectiveness of EPVE programs: how they work, in what ways and for whom (Pawson and Tilley 1997). We turn next to information science to provide a theoretical framework that we propose can facilitate this evaluative purpose.

### 3 | WHY INFORMATION SCIENCE?

Information science concerns itself with the social, psychological, behavioral, and information source aspects of how information is encountered, processed, and used. It has the potential to address the theoretical and conceptual gap in EPVE programs as it aims to understand the factors necessary to improve individuals’ engagement with information. Applied to the systematic design and implementation of the type of EPVE programs considered in this study, we argue that its subdiscipline—*information behavior* offers the most potential to: improve their design, implementation and efficacy testing.

However, before we explore this further, we want to acknowledge that other disciplines have a potential role also in considering the informational aspects of EPVE programs. To illustrate from psychological and religious studies, researchers identify “integrative complexity” (Liht & Savage, 2013) and religious and cultural literacy (Halafoff, Lam, & Bouma, 2019; Miller, 2013) as components of EPVE programs. Education researchers, Jerome et al. (2019, p. 281) found “unintended negative side-

effects” [of EPVE programs] but also that school teachers could enact policies that could mitigate them. Thomas (2010) has observed that information in the form of EPVE programs can be seen as an attempt to engineer “value changes” within Muslim communities. These are all valid perspectives, however, given that the type of EPVE programs in our study aim to use information and education to counter propaganda, we argue that is apt to apply information science to understand their logics as well as in parallel to use information science to understand how propaganda and fake news work (see Vamanu, 2019).

Within information science itself, there are many perspectives that have the potential to address the antecedents of extremism. Machine learning or artificial intelligence (Ferrara, Wang, Varoly, Alessandro Flammini, & Aram Galstyan, 2016) has been used to identify misinformation and can assist but not replace human judgments about whether news information is credible (Rubin, 2019). However, algorithms themselves show bias, such as racial bias in health settings (Obermeyer, Powers, Vogeli, & Mullainathan, 2019); and their permeation of social media have spurred calls for students to learn how extremism is mainstreamed through these technological workings (Head, Fister, & MacMillan, 2020). The human aspects of the face-to-face EPVE programs analyzed in this study lead us to consider models of human information behavior rather than of automated solutions.

Models within the information behavior umbrella and which potentially fit this purpose are numerous. Case and Given (2016, p. 144) note that “dozens of information seeking models have been published over the last 6 decades.” Space precludes analyzing each in detail for this paper. Instead, we consider two models that offer the best fit for our study. Both have been applied in real settings and combine a large number of previous information behavior models, theory and research while also drawing on theory and research from other disciplines. One model combines information behavior with communication theory in the Information Seeking and Communication Model (ISCM) (Robson & Robinson, 2013, 2015). The other now known as ID has integrated information behavior with learning theory, information literacy (Walton & Hepworth, 2011, 2013), and cognitive psychology (Walton, 2017; Walton, Pickard, & Dodd, 2018).

