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A Cognitive Science Analysis of the Quaker Business Method: Is How It Works Why It Works?

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Abstract

The Quaker Business Method (QBM) has been in development for over 300 years. Quakers believe that the QBM is an effective means for making decisions. This paper develops a tripartite theoretical framework to analyse the QBM in order to examine its efficacy, in terms of both the quality of its processes and the morality of its decisions. The framework encompasses: (1) a decomposition of the QBM as a set of tools; (2) a selection of theories and models from Cognitive Science that explain how humans think; (3) a set of relational models that can be used to objectively judge the morality of different forms of human behavioural interactions. Overall, it appears that QBM tools may counter the deficits in natural human abilities to reason and solve problems, that they may promote decision-making practices that are moral and that the resulting decisions, themselves, may be moral.

Keywords

Quaker Business Method, meeting for business, decision-making tools, cognitive processes, moral relational models, scientific explanation

Introduction

The Quaker Business Method (QBM) is one of the approaches that the Religious Society of Friends use to conduct their corporate affairs. It is definitively described in *Quaker Faith & Practice (QF&P)* (Britain Yearly Meeting 2013). The focus in this paper is on the QBM as practised in the Meetings for Business (MfB) of liberal silent worship (unprogrammed) meetings, with particular emphasis on Britain, but also with some attention to other English-speaking countries. The QBM is used throughout the hierarchy of such Quaker meetings, which in Britain include Local Meetings (roughly town level, monthly), Area Meetings (roughly

county level, monthly), Meeting for Sufferings (national, five per year), Yearly Meeting (national, annually), and also in Central Committees (national). The QBM has a 300+ year history and a back-of-the-envelope calculation reveals that approximately 7,000 local and area MfBs occur annually in Britain. Historically, many substantial and successful manufacturing and financial businesses founded by Quakers used the QBM. The Quaker desire to improve the state of the world means that MfBs regularly consider contentious issues such as gay marriage, the legalisation of the possession of drugs or justice for Palestine. So the QBM plays a central role in identifying issues to be considered for adoption as general corporate positions for all Quakers in Britain. This QBM discernment at successive levels appears to succeed in revealing positions that Quakers can unite around and hence act upon with concerted practical and political power. All this suggests that the QBM has value and might actually be an effective means of conducting the Society's business.

The purpose here is to examine the plausibility of the claims about the QBM's efficacy and then to explain its apparent benefits from the particular theoretical perspective of Cognitive Science. The main sections of the paper provide an analysis of the QBM as a set of cognitive tools and then analyse whether those tools constitute an effective approach in terms of the quality and the morality of the QBM decision-making process. To establish a context for these questions, the remainder of this introduction will: (1) examine whether it is rational in the first place even to consider a scientific examination of the decision-making processes of a religious organisation; (2) argue that there is an actual phenomenon to be scientifically explained; (3) outline a modern view of the nature of scientific explanation; (4) provide a tripartite framework for conducting such an investigation under the aegis of Cognitive Science.

Explanations of the Quaker Business Method

Does it make sense to use science to examine whether, and even how well, the QBM works? Surely belief-based claims about decision-making, such as 'we seek through the stillness to know God's will' (Britain Yearly Meeting 2013), are inexplicable to science because science deals only in objective empirically testable facts? There are at least three responses to such questions.

The first may be called the *compatibility view*. Quakers largely consider their belief to be compatible with the study of the natural world, as shown historically by positive attitudes to scientific pursuits in biology and by notable Quaker scientists who saw no conflict between the two worlds they inhabited (Cantor 2013). Although Quakers today may be suspicious about science and technology, particularly genetic engineering, Scully (2014) attributes this to people's typically poor understanding of science rather than to a fundamental incommensurability. That there is even an appreciation of the scientific method, per se, among Quakers (Cantor 2013) may be explained by the underlying form of Quaker epistemology.

Dudiak and Rediehs (2013) identify strands of Quaker understanding that are rationalist and empiricist, and hence aligned with Enlightenment ideas about the nature of knowledge, and Rediehs (2016) describes Quaker epistemology as *expanded experiential empiricism*. Hence, among Quakers themselves, the possibility of a rational, systematic and coherent explanation of the QBM may not be anathema.

The second response may be called the *special character* view. Notwithstanding the first response, this considers the possibility of formulating accounts that carry minimal uniquely Quaker theological commitments into secular explanations. Burton et al. (2018) argue that it is feasible to apply organisational ethnography to the study of the QBM because Quaker theology is empiricist in nature, with an emphasis of the centrality of personal experience, which sanctions participants embedded and engaged in Quaker MfBs to study and describe such meetings. From a different angle, Muers and Burton (2018) contend that the Quaker focus on *truth discernment* and *truth enactment* opens a shared space for connections between secular and religious understandings. However, a limitation of both positions is that they impose an a priori framing within which to conduct analyses, but such conceptualisations exclude other perspectives based on alternative assumptions about the basic operation of the QBM: it is imaginable that individual experience and truth seeking could be minor factors in the operation the QBM, leaving the overall analysis incomplete.

The third response is to conduct an *autonomous scientific analysis* that does not embrace any of the theological assumptions of the QBM and that abandons all literal interpretations of explanations given in Quaker terminology. Rather, this approach treats all such explanations as potential sources of data about decision processes that will inform analysis in the specific and objective technical language of a scientific discipline that has independent epistemological roots. In other words, a scientific analysis views the religious explanations as metaphors to be re-interpreted within an alternative conceptual system that satisfies the standards of scientific knowledge (see below). This is the approach chosen for this paper, with the adoption of Cognitive Science as the base discipline.

This approach benefits from explanations that are not reliant upon the arcane jargon of Quakerism, so potentially opens the door to the wider audience who appear interested to learn of the QBM and perhaps apply the method in secular organisations. Furthermore, the rigour and objectivity of a scientific study has the potential to discover which aspects are vital to the QBM's efficacy, and so should be defended from change, and to identify aspects of the method that are actually detrimental, and so require revision. For example, as Burton (2016) notes, a common criticism is the duration of MfBs compared with secular committee meetings: but is this an inherent feature of the QBM? If so, what mitigation might be adopted that does not injure the vital parts?

Explanatory Puzzle

Adopting an independent scientific analysis raises a puzzle that must be resolved before proceeding further. If Quaker descriptions of the QBM are essentially metaphors and not strictly explanations, how was it possible historically that a seemingly effective decision-making method could in fact have developed? That surely would have required the early Quakers to have made sophisticated choices between alternative practices, but one might argue that mere metaphors could not have provided a sufficiently rigorous basis upon which to rationally select options that genuinely work. In the extreme, one might argue that the QBM is built on shifting sand, its seeming efficacy merely a mirage seen just by those viewing from the same hopeful perspective. If so, in turn, a scientific exploration of the method would appear to be pointless.

