

Evaluating the successful implementation of evidence into practice using the PARIHS framework: theoretical and practical challenges

Authors

Alison L Kitson RN, B.Sc (Hons), DPhil., FRCN

Corresponding Author

Honorary Professor and Executive Director Nursing
Royal College of Nursing
20 Cavendish Square
London W1G 0RN
Alison.Kitson@rcn.org.uk

Jo Rycroft-Malone, PhD, MSc, BSc (Hons), RN

Reader in Health Services Research
Centre for Health Related Research
University of Wales, Bangor
j.rycroft-malone@bangor.ac.uk

Gill Harvey RN, BNurs, PhD

Senior Lecturer in Health and Public Sector Management
Centre for Public Policy and Management
Manchester Business School
Gill.harvey@mbs.ac.uk

Brendan McCormack DPhil (Oxon), BSc (Hons) Nursing, PGCEA, RGN, RMN

Professor of Nursing Research
Institute of Nursing Research
University of Ulster
Director of Nursing Research and Practice Development
Royal Hospitals Trust
Belfast
Adjunct Professor of Nursing
Faculty of Medicine, Nursing and Health Care
Monash University
Melbourne
brendan.mccormack@royalhospitals.n-i.nhs.uk

Kate Seers RN, BSc, PhD

Honorary Professor and Head of Research
RCN Institute
Whichford House
Building 1400
Parkway Court
Oxford Business Park
Cowley
Oxford OX4 2JY
Kate.seers@rcn.org.uk

Angie Titchen DPhil (Oxon) MSc, MCSP

Clinical chair, Knowledge Centre for Evidence-Based Practice
Fontys University of Applied Science
Eindhoven, The Netherlands
Senior Research & Practice Development Fellow
Royal College of Nursing
20 Cavendish Square

London W1G 0RN
Angie.Titchen@rcn.org.uk

Abstract

Background

The PARIHS framework (Promoting Action on Research Implementation in Health Services) has proved to be a useful practical and conceptual heuristic for many researchers and practitioners in framing their research or knowledge translation endeavours. However, as a conceptual framework it still remains largely untested and therefore devoid of any real evidence base either to discount it or to refine and improve it.

Discussion

This being the case, the paper summarises our conceptual and theoretical thinking to date, and describes the next stage of our work: namely the development of diagnostic and evaluative methodologies to enable the framework to be used and tested in practice in a more systematic way.

Three major areas for further consideration in the wider discourse around research implementation science are outlined. These include the use of theories to inform and shape our research activity; the ongoing challenges of developing robust and sensitive measures; beginning to explore the relationship between facilitation and what counts as an intervention and finally to note how the current debates around evidence into practice are adopting wider notions that fit innovations more generally.

Summary

The paper concludes by suggesting an approach to addressing these complex issues through the setting up of an international research implementation science collaborative that can systematically collect and analyse experiences of using and testing the PARIHS framework and other approaches.

Key Words: Evidence-based practice, knowledge translation, PARIHS framework, theory, knowledge utilisation, research implementation, implementation science.

Background

The spread of best practice and the use of best evidence remain sporadic. There continues to be a tension between policy imperatives and the ability to successfully support and enable local developments. Arguably the debate about how to implement evidence effectively reflects a lack of a true appreciation or understanding of the multiple factors involved. However, there has been a shift away from the traditional notion that getting evidence into practice is straightforward. Until relatively recently the spread of evidence was seen as a linear and technical process at the level of the individual, and was described as changes in clinicians' behaviour in line with evidence-based guidelines [1]. Now there is widespread recognition that guideline implementation, and evidence implementation more generally, require whole system change implicating the individual *and* organisation (e.g. [2];[3]). Despite a growing awareness that getting evidence into practice is a complex, multi-faceted process, there remains a lack of knowledge about what methods and approaches are effective, with whom and in what contexts.