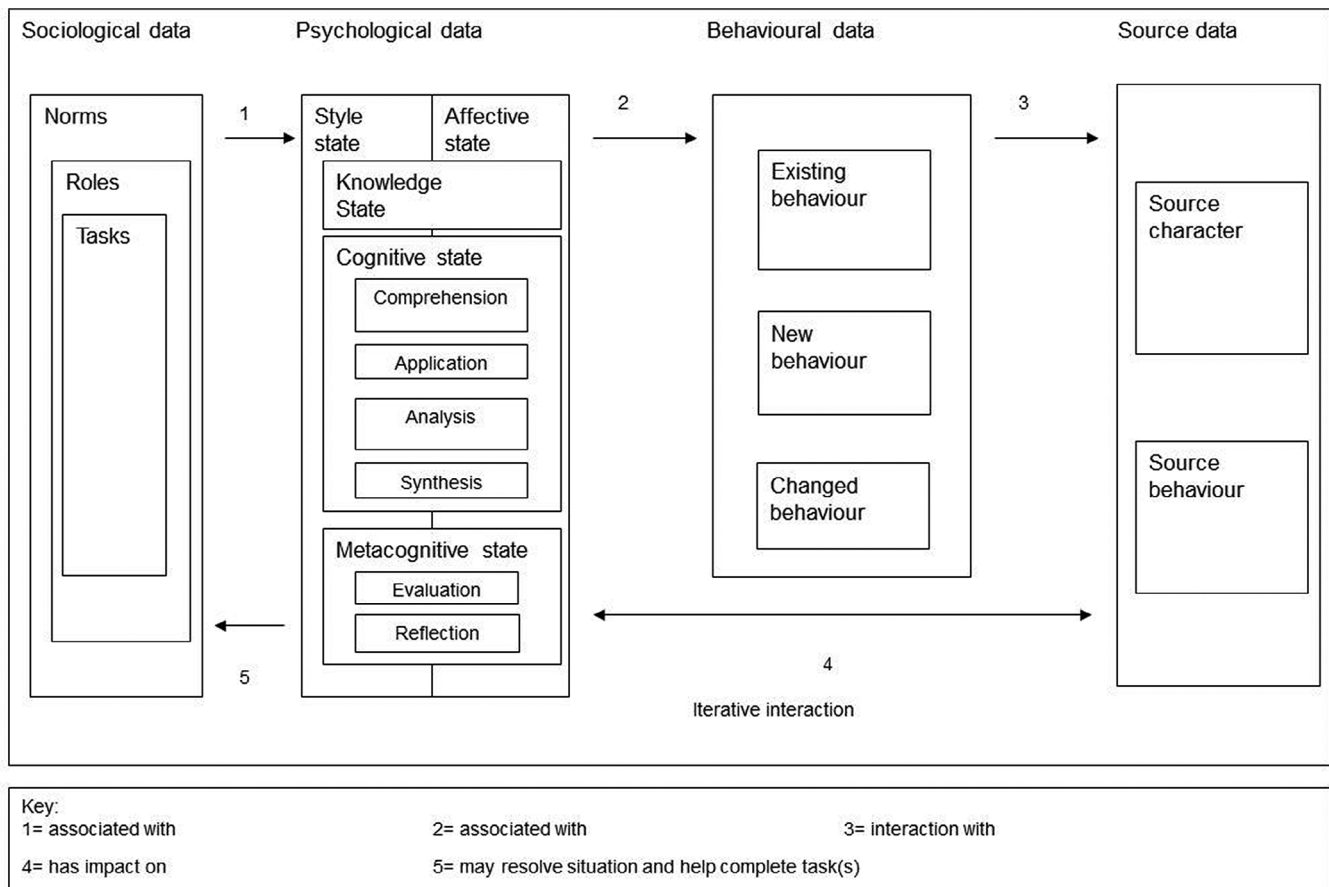
Both models identify contextual factors from Wilson’s (1999) notion of person-in-context and Kuhlthau’s (1991) work on uncertainty and affective dimensions. The nature of the information provider (person, organization or system) is also analyzed in both models and how this interaction between person and source is a two-way process. Cognitive factors feature heavily in ISCM and ID

especially in analyzing the process of making judgments about information. However, it is the ID model that provides a nuanced examination of this process by drawing on Bloom, Engelhart, Furst, Krathwohl, and Hill’s (1956) taxonomy of learning goals and notions of metacognition. ID is very sensitive to the process of making judgments about the credibility of sources but is less sensitive to risk factors and cognitive dissonance highlighted by ISCM. Self-efficacy and motivation are also features of both models. ID also has a more articulated explanation of the notion of worldview and how that underpins a range of cognitive processes which affect the ways in which people make judgments about information. A factor that is an important consideration for EPVE programs.

The ID model is based originally on Hepworth’s information behavior model which emerged from research on informal carers (Hepworth, 2004) and itself draws upon previous information behavior, theory, models and research including the following examples which is not an exhaustive list: Kuhlthau (1991); Wilson (1999); Nicholas (2000); Spink, Wolfram, Jansen, and Saracevic (2001). The ID model has been developed into a framework for educational contexts, used, and verified in the analysis of first year undergraduates’ approaches to making judgments about information for use in an assignment (Walton & Hepworth, 2011, 2013). Significantly for EPVE programs—the subject of this paper—Walton, Pickard, and Dodd (2018) also found that a person’s ID is malleable and open to change. This important factor is not an aspect examined in the ISCM. Through training, 16–17-year-old school students’ initial lack of ID—who approached information in a trusting fashion; for example, using internet resources without regard to their provenance or quality (Walton, Pickard, & Dodd, 2018), could be enabled to adopt a cognitive questioning state, improving how they made judgments about the information they received (Walton & Hepworth, 2011). It is our contention that the ID framework presented in Figure 1. (Walton, 2017, p. 139) applied to the type of EPVE programs examined in this study (which target school children, their parents, and professionals) is best placed to: enable policy makers and practitioners to understand the psychological, behavioral, sociological, and system factors at play in raising the awareness of individuals’ understanding of radicalization and extremism; and how they may be addressed to improve people’s ability to make well-calibrated judgments.

In their simplest form, EPVE programs provide information in order to raise awareness of radicalization and extremism, however, the mediation of this is not wholly straightforward. According to Walton (2017, p. 139) ID posits that, “a range of norms, roles and tasks contextualise and shape a person’s interaction with