Such a view is too pessimistic. A process does exist that could have driven the successful creation of an effective approach. The process is Darwinian evolution (1859), albeit applied not to organisms or genes but to ideas (Dawkins' [1976] *memes*): specifically, the 'species' of practices and prescriptions that might be used to run MfBs. MfBs satisfy the key requirements for an evolutionary process to act to improve the components of the QBM. First, there is a natural source of 'variations' among the ideas, because each MfB is relatively independent of a strict governing authority; individual meetings have some latitude to experiment with different MfBs practices. Second, the variants that appear effective are likely to be retained by a local meeting ('survival of the fittest'). Third, the sharing of ideas through contact between local meetings at area meetings provides a means to propagate the new and better variants ('reproduction'). Fourth, and last, the 300+ years of Quaker history, spanning large numbers of meetings, provides sufficient time for many alternatives to be tested and for the method to change in small incremental steps.

Thus, the QBM may have developed despite early Quakers' belief in metaphorical accounts of how it works. If this evolutionary explanation is correct, then important implications follow. The QBM cannot be perfect, because the mechanism of evolution does not strive toward some predetermined ideal. In turn, this suggests that there is potential for the QBM to be improved. As will be seen below, the Cognitive Science analysis makes specific suggestions in this respect.

Nature of Scientific Explanations

What constitutes a genuine scientific explanation? Discussion of the nature and methods of science are often framed in either classical ideas inherited from the enlightenment (e.g. Pinker 2018), such as the accounts in the literature cited in section 1.1, or more recent ideas such as the *falsificationism* of Popper (1959) and the *paradigm shifts* of Kuhn (1962). However, studies in the last forty years

have substantially enriched our understanding of how science operates. In the philosophy of science, the 'New Experimentalists' (e.g. Hacking 1983; Franklin 1986) redress the field's traditional absorption with theories by giving appropriate weight to the role and function of experimental methods in determining the validity of scientific findings. Studies in Cognitive Science (e.g. Simon 1977; Giere 1989; Bechtel and Richardson 1991) have established that the creative processes of discovery are fully explicable rationally in terms of problem-solving theory (see below) and that models critically mediate the epistemic relationship between hypotheses and data.

For the analysis of the QBM here, it is desirable to apply ideas from the full spectrum of historical and modern accounts of the nature of science. To accomplish this succinctly, the spectrum of ideas has been condensed into: (1) a set of characteristics that phenomena must possess to be amenable to scientific explanation; (2) a set of criteria that are required for valid and effective scientific explanations. To be studied scientifically, a phenomenon must be:

- (1) Tangible—capable of being directly observed and measured by physical (matter), psychological (mental states), sociological (group interactions) or computational (information) means.
- (2) Persistent—not appear or disappear capriciously, nor arbitrarily change over time.
- (3) Objective—amenable to methods to establish their existence and nature that can be applied by anyone in a consistent fashion independent of their individual personal perceptions, perspectives or judgements.
- (4) Bounded systems—capable of being treated as a circumscribed system, with an identifiable boundary, so that independent manipulated inputs may produce observable dependent outputs.
- (5) Temporally circumscribed—possess a specific characteristic time scale over which it operates, so as to clearly distinguish a level of functioning.
- (6) General—constitute a class of things or events with a non-trivial scope, and not merely be a single unique entity or occurrence.

Scientific explanations should be:

- (7) Unambiguous—well defined and support just a single interpretation.
- (8) Consistent—not contradictory, as any conclusion can flow from a logical inconsistency.
- (9) Non-tautological—concepts that are true purely by definition, in and of themselves, are not amenable to evaluation and potentially to empirical disconfirmation.
- (10) Evidentially grounded—compatible with empirical observations or the outcomes of controlled experiments.

(11) Predictive—identify and explain new phenomena beyond the original scope of the phenomena of interest.

(12) Decompositions or models—explanations should use one (or both) of these means to deal with complex phenomena: (a) decomposition into separate but interacting components that each perform distinct functions; (b) systematic characterisation using a formal notation (e.g., mathematics, computer programs) or at least using a coherent well-defined verbal or graphical model.

(13) Matrix-like—for complex phenomena, simultaneous rich patterns of explanations to connect multiple factors to multiple consequences are needed rather than simple linear chains of causes and effects.

(14) Parsimonious—only adopt fully warranted theoretical assumptions.

(15) Constructively coherent—explanations should consistently build new levels of theories upon established theories that already meet all the previous fourteen criteria.

Although each characteristic and criterion deserves fuller elaboration and justification than space permits, the list does at least highlight the clarity, rigour and precision that is being striven for in the following analysis of the QBM. The term *boundless* will be used to denote accounts that fail to satisfy one or more of the above criteria.

The list provides a basis on which to distinguish the alternative explanation of the QBM outlined above. Explanations under the compatibility view accept the received descriptions of the QBM in *QF&P*. Notions such as the ‘the will of God’, ‘the Holy Spirit’s guidance’ and ‘the light’ are intangible, not objective, ambiguous and tautologous. It is unclear whether these things are persistent, temporally bounded, general and predictive, and within what system they operate. Thus, explanations under the compatibility view are boundless to a substantial degree. The adoption of conventional *QF&P* conceptions in introductory guides and in accounts for non-Quakers means they are similarly boundless (e.g. Sheeran 1983; Morely 1993; Louis 1994; Anderson 2006; Williams 2007; Dandelion 2008; Mace 2012; Durham 2013; Quakers and Business Group 2014). Interestingly, Dawes (2017) attempts to explain Quaker discernment, which is integral to the QBM, by recasting it in terms of Scharmer and Kaufer’s (2013) ‘Theory U’. However, Theory U depends upon ideas such as ‘going down’, ‘going across’ and ‘going up’ that are in turn explained by intuitive notions such as ‘opening the mind, the heart and will’. These concepts are also boundless, so greater explanatory quality is not gained by Dawes’s conceptual reframing. Attempts to explain the QBM taking traditional Quaker concepts as given will necessarily miss many of the fifteen desirable criteria of scientific explanations, which is not surprising as they are not intended to be scientific.

Nevertheless, boundless explanations are meaningful to their proponents, because they can provide redescriptions of one set of associated ideas and

experiences in terms of another set of concepts that serves to enrich the web of language available for talking about a topic. Such unbounded accounts can feel particularly meaningful when they provide socially shared vocabularies that are key markers of group identity (cf. Grant 2015).

Explanations under the special character view may be interpreted as attempts to select particular concepts and exclude others in order to reduce the potential unboundedness of conventional Quaker explanations. This move partially succeeds by decreasing ambiguity and inconsistency and adding temporal circumscription. However, restricting the study of the QBM to ethnographic approaches is contrary to the requirement of objectivity. Similarly, taking some aspects as primary over others, as they can be understood in secular terms, is problematic, because the selection is not directly related to how the QBM operates and so is contrary to the generality criterion and the several criteria related to complex phenomena.