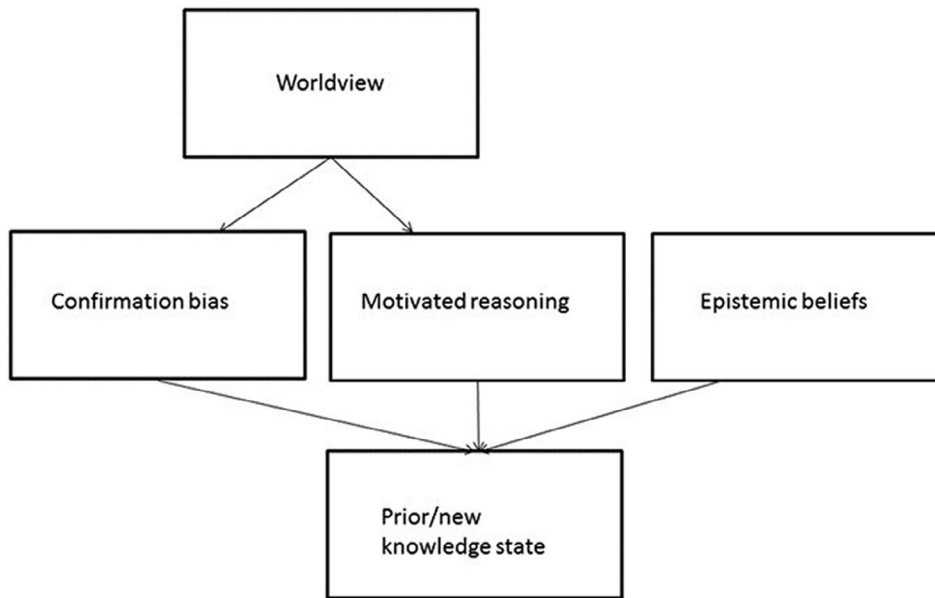


**FIGURE 1** Information discernment framework (Walton, 2017, p. 139, adapted from Walton and Hepworth's information literacy behavior model; Walton & Hepworth, 2011, p. 470, itself based upon Hepworth, 2004, p. 705)

information sources. This process is associated with different psychological states which have an impact on information behaviour and which are, in turn, moderated by the affordances (character and behaviour) of the information sources that they used." These interactions occur recursively and may enable the completion of a task. The *norms* that shape the way in which information is received could be the environment in which the learning takes place, for example a school. The *roles* that of school pupil and the *tasks* that of attending an interactive workshop by an external agency. As a consequence of the information content and how it is received and in what context, new and/or a change in behavior may occur after undergoing a *cognitive process* which may involve experiencing a new *knowledge state* after combining new with existing knowledge. A *metacognitive state* could also be reached where individuals not only evaluate the information received through the intervention but apply this more broadly to other information that they are exposed to. Underpinning these cognitive and metacognitive states are *style state* (including an individual's self-efficacy and motivation) and *affective state* (emotions) which also

play a key role in the learning process. For example, enjoying the activity (affective state) and liking its interactive nature (a positive style state).

The framework has been further enhanced with recent research which provides an articulation of the "prior/new knowledge state" (Walton, 2017; Walton, Barker, et al., 2018) illustrated in Figure 2. The importance of worldview in underpinning prior knowledge cannot be understated and has a strong effect on shaping beliefs. Kahan et al. (2012) found that very able scientists' views of climate change are shaped by their political leanings, not by their scientific knowledge—with Democrat scientists accepting man made climate change whereas Republican scientists tended to be climate change skeptics. This underpins other behaviors such as motivated reasoning where people will tend to seek out the information, which supports their worldview. Finally, the third factor that may shape worldview is that of "epistemic beliefs" where, according to (Trevors, Muis, Pekrun, Sinatra, & Muijselaar, 2017), people divide into two camps: those that are comfortable with encountering contradictory information, and those who become



**FIGURE 2** “Articulation” of knowledge state (Walton, 2017, p. 150)

anxious in the face of contradictory information and believe knowledge is constituted of immutable facts to be digested and learnt.

Adopting the ID model for this study does not suggest that it is to be held up as the gold standard. On the contrary, it is put forward in the spirit of Robson and Robinson’s (2015) argument that information behavior models should incorporate developments and observations from previous models, to test their utility in different contexts. This research sets out to achieve this incorporation and testing by analyzing the specific context of selected EPVE programs. Furthermore, in building on this previous research, it responds to the criticism noted by Robson and Robinson (2015, p. 1043) that “research in library and information science often fails to build on previous research and that it has little practical usefulness.”

#### 4 | METHODOLOGY

The ID framework devised by Walton and Hepworth (2013) and Walton (2017) was used to undertake a thematic secondary analysis of qualitative data (Braun & Clarke, 2006, 2013; Clarke & Braun, 2013; Guest, MacQueen, & Namey, 2012; Joffe, 2011; Swain, 2018) of the TOC models (Stein & Valters, 2012; Vogel, 2012; Weiss, 1995) of a purposive sample of EPVE programs delivered by UK CSOs. In effect, it provides a checklist of factors for coding and analysis.