So, the compatibility view and special character view fall short of satisfying all fifteen criteria; their reliability, rigour and scope are rather too modest for a full scientific explanation of the QBM. The next section introduces this paper's tripartite Cognitive Science framework that attempts to satisfy all fifteen criteria.

Tripartite Cognitive Science Framework

The tripartite framework developed for the present analysis of the QBM draws upon three aspects of Cognitive Science: (1) the primary manner in which it studies complex phenomena; (2) ideas drawn from its studies of decision-making; (3) ideas drawn from its studies of moral reasoning. These are outlined after a brief overview of the field.

Cognitive Science is an interdisciplinary field that combines psychology, artificial intelligence, linguistics, anthropology, education and neuroscience (for overviews see, e.g., Stillings et al. 1995; Posner 1989). It holds that intelligence, broadly interpreted, is best understood in terms of information processing in the service of meaning. The information-processing perspective includes studies of the internal mental mechanisms that handle information, the informational structure of the external environments in which activities are performed and the intimate interactions between the two. Cognition—how we perceive, comprehend, reason, remember, learn and develop—depends fundamentally on the mental processes that obtain, store, retrieve, transform and transmit information. Cognitive Science successfully explains complex human behaviour, including perception, understanding, reasoning, problem-solving, language use, language development, learning, expertise and creativity, spanning time scales from milliseconds to decades. Computational models, built in software, are central to its explanations of complex phenomena. It recognises the limits of individual human rationality, but also explains how humans collectively achieve substantial intellectual and cultural feats.

In the last two decades the field has begun to investigate the nature of religious experience in terms of scientifically grounded psychological and social processes (e.g., McCauley and Lawson 2002; Knight et al. 2004). The analysis of the QBM here contributes to this growing endeavour by asking whether the practices of the QBM encourage cognitive processes that are known to be associated with good (or poor) decision-making.

The first part of the tripartite framework is motivated by how Cognitive Science addresses the complexity of human behaviour by developing models that incorporate the multifaceted nature of mental processes and the wide variety of sources of information available to the mind (and so satisfies criteria 12 and 13). A key method of Cognitive Science, like other fields dealing with complex systems (Bechtel and Richardson 1991), is to identify the separate components of the system, each of which perform unique functions with their own locus of control. This decompositional method is not reductionist because the overall patterns of behaviour of the system as a whole are examined by the analysis of the myriad interactions among its component: that is, the method also recomposes. One decompositional approach that is used to study intricate cognitive behaviours is to consider humans as rich repositories of cognitive tools, or heuristics, from which they select and apply specific tools in particular task and environments. Human intelligent behaviour is thus explained in terms of the range of the tools, how well they are adapted to our mental faculties and the requirements of the task and the environment (Gigerenzer and Todd 1999). The first part of the tripartite framework adopts this toolbox approach. In section 2, descriptions of the QBM will be closely examined in order to identify such a set of relatively independent components or tools. The tools include practices and values that appear essential to the QBM. They are organised as a taxonomy with nine categories.

The second part of the framework adopts ideas from the extensive studies of decision-making that have been conducted in Cognitive Science; for overviews see, for instance, Hastie and Pennington (1995) and Gonzalez (2014). Fundamental insights have been obtained. Decision-making is a form of problem-solving, which can be analysed using the classical theory of human problem-solving established by Newell and Simon (1972). Human rationality is limited, or *bounded*, by our innate cognitive capacities and also the amount of effort that we are willing to expend on a task. So we tend to make decisions that are just good enough, rather than optimally taking into account all available information (e.g. Howes et al. 2014). We use heuristics, rules of thumb, to make decisions and those heuristics are subject to a vast array of potential biases (Evans 1992). Decision-making typically occurs in social settings, so the determinates of our choices are influenced by the social environment (see below). From such fundamental ideas various factors can be identified as correlates of effective processes that underpin good decision-making. These factors constitute the second part of the tripartite framework, which will be used (in the third section) to assess the quality of the tools identified in the framework's first part.

The third component of the framework draws upon recent work in Cognitive Science in the area of human moral reasoning, in particular models of moral decision-making: Wallach (2010) provides an overview. In line with ideas from the first two parts, cognitive scientists emphasise the bounded nature of moral decision-making, the role of mental models and the importance of heuristics (Gigerenzer 2010). For the purpose of analysing the QBM, a particular set of moral models based on primary archetypical ways in which humans interact with each other will be adopted. The models will be used to examine whether the tools of the QBM are likely (i) to promote meeting practices that are in themselves ethical and (ii) to assess whether the actual decision outcomes of the QBM are likely to be ethical (fourth section).

The final discussion section delivers an overall evaluation of the efficacy of the QBM, but also uses the framework to identify potential vulnerabilities in its practical implementation and potential remedies for those ailments. Further, the framework is used to recommend potential improvements to the QBM.

How it Works: A Taxonomy of QBM Tools

To analyse how the QBM functions it is considered as a set of relatively independent but related tools, part 1 of the framework. Here, the idea of a *tool* is taken in two senses: (1) a particular practice that is a distinct time-bounded activity that serves an identifiable purpose; (2) a prescription or rule that can be operationalised as an action to achieve a particular goal, which may include a change to an individual's knowledge or psychological state. Table 1 summarises the thirty-three tools, which are classified as nine groups under two themes. A wide variety of sources was consulted: *QF&P* (Britain Yearly Meeting 2013); writings about the QBM, including Sheeran (1983), Morely (1993), Louis (1994), Anderson (2006), Williams (2007), Dandelion (2008), Mace (2012), Durham (2013) and Quakers and Business Group (2014); a selection of six of the Quaker books of disciplines from yearly meetings in the USA and Australia; and the author's own observations of traditional and hybrid MfBs in the UK. Table 1 includes specific references for five sources, including the author's personal observations, *QF&P* and three descriptions that are particularly detailed and well cited, spanning forty years and representing both the UK (Mace 2012) and the USA (Anderson 2006; Sheeran 1983).

Six classes of *process* tools are identified. (T1) The first group considers the role of short periods of silence that not only start and complete MfBs but also should punctuate contributions between participants. Durations of silence may be extended as needed by the clerk—for example, if the meeting becomes turbulent. (T2) The second group concerns the clerk's role in the meeting; one part of this is general facilitation, but the primary role is to be conscious of the views and feelings of all those present and to encapsulate that sense in written minutes. (T3) The minutes record the decisions of the meeting, which the clerk drafts

Table 1. Taxonomy of tools of the Quaker Business Method
with citations from five sources.

	Author	QF&P (\$)	Mace (2012) (p.)	Anderson (2006) (p.)	Sheeran (1983) (p.)
Processes					
T1 Silence					
T1.1	Begin and end of meeting	√	2.88	29	49
T1.2	Silent pauses between contributions	√	3.04	25, 48, 135	29, 51
T1.3	Longer at clerk's discretion	√	3.16	29	
T2 Clerk's role					
T2.1	Servant of the meeting	√	3.12, 3.13	85	29, 32, 50
T2.2	Agenda preparation	√	3.12	135	29, 49, 92
T2.3	Principle role is to <i>discern</i> the <i>sense</i> of the meeting	√	3.12, 3.15	41, 42	48, 64, 95
T2.4	Drafting minutes	√	3.12	42	48
T2.5	Responsible for the efficient conduct of business	√	3.13, 3.18, 3.20		49, 93
T3 Contemporaneous minutes					
T3.1	Written and agreed during the meeting	√	3.15	24, 86	48
T3.2	Capture sense of the meeting even when some disagree	√	3.06	32	48
T3.3	Three types of minute: of record; of exercise; of decision	√	3.14		
T4 Discernment					
T4.1	All to <i>discern</i> of the sense of the meeting or truth	√	3.06, 3.12, 3.15	88	28, 31, 37, 48, 53
T4.2	Ongoing feedback to the clerk: 'Hope so' about a minute; 'That Friends speaks my mind.'	√		136	41, 65
T4.3	Thorough exploration of proposals, participation by all		3.04	28, 29, 41	48, 50, 56
T4.4	Postpone decision-making in face of disunity	√	2.90, 3.07	42, 43	50, 65
T4.5	Individual or group standing aside			43, 44	66, 70
T4.6	Factual focus; emotions in its place, not primary			43, 44	51, 57

	Author	QF&P (\$)	Mace (2012) (p.)	Anderson (2006) (p.)	Sheeran (1983) (p.)
T5 Preparatory meetings					
T5.1	<i>Clearness</i> meetings; <i>Threshing</i> meetings; <i>Sharing</i> meetings	√	35, 70	39	
T5.2	Standing committees; working groups	√ 3.19		41	
T6 Meeting configuration					
T6.1	Equi-distance seating facing clerk	√	30		51
T6.2	Stand when speaking	√	135		
T6.3	Clerk stands aside when giving a personal view	√ 3.13			
Values and culture					
T7 Expectations and values					
T7.1	Responsibility to be prepared	√ 1.02.15, 2.90, 3.05		29, 41	
T7.2	Everyone attend regularly	√ 1.02.15, 3.08, 3.09			60
T7.3	Prioritise unity of the meeting (not consensus)	√ 2.89, 2.90, 3.05, 3.06	26, 63	28, 29, 30, 31, 43	48, 63, 51
T7.4	Trust in, knowing and love for each other	2.86, 3.02, 3.03		31	59, 60
T8 Open-mindedness/non-argumentative					
T8.1	Listen; ‘Hearts and minds prepared’	√ 2.90, 3.05	47	29, 30, 39	49, 50
T8.2	Entertaining contrary views: don’t push an agenda/position	2.86, 3.04, 3.10		29, 30, 37	49, 55, 56
T8.3	Explore own thoughts and feelings on widely (beforehand)	1.02.15, 3.04	48	29	58
T8.4	Plain speaking; eshew persuasion, repetitions, hasty rebuttals, use of rhetoric	√ 2.87, 2.89, 3.04, 3.11	48	29	49, 56
T8.5	Speak only once, speak concisely	√ 3.18	36, 42		49
T9 Discerned corporate values					
T9.1	<i>Testimonies</i> —corporate principles	√ 23.01, 23.05, 23.12			
T9.2	Substantial, not anodyne	√ 23, 24, 25, 29			

during the MfB and reads to participants. It is taken as agreed when those present unite around it. Different types of minute help focus participants' mind on the purpose of an agenda item, including simple notifications, exploration of issues or decision-making. The clerk should attempt to reflect the spectrum of views leading to a minute.

(T4) *Discernment* is the term used for the thorough exploration of what a meeting knows and then considers to be a right course of action, which all those in the meeting should be actively seeking. This is communicated to the clerk verbally and naturally through body language, but approval of the means and extent to which one may deliberately make one's view known appears to vary. In a disharmonious meeting the clerk may choose to postpone the decision. There is divergence between British Quakers and those in the USA on two tools: (i) if some in a MfB cannot unite behind a minute then it appears acceptable, in the US context, for their dissent itself to be minuted; (ii) the US Quakers appear to more explicitly foreground fact over emotion than do their British counterparts.

(T5) For complex and particular challenging issues, other types of Quaker meeting may be convened for deeper exploration by all, or a selected group of individuals. In addition, more conventional working groups or standing committees are used to feed into the main MfB, which, recursively, are run like MfBs. (T6) This group of tools facilitates communication within the meeting. The seating in MfBs is typically arranged in nested semi-circles around the clerk's table, which supports the clerk's perception of those present. In addition, conventions about standing when making a contribution control the flow of participation and when the clerk feels they must contribute personally they step away from the central table in order to make clear that they are giving a personal view.

Three classes of *value and culture* tools are identified. (T7) A range of cultural expectations is inculcated by training and experience, including: the need for preparation and regular participation in MfBs; valuing highly the unity of the meeting; fostering interpersonal relations. (T8) This particular set of values appears so important that it has been given its own group. They concern a willingness to openly entertain unfamiliar ideas and ideas that one may not personally favour. Rhetoric should not be used nor repetitions made to promote an idea, but the merit of the idea should be allowed to speak for itself. We might interpret these values as eschewing argument in favour of peaceful modes of reaching decisions. Many Quakers see T7 and T8 as more than a matter of culture and values but hold the QBM as a profound commitment to the community of Quakers that privileges finding a way forward for the whole, even above making the right decision. (T9) The final set of tools are the Quaker's *testimonies*, which capture deeply held corporate beliefs. The precise formulation of the testimonies varies somewhat across sources (e.g. *QF&P* vs. Quakers in Britain website), but they generally encompass peace, equality, justice, simplicity or sustainability, and additionally in the US, community. Quakers are encouraged to use the testimonies as compasses to guide their decision-making, and in their lives more widely.

Despite the given definition of the idea of a tool, the content and structure of the taxonomy may be critiqued, not least because no explicit criteria underpin the categorisation of tools into the specific groups. The tools clearly vary in scope, so readers may wish to place a different emphasis on their relative importance. Further, listing and describing the tools does not do justice to the dynamics of MfBs, in which the interplay of the tools appears significant to the operation of the QBM. The multi-factor analyses in the following section capture some of the richness of those interactions.

Why it Works: Decision Quality

The second part of the tripartite framework asks whether the QBM can generate good decisions by examining whether the tools support cognitive processes that are known to underpin effective decision-making. Four factors have been chosen because they: (a) are well-established and have solid empirical support (i.e., scientific criteria 15 and 10), (b) cover multiple tools of the QBM (criterion 6); and (c) are straightforwardly applicable to the tools (criteria 8, 9, 14). The factors are: memory, psychological biases, problem-solving and social dynamics. Each of the tools will be considered in relation to the factors to assess whether it is likely to positively or negatively impact decision-making. The outcome of all these pairwise analyses are recorded in Table 2.