An interpretivist approach (Robson, 2002<sup>1</sup>) was used to explore the socially constructed meanings of the programs realized through a secondary analysis of qualitative data using predetermined categories in a systematic

and replicable fashion. Secondary analysis is defined as, “any further analysis of an existing data set which presents interpretations, conclusions or knowledge additional to, or different from those presented in the first report” (Hakim, 1982, quoted in Robson, 2002, p. 360). The advantage being that this approach enables the researchers to concentrate on analysis and interpretation (Robson, 2002). There are some disadvantages; the data were gathered for different purposes and lack of an insider’s understanding of the data (Bryman, 2016). Nevertheless, this study provides a new opportunity to investigate hitherto underexplored aspects of the data. As well as rich descriptions gleaned from TOC documents, the number of occurrences of particular themes was also captured and tabulated. Maxwell (2010, p. 480) argues that “the use of numbers is a legitimate and valuable strategy for qualitative researchers when it is used as a complement to an overall process orientation to the research ... [and] does not inherently make the research a mixed method study.” As also noted by Maxwell (2010, p. 478), this use of basic statistics enables the researcher to “correctly characterise the diversity of actions, perceptions or beliefs in the setting or group studied.”

The data for this analysis was devised during an evaluation of EPVE programs which aimed to increase individual’s awareness of radicalization and extremism. As stated earlier, these EPVE programs *are not intended* for individuals involved in violent extremism or at heightened risk. Data collection and analysis for the TOC models occurred in 2017. Documents describing the programs, delivery and intended outcomes, and interview data from program devisers and delivery staff were analyzed thematically (Ritchie and Spencer 1994) based on the context–mechanism–outcome approach (Pawson and

**TABLE 1** Thematic analysis of the theory of change models of preventing violent extremism (PVE) programs using the information discernment framework (Walton, 2017; Walton & Hepworth, 2011, 2013)

Data	Themes	Program					
		A	B	C	D	E	F
Sociological	Norms	10		4	3	1	1
	Roles	4	1	3	3	2	1
	Tasks	1					1
Psychological	Existing knowledge		1	1			
	New knowledge	1	1	1	1		2
	Worldview	2			1	2	3
	Epistemic beliefs						
	Motivated reasoning		1				
	Confirmation bias						
	Comprehension	8	6	11	3		6
	Application	2	3	5	2		5
	Analysis	2	3	4	2		3
	Synthesis	2	2	1	1		
	Metacognition (reflection/evaluation)	1	1	1			3
	Affective	3	2	3	1		3
	Style	4	2	4	2	2	4
Behavioral	Existing behavior				1		
	New behavior	6	5	9	2	1	
	Changed behavior	2		2			
Source	Source character	2	2	2		1	2
	Source behavior	5	3	4	6	5	2

Tilley, 1997) to understand how the delivery models were intended to work. The devised TOC models were then validated by the projects. A summary of the delivery models delivered by the five CSOs and one public authority and their target groups is presented in Appendix. These programs were primarily short (1–2 hr) one-off interventions for primary and secondary school children, and parents. One-off sessions lasting from a few hours to a full day were developed for professionals: teachers, youth workers, and social workers. An exception among the sampled programs was one multisession course targeted at Muslim carers of children.

The methodology for the content analysis was limited by the original sampling from the TOC evaluation. They were selected by the commissioner of the evaluation and the programs as being representative of such programs. While it was not possible to verify this representativeness, the sample nevertheless appeared to typify the target audiences and types of activity covered by EPVE programs. As defined by the Home Office (2018), this included understanding what radicalization means, why people may be vulnerable to being drawn into terrorism and the potential consequences of radicalization; what extremism means; how this can potentially manifest into

terrorism; what measures are available to prevent people from being drawn into terrorism; and how to challenge the extremist ideologies that are associated with it. The delivery models examined in this study were intended to address some or all of these outcomes.

## 4.1 | Findings

The results from the thematic analysis are summarized in Table 1. Applying Walton and Hepworth's (2011, 2013) ID framework amended (Walton, 2017), the instances of each ID theme identified in the TOC model for the EPVE program are enumerated in each cell. Numerated cells denote at least one instance of the theme, and shaded cells denote that no instances of the theme was identified in the program's TOC model. The findings are presented below by data type: *social*, *psychological*, *behavioral*, and *source*.

## 4.2 | Sociological data

*Norms* (Hepworth, 2004) represent the boundaries of the context shaping how people act in a group situation. All



but one of the EPVE programs (excluding B) alluded to norms in their TOC models. This featured significantly in A (occurring on 10 occasions) identified as: “Participants understand relationship between ‘British values’ and community cohesion” (A), “Participants appreciate the appeal of group membership” (A), “school’s behavior management systems” (A), and “reward and sanction systems” (A).

*Roles* (Hepworth, 2004) denotes the “person-in-context” (Wilson, 1999) in which an individual finds themselves. In the context of the sampled programs, instances which shows the person as a pupil, parent, teacher, or trainer. All of the program’s TOC models identified roles in some form, with A, C, and D demonstrating the most frequent occurrences. This was mentioned in numerous ways including: “female carers” (C), “their [parents] role as safeguarding agents” (C), “authoritative parenting styles” (D), “Muslim women” (C), and “teachers” (A).

*Tasks*, that is, the activities to be experienced within the training interventions (Hepworth, 2004) were under-represented in the thematic content analysis with only two occurrences being identified in total across the sampled program’s TOC models (A and F only). While learning outcomes were identified by many of the programs, it was not clear how these would be achieved in practice. The most direct occurrence was in F, expressed as “gain awareness of extremist ideology” (F). Less directly in A as: “[Teacher] Expectations for the session need to be made clear at the outset, including, for example, classroom seating plans; friendship groups should be broken up where possible” (A).

### 4.3 | Psychological data

The psychological data element of Walton and Hepworth (2011, 2013) and Walton (2017) ID framework exhibits the greatest complexity, comprising within it, five sub-elements, referred to as *states* (Hepworth, 2004) within the framework, they are: *knowledge*, *cognitive*, *meta-cognitive*, *style*, and *affective*. We consider the occurrence of the themes within the programs, grouped by the relevant *state* below.

#### 4.3.1 | Knowledge state

This breaks down within the ID framework (Walton, 2017) into: *existing or prior* knowledge; and *new* knowledge, both states are conditioned by four factors: *worldview*, which shapes *confirmation bias* and *motivated reasoning*; and *epistemic beliefs* manifested as either

scientific curiosity, open to questioning or as the perception of knowledge as unchanging facts.

Remembering and retaining prior information exemplified by learners expressing what they know or remember by describing, repeating, and defining.

*Existing/prior knowledge* (Hepworth, 2004) was generally not accounted for within the program models—occurring once within B and C. This suggests that the program design did not include activities to identify participants’ level of existing knowledge other than in relation to: “understanding of extremism” in the sense of exploring why someone has become convinced by violence, rather than dialogue, as a solution to their problems (B) and “IT skills” (C).

*Worldview*, defined as existing beliefs and personal ideology (Lewandowsky, Ecker, Seifert, Schwarz & Cook 2012), is deep seated and has a very strong pull on people’s ability to make judgments about information. This was identified in four of the six programs (A, D, E, and F) occurring most frequently in F, featured for example as: “Misconceptions and (D) misinformation about reasons for referral” (A), “Being targeted by the government is not empowering and if this was run by government [participants] wouldn’t go” (D), “parenting courses are not for ‘bad’ parents” (E); “The main obstacles are participants’ preconceptions, both about Prevent and about extremism” (F).

*Epistemic beliefs*—that is, individual’s belief about knowledge—either fact-based and immutable or arrived at through consideration of a range of, or conflicting evidence (Trevors et al., 2017) was not alluded to in any of the programs.

*Motivated reasoning*—the selective use of evidence to support preexisting beliefs (Kahan et al., 2012) did not generally feature across the sampled programs, solely represented in B as: “it is possible to have a cohort that are already knowledgeable about the area, [and] includes those with extremely strong bias” (B).

*Confirmation bias*—well established in the information behavior literature, (exemplified by Campbell, Converse, Warren, Miller, & Stokes, 1960 and Whitworth, 2011) learners consume news and information they agree with and discard any information that contradicts their views. This was absent from the programs.

*New knowledge*—remembering and retaining information illustrated by learners expressing the new knowledge they know or remember by describing, repeating, and defining (Walton & Hepworth, 2011); this theme featured in all the programs apart from E, exemplified by “aim to equip teachers to embed work on sensitive issues throughout their practice” (A); “extend their existing bodies of knowledge” (F) and “know risk of radicalization” (B).

### 4.3.2 | Cognitive state

Walton and Hepworth (2011) posited that the cognitive state comprised four processes: *comprehension*, *application*, *analysis*, and *synthesis*.

*Comprehension*—the cognitive process of interpreting and understanding information (Bloom et al., 1956) was the most frequently represented theme with a total of 34 instances across 5 of the 6 programs. An outlier, only E did not reference this process. Typically this was identified as: “Participants understand that some information (e.g., on social media) is biased and designed mainly to persuade” (A) Understanding of vulnerabilities, self-awareness of personal triggers, learn how to challenge prejudice constructively” (B), and “understanding of the extremist influences online” (C).

*Application*—demonstrated by using the information delivered to solve a problem or demonstrate its use in some way (Bloom et al., 1956), as for comprehension, this similarly featured across five of the six programs (absent from E) as: “experiment with online resources” (C), “challenge extremist narratives” (D), and “make constructive use of their own opinions and experiences” (F).

*Analysis*—demonstrated as identifying the constituent parts of the information, its order, its causes, the problems and/or solutions it generates (Bloom et al., 1956), this process was (again) featured in all the programs apart from E, represented as: “resist the simplistic solutions offered by extremism and direct action” (A); “develop adequate language, comparisons and understanding of local issues” (C); and “develop the critical thinking skills that build resilience to extremist narratives, promoting digital literacy so that young people can effectively safeguard themselves in the online space” (F).

*Synthesis* (Bloom et al., 1956)—learners demonstrate this process by identifying: how the information they have encountered may be different, what is missing, how it can be improved or developed or how the information can be recreated. This, and to some extent the previous cognitive states, were represented in four programs (but not in E and F) as: “Enhanced thinking skills” (A) and also several times subsumed under the short hand of “critical thinking skills” (B).