Table 2. Impact of QBM tools on sets of cognitive factors.

	F1. Memory	F2. Biases	F3. Problem-solving	F4. Social dynamics
T1. Silence	√ X	√	√	
T2. Clerk	√	√	√ X	√ X
T3. Minutes	√	X	√X	
T4. Discernment	√	√	√ X	
T5. Preparatory meeting	√ X	√X	√ X	
T6. Meeting configuration		√		√ X
T7. Expectation and culture		√ X	X	X
T8. Open-mindedness	√	√	√	√
T9. Corporate values	√	√	√	√

(F1) The first factor is **memory**. We will consider two aspects. The first aspect concerns the likelihood that we will recall ideas following the presentation of an extended sequence of ideas. Ideas early on and ideas at the end are most readily recalled (*primacy effect* and *recency effect*, retrospectively; e.g. Anderson 2000). But the bulk of ideas in the middle are more likely to be forgotten and thus may not be taken fully into account at the point of making the decision. The second aspect

of memory concerns the way that the mind stores information and the way it is recalled (*associative network, spreading activation*; e.g. Stillings et al. 1995, chapter 3.2). Ideas that are being actively considered will cue the retrieval from memory of other closely associated ideas but not more distant concepts. So decision-making may tend to paddle around a small pond of ideas rather than venture to new waters.

As a tool, silence (T1) may be a benefit or a deficit in terms of the memory factor. Beneficially, silence allows the strength of focal ideas to fade so that other notions are given an opportunity to be recalled (‘√’ in Table 1 cell T1–F1). However, negatively, silence increases the time since we heard an idea, so it may decay so much that it is forgotten (‘X’ in T1–F1). The clerk’s role is to actively consider all of the contributions to an agenda item, and their need to concentrate upon writing a minute for the whole sense of the meeting may keep multiple ideas alive (through *rehearsal*). In a similar fashion, the active engagement of all present in discerning the sense of the meeting may have a similar effect. Preparatory meetings that thoroughly explore an issue might provide a report for MfB to reference and prevent the loss of ideas, but a report can be a lens that narrowly restricts the vista of ideas that are presented. Open mindedness and a non-argumentative interaction may prevent a single idea becoming too dominant and thus prevent the recall of other ideas. The testimonies, or corporate values, can serve as a potential remedy to memory limitations simply by acting as a set of prompts (*cues*) for the retrieval of ideas other than those in current focus. Column F1 summarises these interpretations.

(F2) The second factor comprises **psychological biases** (e.g. Evans 1992). Reasoning is considered biased when the conclusion of a judgement or inference from given information is flawed compared with ideal valid formal reasoning with the same information. In addition to limitations on memory, such flaws occur in situations when we have too much information (e.g. so we only focus on positives), must make decisions quickly (e.g. so favour apparently simple actions), or when the available information is not sufficiently meaningful (e.g. so we apply stereotypes). How we reason is often naturally adapted to the complexities and demands of our environment, but patterns of reasoning fail when they are applied in inappropriate environments. Kahneman (2012) even posits that the mind has two decision systems: one fast and unconscious, for everyday immediate action, which is often good enough but is sometimes error-prone; another slow, conscious and rational, which seeks out and evaluates evidence for deliberative decisions.

Several QBM tools may be interpreted as counters to psychological biases. Silence applies a brake to the haste that may distort judgements. The clerk’s role is precisely to deliberately assimilate and carefully weigh contributions. Similarly, the expectation that all participants should be open-minded may encourage conscious reflective thought. The idea that discernment is about seeking some form of truth may motivate some to be circumspect about grasping the first feasible option that comes to mind. Preparatory meetings can forage for more

complete evidence about a topic beyond the notions that participants would otherwise just happen to recall during a full MfB, and may also provide time to sift and deliberate with care. But they may also just displace biases down one level of meetings. The expectation that participants should prepare carefully by, for example, reflecting upon all pre-circulated documentation, is obviously desirable in this regard. Substantive corporate principles can serve as an additional layer of testing of ideas before commitments are made. However, prioritising unity may in itself introduce bias by serving as an excuse to avoid critically examining entrenched approaches and views, especially when unity is privileged too highly.

(F3) The theory of human **problem-solving** (Newell and Simon 1972) is a cornerstone of Cognitive Science. The theory explains problem-solving in terms of two processes: (1) defining a task that can be incrementally solved by specifying an initial condition, a goal and operations that transform partial task solution states (a *problem state space*); (2) attempting to find a route that navigates from the initial state to the goal through the successive application of the operators (*search*), which depends on effective techniques to explore paths (*search heuristics*). The theory has been successfully used to explain a wide range of higher human reasoning, including decision-making (e.g. Gonzalez 2014).

Casting the QBM tools as problem-solving reveals fewer clear-cut benefits than do the previous two factors. Silence provides an opportunity for current search paths to be abandoned and alternatives to be taken. The clerk's role may be viewed positively as attempting to establish a clear picture of the overall shape of the problem space, but prematurely writing a minute may cut off potential routes to good problem solutions, and a vague minute can mask a failure to reach a satisfactory goal. If a clerk knows others in the meeting well, the clerk may select contributions from participants hoping that they may offer alternative views in order to sample the space of ideas as fully as possible. The different types of minute may help to define the task goal associated with a particular agenda item. The facet of discernment that promotes exploration may encourage participants to search for alternative paths; but the side that values unity, or postponing for the sake of unity, blocks search. Open-mindedness can encourage forays down unconventional solution paths and the use of corporate principles may be taken as goal-testing criteria. Preparatory meetings may, on the one hand, support MfB problem-solving by bringing clarity to the initial conditions, the nature of the goals and an understanding what operators are relevant, but, on the other hand, could stifle MfB options by mapping only obvious routes or even by just lodging a single plan.

An example of the power of the theory of problem-solving, of particular relevance to the evaluation of the QBM, is its facility to rationally explain the nature of creativity, thereby dispelling the view that it is intrinsically mysterious and thus necessarily inexplicable (Simon 1966). Creativity is problem-solving, but of a special kind. It is a meta-level task that restructures the problem space; it seeks alternative initial states, goals and operators. Thus, to consider whether the

tools of the QBM promotes creativity one may simply apply the problem-solving analysis recursively at a higher level, focusing upon the finding of new initial states, goal conditions, or operators. Thus, a column headed ‘creativity’ in Table 2 would be given a pattern of ticks and crosses similar to that in column F3.