### 4.3.3 | Metacognition

Combining the cognitive processes of reflection and evaluation, this is experienced by individuals as a realization that something new has been learnt (Walton, 2017; Walton & Hepworth, 2011). While evidenced in four programs (but not D or E), it featured only once

in A, B, and C, but with three occurrences in F. It was illustrated as: “self-awareness of personal triggers” (B); “perception of their own agency” (C); and “Participants are encouraged to continue to reflect on the session and what they have learned, promoting development of resilience” (F).

### 4.3.4 | Affective state

Affective state relates to the emotional state of the learner including feelings of uncertainty Kuhlthau (1991). This occurred across all but one program (E). Programs A, C, and F featured the most frequent occurrences (three in each). For example, mentions of the affective state included general comments on enjoyment and emotion or with slightly more nuanced positive and negative aspects, “It’s crucial that the young people enjoy taking part in the session” (A); “enhance emotional well-being” (C); and “the desire for [young people] to express personal desires and grievances are key” (F).

### 4.3.5 | Style state

Style state (Hepworth, 2004) denotes the disposition or level of self-efficacy or motivation individuals have toward a certain situation. This was well-represented, featuring at least twice across all the sampled programs with as many as four occurrences in half of the programs (A, C, and F). Typically this was identified as: “enabling,” “helping,” or “empowering; help young people become empowered and active citizens” (A) and “increase the confidence of users, helping them to become peer group leaders” (C), and “training enables participants to utilize and extend their existing bodies of knowledge” (F).

## 4.4 | Behavioral data

Behavioral data (Walton, 2017; Walton & Hepworth, 2011) comprise subelements of *existing behavior*, *new behavior*, and *changed behavior*, with the latter two closely aligned with the expressed outcomes of the programs.

Accounting for *existing behavior*—denoting the current activities in which individuals engage—had very limited representation across the programs, identified solely in a single occurrence in D and then only indirectly, for example, “no-one [parents] knows [fully] what they [children] are doing [when they are online]” (D).

Conversely *new behavior*—new activities and behaviors in which individuals engage that had not occurred before the program was very strongly and frequently represented across all the programs apart from F where it was absent. This was characterized as the implementation of ideal future behavior for example, “interact respectfully with people who are different from them” (A); “moving away from destructive ‘conflict styles’ (including acquiescence) to collaboration and compromise” (B); and “The basic browsing ability given to female carers familiarizes them with the interfaces that their children use” (C).

*Changed behavior*—this has been formulated as indications that learners’ new behavior has been repeated on a regular basis after encountering the information source (Walton, 2017, Walton & Hepworth, 2011). It had limited representation across the programs featuring only in A and C and as per *new behavior* stated as an ideal outcome rather than directly observed. For example, “[The programme] help[s] young people become empowered and active citizens” (A) and “[the training facilitates] active parenting” (C).

#### 4.5 | Source data

*Source character* (Hepworth, 2004) denotes the scope, rationale, and/or type of information source. This featured less than source behavior. However, all but one of the programs (D) showed instances of this, typically represented in overall rationales, themes or *raison d’être*, for example: “[F] is at present a one-person operation, relying on [redacted] skills as a communicator and drawing on [their] life experiences both negatively and positively”; “(A) is funded by [a] charity that campaigns only for one thing ... Peace”. “[B] have not presented themselves as a ‘counter-extremism organisation’ so not exclusively doing this.”

*Source behavior* (Hepworth, 2004) is defined as how the “information source” (the programme deliverer) responds to a user and can be characterized as enabling contact with information artifacts. This was represented across all the programs as practical delivery of training and was typically mentioned as: “trainers need to establish a rapport with the young people at the outset, then open the session with an activity which will enable the young people to take ownership of the session” (A); “[D] offer a suite of offline and online training, and downloadable resources, for use by those working with children and parents, and sessions for parents, children and teachers (delivered in school) and similar online resources” (D); and “Direct work with young people around [PVE] in schools (E)”.

## 5 | DISCUSSION

Drawing on the findings, in this section, we argue that the efficacy of EPVE programs can be improved by applying ID as a framework for their commissioning, design and implementation. We acknowledge the limitations of the findings; however, there is sufficient congruency between ID and the sampled EPVE programs to merit such a case; especially given the current limited understanding of their efficacy.

We start by considering the improvements that can be made to the EPVE programs in this study, then explain how ID can be applied to EPVE policy and commissioning more generally.

### 5.1 | Enhancing EPVE Programs

The TOC models in this study represent design and intent: what the providers intended to deliver, how, and what changes or outcomes they intended to achieve. Clearly further research is needed to answer additional questions. Did these providers deliver the programs as intended? If so, to what extent were the intended outcomes achieved? These latter questions are necessary and important given the proliferation of EPVE programs. However, examining their design and intent through the lens of ID is equally valuable; akin to setting out the best plans for constructing a building.

How can the efficacy of EPVE programs be enhanced? Taking the programs in this study as illustrative of EPVE program more generally; as a whole, there appeared to be a reasonable degree of congruency between the sampled programs’ design, how and what they intended to do, the behaviors they intended to change; and the ID framework (Walton, 2017, Walton & Hepworth, 2011). We recognize that the programs were not designed with the ID framework in mind. However, given that their efficacy is important, comparing their design to the ID framework provides a means of assessing this.

There was inevitable variation. The analysis suggested that five of the six programs (A–D and F) were well to reasonably well designed for their purpose. E stood alone as having limited alignment with only a third (7 of 21) themes represented in this TOC model.

Across the programs, there was a one size fits all approach to intended delivery. This may reflect the principally one-off nature and relatively short duration (from 1–2 hr) of many of the interventions: sessions either with school children, parents, teachers and other professionals. This aim for coverage may be an artifact of the funding and/or conditions of funding—something which we have

not had access to. While the (assumed) requirement for coverage is of itself not problematic, it does present a challenge, a trade-off between coverage and efficacy; something that commissioners need to recognize.

Tailoring the programs to the audience would improve their effectiveness. The analysis found that accounting for what participants bring to the programs and tailoring them to address this was absent. It is striking that identifying and addressing the psychological dimensions of *epistemic beliefs* and *confirmation bias* which participants are likely to bring to the program did not appear in any of the program models. The *motivated reasoning* of participants was recognized solely in B and within the same program the *existing knowledge* of participants was only weakly represented. Similarly, accounting for *existing behavior* had very limited representation across the programs, occurring once in D. Understanding how individuals behaved prior to the programs would allow for a nuanced consideration about the *new behavior and changed behavior* they sought to effect.

These design oversights appear to be an artifact of the way in which the programs are delivered. For example, the high volume interventions for school children delivered to a whole class and/or school year, have to fit a narrow time window in the curriculum. Program deliverers are not able to assess what individual children know and believe prior to delivery.

It almost appears too obvious to state this: assessing what the audience knows, believes and how they behave prior to delivering the program would put the learner at the heart of the program and would address these current deficits. Importantly, commissioners need to recognize that this will require additional resources to enable these preprogram delivery assessments to occur.

Understanding and articulating the mechanisms and/or processes by which the programs generated *new behavior*; and when, over what duration, the new behavior would crossover to become *changed behavior* would offer greater clarity for practitioners and commissioners about the programs' outcomes.

## 5.2 | Informing EPVE policy and commissioning

In this section, we propose that ID should inform EPVE policy and commissioning in the following ways.

### 5.2.1 | Understanding context

Becoming highly ID is dependent on a person's context and how that environment shapes their actions via

norms (such as British values or reward and sanction systems), their role (e.g., teacher, parent, or school student) and the specific task such as gaining awareness of extremist ideology. Prior work on ascertaining participants' context is imperative. All aspects of participants' cognition should be taken into account and explored including recognizing prior knowledge. This should also include *worldview* such as: preconceptions about extremism; confirmation bias, for instance political affiliations; epistemic beliefs such as whether a participants view of knowledge is fact based and immutable or can be contradictory and subject to change; and motivated reasoning such as to what extent are participants already knowledgeable and how selective they are in using their knowledge.

### 5.2.2 | Supporting the learning and change process

How EPVE program participants comprehend, apply, analyze, and synthesize information are vital. This can be achieved by enabling participants to understand the complex political issues on which extremist ideology draws; make constructive use of their own opinions and experiences; and, via critical thinking skills, build their resilience to extremist narratives so that they know the risks involved in radicalization. How participants feel must be recognized (for instance by being encouraged to express their personal desires and grievances and ensuring that the tasks are enjoyable) and through self-empowerment enhancing their own efficacy. EPVE programs should also include the opportunity to reflect on what participants know about themselves, including the perception of their own agency and a chance to continue to reflect on the program and what they have learned. However, for new behavior to become changed behavior there must be an opportunity to equip participants to embed their new knowledge throughout their practice and measure this change over time. In tandem, the participant needs to be provided with knowledge of the information sources themselves: their character, for example what the program is offering, and why, and the behavior change that is intended to be effected.

Aligning these conditions can foster a cognitive questioning state in the learner (Walton & Hepworth, 2011, p. 459; Walton, Pickard, & Dodd, 2018). This is about recognizing learning as a process and of enabling EPVE program participants to judge the evidence which supports or refutes ideas about violent extremism and radicalization as opposed to a noninteractive process of simply digesting "facts."