(F4) The last of the factors we consider is **social dynamics**. One aspect is the influence of the majority (Asch 1955). Studies in this area have shown the power of the many over the one. For instance, in a classic experiment an individual must report aloud their judgement to a trivial task, but they follow six others who, unknown to the individual, are collaborators in the experiment and all (deliberately) give the same obviously erroneous response. Individuals in such experiments typically feel the weight of the majority so strongly that only a small proportion will contradict the majority and give the obviously correct answer. Clearly, majority influence can powerfully affect the outcome of group decision-making. However, the influence breaks down rapidly: if just one other person disrupts the consensus, most individuals will feel safe to contradict the majority. Milgram’s (1974) (in)famous experiments showed how perceived authority enables most people to override their better judgement and ethics to a shocking extent. Unfortunately, the effect of conformity to authority is far more robust than the influence of majorities.

What potential impact may the QBM tools have on these natural but negative social dynamic factors? If a clerk knows the people in the meeting well, then they could deliberately pick contributions from those who they know are likely to have divergent views—a counter to majority influence. However, the clerk occupies a central position of power in a MfB, and more generally in a Quaker meeting, so the potential of adverse effects of authority is ever present. The typical seating arrangement simultaneously imposes some degree of levelling by placing people roughly equidistance from the clerk, but also emphasises the dominant role of the clerk. If followed, the injunction that participants should not make a contribution that merely repeats points already made will tend to mask the presence of a majority.

For each factor ticks and crosses have been added to Table 2. Reviewing the table, we see that cases where tools positively support decision-making outnumber the negative cases. The exercise can be extended to other cognitive factors, such as analogical thinking and the nature of expertise, and also to learning—that is, how readily new participants will acquire the tools.

Why it Works: Morality

The second analysis (framework part 3) considers whether the tools of the QBM are (a) likely to promote moral decisions and (b) constitute an activity that is itself moral in nature. The first concerns the moral content of decisions: are the courses of action that a meeting agrees likely to be ethical? The second concerns

moral decision processes: does the way in which MfBs are conducted treat those participating ethically?

To answer both questions requires a theory of morality upon which to judge the tools. Fiske's theory (1992), which is elegantly summarised by Pinker (2012), is suitable as it meets many of the scientific criteria, both in itself (particularly criteria 6, 10, 12, 13) and in relation to the QBM tools where the aim here is to avoid unbounded explanations (in particular, criteria 1, 2, 3, 7). Fiske's *moral relation models* theory is a cognitively based account developed by socially orientated cognitive scientists who have conducted cross-cultural studies of the ways people actually engage with each other in moral terms. It identifies five classes of moral relational models that are specific ways humans may interact when they are treating each other as beings worthy of moral consideration (or not).

MM1—*Instrumentalism*. Agents treat other things as mere objects with no inherent moral worth, which is acceptable for inanimate physical objects, increasingly questionable for animals, and wrong for humans.

MM2—*Tribal*. Interactions between people depends on group membership, such as family, clan, ethnicity, sex, age, nationality, team, religion and denomination. Members of the group privilege each other over those who are excluded, with consideration, security and resources being preferentially shared among those within the group.

MM3—*Authority ranking*. These relations are governed by established structures, often hierarchical, that give an ordering to authority, power or status, such as work or social organisations, parents and children, or government and citizens. The expectation is that individuals lower in the structure are loyal to, obey and respect those who are more elevated. People higher in the structure have greater access to and control over resources, but they have paternal, pastoral and protective responsibilities towards their juniors.

MM4—*Equality matching*. All individuals are considered equivalent in value, so deserve the same level of resources, rights and responsibilities, and treatment. Perspective taking and the prohibition of exceptionalism are important notions for this moral model. Special processes are invoked in order to promote equal opportunities when full material equality is not achievable.

MM5—*Legal/rational*. This set of moral models treats us as unique individuals, but relations are controlled using rational and legal means, such as principles, rights, formal procedures (e.g. democracy), ideas about justice or pricing in relation to demand. Applying these models requires a good degree of literacy and numeracy.

The moral models are cognitive in nature; they are systems of thought (*mental models*) which we use to interpret situations and to reason about actions. Morality increases with successive models. A strong justification of the order, and an argument that the five models are both fundamental and exclusive, is that each is uniquely associated with one of the fundamental scales of measurement, specifically: MM1—no scale; MM2—*nominal scale* that categorises entities;

MM3—ordinal scale that encodes order; MM4—*interval scale* to assess quantities of difference, including none; MM5—*ratio scale* that computes proportions against an absolute zero. The granularity of the discriminations and subtlety of inferences that can be made increases with successive models, so it is preferable to adopt higher moral models where possible in order that subtle differences in the needs of individuals can actually be understood. One important function of the rational legal moral models is to constrain the inappropriate use of the lower models.

Table 3 summarises the outcomes of the following analysis. The theory can be used to evaluate the QBM tools by asking whether each tool is likely to *discourage* the application of the three lower moral models or to *promote* the use of the two higher models. These cases are indicated by ticks (√) in Table 3, but if they do the opposite they are given crosses (X).

Table 3. Moral models favoured by the QBM tools.

Moral model	Decision content					Decision process				
	In	Ti	AR	EM	RL	In	Ti	AR	EM	RL
T1. Silence				√	√	√	√	√		
T2. Clerk								√ X	√	
T3. Minutes									√	
T4. Discernment				√	√				√	
T5. Preparatory meeting		X					X	X		
T6. Meeting configuration								X	√	
T7. Expectation & culture		X							√	X
T8. Open-mindedness		√	√							
T9. Corporate values	√	√ X	√	√	√ X					

MM1—Instrumental, MM2—Tribal, MM3—Authority Ranking, MM4—Equality Matching, MM5 Rational Legal. √—curbs In, Ti, AR or promotes EM, RL; X—promotes In, Ti, AR or hinders EM, RL.

Consider first the potential of the QBM tool to favour ethical content. Application of the higher moral models is more demanding and time consuming than of the lower models, because they are more sophisticated and inherently deal with more complex relations. Thus, periods of silence, without distractions, may support those who are contemplating what is just or principled in respect to a particular issue (√ under columns EM & RL and row T1 of the decision context section of Table 3). Discernment may foster wide reflection and the seeking of decisions that are not egocentric and tribal, so could promote consideration of higher moral content. The notion of prioritising the unity of the meeting may create a negative bias against necessary decisions that appear to have uncomfortable

implications for the meeting as a group (Ti–T7). Open-mindedness is a potential antidote to the natural human tendency to prioritise one's own group or position.

Unlike the previous tools, which appear only indirectly connected to moral content, the Quaker testimonies specifically address the substance of issues. The notions of equality and justice are clearly consistent with the equality matching and the rational/legal moral models, but over-emphasising equality can be problematic because this implies that everyone is the same in terms of some important characteristic, which in effect creates a tribe identified by that characteristic. This is contrary to the ideal of the sovereignty of the individual within the rational/legal model. The testimonies to peace and sustainability may be viewed as counters to the negative aspects of instrumentalism, tribalism and authority ranking, because they may promote a shift of focus away from the local immediate concerns of particular groups to broader perspectives and longer timescales that necessarily spans multiple groups. The discernment tool (of Quakers in the USA) recommends a factual focus, which chimes with the highest moral model. However, the ideal of unity, which is sometimes expressed in the testimony to community (especially among US Quakers), has tribal connotations.