### 5.3 | Neutrality of ID

Our choice of theoretical discourse—applying information science to PVE—we suggest may address the emotional responses, resistance, concern, fears even about the purpose of such programs among a populace sensitized for example to media and political tropes of Islamophobia. Precisely because information science sits as a discipline at some considerable remove from criminological, sociological, and political discourses around violent extremism we argue that it maintains an inherent neutrality that these other disciplines may struggle to achieve. Applied to EPVE programs as their central underpinning, we suggest that ID has the potential to shift the perception of such programs. Transitioning them from being just about raising individuals' awareness of extremism and radicalization to providing their participants with the cognitive, behavioral, and emotional tools to become empowered citizens. We are in an age where the proliferation of information sources will continue to escalate and where the provenance of these sources will become harder to trace. Misinformation about radicalization and extremism is one more area that citizens will need to navigate. Arguably, governments have a role in enabling citizens to become ID in the same way that during the nineteenth century, national governments in North America and the United Kingdom recognized their responsibilities toward furthering elementary education for all children—as the hallmark of an effective society. Similarly, we would argue that we are at the cusp of an age where furthering an ID society is of equal importance. In making this the primary goal for EPVE and other educational programs around safeguarding and child welfare, we contend that it shifts the legitimacy of EPVE programs such that they become adjuncts to a broader less disputative social purpose. It would go some way to addressing the issues of fairness and legitimacy required to generate public support and cooperation as indicated in the procedural justice literature (Hough et al., 2013; Tyler, 2010).

## 6 | CONCLUSIONS

In this paper, we have argued for an information science approach by adopting information behavior principles in the form of ID as a framework for improving the design and enabling the efficacy of EPVE programs to be tested in the United Kingdom and internationally in other jurisdictions. Our contention is that adopting such a theoretical framework fills an intellectual gap in both the academic literature and policy formulations around such programs. We do not underestimate the task that is

required before this can be achieved. Inevitably, further research is required to test out the fitness for purpose of ID for this task. We recognize that the case for its wider adoption rests on building an evidence based case while at the same time encouraging a policy- and practice-based discourse of which, at the very least, ID can form an essential part.

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### CONFLICT OF INTEREST

The authors declare no potential conflict of interest.

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### ENDNOTE

<sup>1</sup> Interpretivism holds that social phenomena exist in the minds of people and are not “out there”. In this sense reality can only be defined subjectively as interpreted social action. To this end purely quantitative measures are regarded as unable to capture the real meaning of social behavior and narrows human experience in a detrimental way by directing research only to that which is perceived by the senses and by employing only standardized tools based on quantifiable data to test hypotheses (Robson, 2002).

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## APPENDIX A.

TABLE A1 Summary of provider delivery models and content of sampled EPVE programs

Provider	Delivery models
A	<p><i>One-off classroom sessions with primary school children<sup>a</sup></i>  <i>One-off classroom sessions with secondary school children<sup>a</sup></i>            Exercises covering: stereotyping; information “hygiene”; determining propaganda and bias; and identifying extremist groups  <i>Teacher training<sup>a</sup></i>            Exercises covering: respectful conversation practice; the prevent duty and its relationship to British values; information on referrals for individuals who might be at risk of violent extremism</p>
B	<p><i>One-off workshops for 14–19-year olds in schools and colleges<sup>a</sup></i>            Critical thinking skills; discussion around film of individuals formerly involved in violent extremism  <i>Training for professionals<sup>b</sup></i>            Understanding extremism; skills for holding “difficult conversations” with individuals about violent extremism; use of provider developed resources for professionals to deploy with children  <i>One-off workshop for primary school children, governors, teachers<sup>a</sup></i>  <i>One-off workshop for educators*</i>            Challenging myths and stereotyping</p>
C	<p><i>Six session course for Muslim parent–carers</i>            Participants were recruited through the provider's links to local communities.            IT training and web-browsing; understanding social media, online dangers: grooming, sexting, radicalization, identity theft and fraud; case studies of radicalized young people; offline flags such as isolation, long hours spent alone; counter-narratives; active parenting; reporting inappropriate, hateful material to public bodies</p>
D	<p><i>One-off sessions with parents through school parent groups<sup>a</sup></i>  <i>One-off lectures for school children<sup>a</sup></i>  <i>Training for teachers and governors<sup>a</sup></i>            Critical thinking skills; understanding of the risk of misinformation; online exploitation; using the provider's online resources</p>
E	<p><i>One-off parent and child workshops in schools<sup>a</sup></i>            Promoting positive relationships and healthy discussion/communication between parents/carers and young people and how to keep safe in a changing world  <i>One-off parent–carer workshops in schools<sup>a</sup></i>            Explores how children become vulnerable to: child sexual exploitation, gangs, violence, and extremism; and how carers can build positive relationships to support them  <i>Peer-to-peer parent information dissemination through school activities<sup>a</sup></i>            Explores children's internet/social media experience, the dangers that they may face and advice on how carers can support their child's safe use of technology</p>
F	<p><i>One-off workshop for professionals<sup>b</sup></i>  <i>One-off workshop for young people recruited by the local prevent coordinator</i>            Using real case studies to illustrate and discuss: extremist life course; reality of the experiences of recruitment to extremist groups; and vulnerability and grievance narratives</p>

<sup>a</sup>Selection was based on the prevent coordinators' assessment of where the intervention would be most beneficial. These interventions were not targeted at individuals who were viewed as at risk of being involved in violent extremism and/or having family who may be at risk of such involvement.

<sup>b</sup>Social workers and youth workers who elected to attend.