Turning to the ethical process strand, how do the QBM tools fare? Again, silence may have a positive moral role merely by tempering the emotions that drive the lowest three models. The complementarity between the role of silence in decision processes and decision context is neat (row T1 in Table 3). The role of the clerk is contradictory in terms of authority ranking. On the one hand, clerks are explicitly given power over the content and the running of MfBs (T2.2, T2.4, T2.5), so these tools unavoidably build in the possibility that a clerk may unfortunately operate in egocentric ways more aligned with the lower rather than the higher models. The force of the natural social effects of authority, as explained above, could exacerbate the problem, but the instruction to clerks to stand aside from the table when they wish to speak outside of their formal role might somewhat mitigate this hazard. On the other hand, power issues are balanced by the clear prescription (T2.1) that clerks are servants of the meeting, which potentially redresses equality. Further, the principal aspect of the tool of discernment (T4.1) directly encourages equality by placing responsibility on all to contribute to the activity. The typical semi-circular arrangements of people in MfBs supports this, but simultaneously is a physical embodiment of the clerk's pivotal authority position. The guidance that the diversity of views expressed should be acknowledged in the minutes is another \surd in the equality matching column.

Preparatory meetings are important tools of the QBM, not least because they offload work from full MfBs. However, subcommittee structures of any kind necessarily create subgroups and hierarchies, with all of the potential negative consequences that may follow. There are implications both for decision content and decision process in moral terms. For example, by working together subcommittee members develop a natural bond through their joint activity and so form a

group; thus, when the subcommittee returns to the full MfB, there can be a greater individual reluctance to rationally moderate the subcommittee recommendations, because of that group identity and loyalty. The presence of subcommittees raises issues of authority because at least two alternative structural hierarchies are in operation. One is the overt primacy of the MfB that created the sub-committee in the first place, and another is the hierarchy of competence created because the preparatory meeting will have greater knowledge of the topic in question. The potential for conflict has unavoidably been created.

Each of these observations is recorded in Table 3, with ticks and crosses to indicate whether each tool promotes the higher or counters the lower moral models, both in terms of decision content and decision process. The table shows that the QBM tools generally favour the two highest moral models and resist the lower models (a majority of ticks).

Discussion

The QBM has been interpreted as a set of nine classes of tools. The two analyses considered whether each set of tools (and in some cases specific tools) are likely to: (a) positively impact cognitive factors that are known to promote good decision-making; (b) yield decisions that are consistent with the higher moral models; (c) promote meeting processes that are compatible with the higher moral models. In all three respects it appears that the QBM may be more effective than not (Tables 2 and 3). So, we can answer the title question affirmatively—*how it works is why it works*. In the cognitive analysis the tools tend to support factors that may improve access to relevant information, mitigate biases, aid problem-solving and counter negative social influences. In the ethical analyses we find that content and process are associated with different tools, so no conclusion should be drawn about a strong relation between the way the QBM operates and the ethical quality of its outputs.

The positive conclusion must be carefully qualified. The overall analysis is based on the guidance provided in *QF&P* and by commentators who adopt a positive stance. Actual MfBs practice inevitably differs from those recommendations and some of the implications that follow are considered below. The identification and taxonomic classification of tools was based on a particular definition of tools, so it is possible that other definitions may exclude some tools, include others or change the categories. Each individual pairing of a tool with a cognitive factor or moral model could be more systematically and tightly argued. The overall analysis is ‘first order’, as it considers relations between tools and factors and models on the presumption that everything else is equal, but does not consider ‘second order’ interactions among the relations. An analysis of such networks would ask whether the whole is greater (or less) than the sum of the parts, and hence might warrant a more positive (or negative) conclusion. Also, simply viewing the proportion of ticks to crosses in Tables 2 and 3 treats all matches between tools and cognitive

factors or moral models as equal, but this is unrealistic. The particular cognitive factors chosen may have skewed Table 2. A particular absence is consideration of the important role of domain specific knowledge—that is, expertise—in decision-making (Hastie and Pennington 1995; Gonzalez 2014), which may be a significant deficiency of the QBM, because it is at best silent about how to treat participants with specialist knowledge or, more problematically, eschews expertise for theological reasons.

Critics might also cite the widely held (post-modern) view that an *objective* account of morality is impossible in principle, or intolerable in practice, because moral judgements are inherently culturally relative. This position is the subject of substantial ongoing debates, which are beyond the scope of this paper (let alone this conclusion), but empirical evidence (Pinker 2018) and philosophical arguments (Harris 2010) can be marshalled in support of the legitimacy of the application of a theory such as Fiske's (1992) moral relational models.

Despite these limitations, the present study has merit because it attempts to avoid the unbounded explanations of previous accounts of the QBM: the operational identification of tools, the Cognitive Science theories and the moral models are largely consistent with the fifteen requirements of scientific explanations listed in the Introduction. In turn, the analysis provides a language for discussing the QBM that, by avoiding uniquely Quaker terminology, potentially makes the QBM more accessible to those, for example, who wish to promote the method to secular organisations (cf. Velayutham 2013). Further, our analysis is a demonstration of the validity of the QBM that does not depend on the acceptance of a Quaker world view: an argument can be made that the QBM is a process that is equal in its rationality, and hence legitimacy, to more common decision-making methods that have the approval of regulatory authorities.

The validity and utility of the tripartite framework may be further demonstrated by using it to explain not just how and why the QBM appears to work, but by using the framework to highlight potential vulnerabilities and limitations of the QBM and also to identify potential improvements (cf. Sheeran 1983). The rest of this section considers some examples.

Quaker MfBs are widely acknowledged to be time consuming (e.g., Burton 2016). But is this a necessary consequence of the QBM? The tools suggest that this may not be inevitable. Whereas silence (T1) certainly takes time, as does the writing of contemporaneous minutes (T2), the other tools may counterbalance their demands. Several value and culture tools encourage participants not to over-participate (T7.1, 7.2, T8.1–8.4). The clerk has specific responsibility for the effective conduct of MfBs (T2.5), so should exercise the authority to prevent lengthy and repetitive exchanges (T8.5). The good use of preparatory meetings (T5) could also promote focus in MfBs. Thus, poor understanding of the cultural expectations of MfBs and over-indulgence by a clerk may conspire to elongate MfBs. A prescription for meetings suffering from the temporal ailment is refresher training for clerks and activities to strengthen expectations about personal conduct

in MfBs. The *QF&P* injunction that individuals should attend MfBs beyond their own local meetings, at least their area meeting, encourages openness to the experience of alternative, and perhaps better, practices.

Other vulnerabilities may be identified by asking what kinds of behaviour might reduce the efficacy of the tools and simultaneously advance the lower moral models. Behaviours that reduce the open-mindedness (T8) of participants are likely to thwart deep exploration of ideas, with detrimental consequences to the quality of decisions. So, it seems critical that participants should be reminded to be acutely aware of when their views are under the influence of tribal or authority ranking moral models. Meetings where cliques flourish—for instance, because longstanding members form a core group—will be vulnerable to natural and powerful psychological forces that tend to bias people towards judging the ideas and motivations of non-group members more negatively than those of members of their own tribe (Pinker 2012). Similarly, undue weighting may be given to another's views, explicitly or tacitly, merely because they occupy an elevated position in a hierarchy even when that particular hierarchy may be immaterial to the issue under consideration. The requirement for fixed terms of individuals in key roles recognises the need for post holders to have authority, but the impermanence of their time in office is a signal to all that the authority is *conferred* on the individual and not inherent to the individual. *QF&P* (section 3.23) makes a definite statement: 'Most appointments should be for either *one* or *three years*' (italics added). But it then adds the rather contradictory qualification: 'It is generally undesirable for someone to hold an appointment for more than six years continuously although there may be exceptions.' Nevertheless, this promotes the equality matching moral model. Not observing the wisdom of adhering to short fixed term offices risks steering any organisation into stormy seas.

Other things that can undermine the QBM include: the use of secrecy within a meeting, perhaps through the overzealous use of confidentiality as a device to avoid conflict, or more perniciously as means of controlling information in the service of authority; the damage caused by any subgroup attempting to agree a course of action outside of the MfB (i.e. behind the scenes decision-making); the simple exertion of personal influence (e.g. through gossip, special pleading to authority); the potential peril of individuals who have a primary relationship outside the meeting serving in key posts at the same time. Although there is no space for us to examine these issues here, together the tools, cognitive factors and moral models can be used to distinguish potential warning signs of such situations and to give explanations of how they might corrode the QBM. Gross (2015) and Robson (2010) identify wider contexts that are critical issues for well-functioning Quaker meetings, which would also be valuable to analyse under the tripartite framework.

Moving beyond limitations, the framework also provides a means to examine potential beneficial variations of the QBM. What adaptations might be made, in

particular to MfBs, that are genuine improvements but unlikely to derail the most viable components of the QBM? To illustrate, consider two possibilities.

The cognitive analysis of the tools reveals the importance of understanding the role of *goals* in effective problem-solving. This suggests that a *two phase* approach to discernment might support decision-making in which the standard MfB practice is applied in each phase but with a different aim. The first *context* phase focuses purely on the goals, or objectives, of the decisions to be made, with consideration of the potential *boundaries of acceptable solutions* and reflection on the actual importance and impact of whatever decision is to be made judged in relation to the corporate principles (testimonies, T9). In problem-solving terms, this phase should be more creative than the next, with a search for good criteria to judge potential solutions and the scoping of the range of potential avenues of solutions, which reduces the bias and risk of prematurely committing to, and fixating upon, one path. The second *content* phase would then address the details of the topic, with a clear goal favouring certain types of solution in a manner more focused than typical MfB practice. Two possible benefits include: (i) a reduced likelihood that individuals will continue to push personal agendas during the content phase because they would have been heard during the context phase; (ii) a lessening of distraction and confusion through a clean separation of ideas that serve different decision-making functions (understand the problem vs. evaluate solutions), which reduces the problem that important points will be forgotten in the flux of contributions. The hope is that the context phase might encourage participants to be more open-minded and willing to hear more diverse views (T8) in the following content phase, but also enable the meeting to identify clear goals for problem-solving (F3). Sheeran (1983) observes that the QBM sometimes naturally exhibits these two phases: the present recommendation proposes that this should be done formally, with minutes drafted at the end of each stage.

An idea is suggested by those practices in MfBs that are conventional (historical) but not directly recommended in *QF&P* and thus captured in the tools. Specifically, *QF&P* does not stipulate that speaking aloud in the physical presence of others is the best or sole means of communicating in a MfB. (Burton (2016) notes that exploration is underway on the use of modern digital technologies for meetings where participants are remote from each other in space and time.) Similarly, *QF&P* does not state that contributions must occur in a serial fashion, but just that one should attend seriously to all contributions. Together these two ideas suggest that the method of 'silent conversations' might be adopted as a supplementary mode of MfB decision-making. In a silent conversation contributions are made simultaneously in writing on multiple large sheets of paper distributed on tables around the meeting room. Each sheet has a unique title to identify a specific aspect of the issue under examination and participants circulate around the room several times writing their views on the sheets and adding new comments to the previous points left by others. The author has seen this technique used effectively by Quakers to discuss contentious issues.

The proposal is to adapt silent conversations to full MfBs. For an MfB, the clerk, or a preparatory meeting, would have the critical responsibility of deciding upon the sheet titles. The participants circulate around the room in complete silence. The clerk also circulates, reading the developing conversation in order to gain a sense of the meeting. At some point, all are reseated and wait in silence as the clerk drafts a minute. Clearly, the details of the approach, such as when to bring the parallel contributions to a close and to establish a workable comment-making etiquette, would need to be developed.

Nevertheless, in terms of the tripartite framework there are promising potential benefits. The approach is naturally inclusive, as all are given a full opportunity to contribute (equality matching moral model), including those reluctant to speak in public, but it nevertheless does not curtail those with specialist knowledge sharing their deeper understanding. As each comment is not immediately associated with its contributor (at least in time), the perception of their status or connection to a particular group is reduced. This may release participants from the influence of cognitive biases (F2) such as majority influence, and from the harmful effects of authority ranking and tribalism. Together, the separation of the commentator from their view, the ability of each person to choose their own pace in writing, reading and reflecting upon contributions, and the deliberate seeking of the full diversity of views of those present may foster a fertile environment for deep discernment that could be especially useful for challenging decisions.

Whether the context-content phasing and the silent conversation adaptations would actually enhance current MfBs will of course need to be tested in practice. The critical point to note here is that justification for these adaptations flows fairly directly from the tripartite framework, which in turn argues for their compatibility with the core tenets of the QBM.

The analysis using the tripartite framework is theoretical, although the framework is grounded in ideas that have good empirical support. To fully answer the title question of this paper, and to assess how the QBM compares with more conventional approaches to group decision-making, will require empirical studies of the QBM in action. The tripartite framework has made specific hypotheses about the particular role and impact of the tools on known cognitive processes and the use of each of the moral models in specific circumstances. These might be taken as foci for evaluation studies. Further, unlike previous empirical studies of Quaker meetings that have relied on capturing the subjective opinions of meeting participants (e.g. Robson 2010; Grant 2015), studying the QBM through the lens of Cognitive Science opens the door to the rich cabinet of empirical methodologies from that field that may be used to scientifically study the processes of the QBM.

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