The PARIHS framework represents the complexities of implementing evidence into practice. Previous papers have reported on the development of the framework over time ([4] – [9]). Other authors have also reported on their use of PARIHS as a theoretical and practical heuristic to guide research and practice development work (e.g. [10] – [14]). This paper integrates our work to date, and develops the idea that the PARIHS framework could become both a diagnostic and evaluation tool, which might help practitioners more successfully implement evidence into practice, and researchers evaluate such activity. Additionally the current and future challenges in relation to the PARIHS framework and to the field more generally are identified and discussed.

The PARIHS framework – an overview

Within the PARIHS framework successful implementation (SI) is represented as a function (f) of the nature and type of evidence (E), the qualities of the context (C) in which the evidence is being introduced, and the way the process is facilitated (F); $SI = f(E, C, F)$. Detailed descriptions exist in the literature on the development and empirical evaluation of the PARIHS framework (see for example [4] - [9]). The framework has been refined through three phases (see Table 1 for a comprehensive summary). The unique characteristic of the PARIHS framework was that it proposed a three dimensional framework within which to interpret successful implementation, arguing that elements could be located on a continuum of “high” to “low” evidence and context (see Fig. 1).

Summary of the Development and Refinement Steps for PARIHS Framework. (see table 1)

The main features and assumptions of the framework are:

- i. Evidence encompasses codified and non-codified sources of knowledge including research evidence, clinical experience including professional craft knowledge, patient preferences and experiences, and local information. The terms evidence into practice and knowledge translation are used interchangeably in this paper.
- ii. Melding and implementing such evidence in practice involves negotiation and developing a shared understanding about the benefits, disbenefits, risks and advantages of the new over the old. This is a dialectical process that requires careful management and choreography and one which is not done in isolation; in other words it is a team effort.
- iii. Some contexts are more conducive to the successful implementation of evidence into practice than others – these include contexts that have

transformational leaders, features of learning organisations, and appropriate monitoring, evaluative and feedback mechanisms.

- iv. There is an emphasis on the need for appropriate facilitation to improve the likelihood of success. The type of facilitation, and the role and skill of the facilitator that is required is determined by the “state of preparedness” of an individual or team, in terms of their acceptance and understanding of evidence, the receptivity of their place of work or context in terms of the resources, culture and values, leadership style and evaluation activity. Facilitators work with individuals and teams to enhance the process.

Table 1/Figure 1 about here

The objective of phase 3 is to build on the concept analysis and clarification undertaken in phases 1 and 2 and to evaluate the current framework through the development and testing of diagnostic and evaluative instruments to assist in the process of knowledge translation. Whilst conducting this phase, a number of challenges have arisen, which, whilst reflecting the particular complexities of the PARIHS framework’s development, are also relevant to current debates in the field of knowledge translation. These include, understanding how the conceptual framework relates to and informs the development of integrated theoretical frameworks that are practically useful and theoretically robust; engaging in the challenges measurement presents; and clarifying facilitation as an intervention and understanding the relationships between innovation and evidence-based practice. These issues will be considered in turn.

Discussion

Developing an integrated theoretical framework

There is an emerging debate in the literature about theory use and development in knowledge translation work (e.g. [15]; [16]; [17]). Theory use is presented by

its supporters as a promising approach to better understanding the 'black box' of implementation (which in itself reflects a set of presuppositions about the nature of the underlying cause and effects of successful implementation). There are numerous models and frameworks available to guide knowledge translation activity; each at varying levels of development and maturity (e.g. The Ottawa Model [18]; The Stetler Model most recently updated by the author in 2001 [19]; and The IOWA Model [20]). Whilst others have referred to the PARIHS framework as a model [11] it was originally described as a conceptual framework, rather than a theory or model [4].

An important question to ask is whether it matters what we call these mental devices. Is there a difference between conceptual frameworks, theories and models and if so what and how would such differentiations help our understanding of the complex world of research implementation or knowledge transfer? Identical questions have been posed in the discipline of public policy analysis and implementation, and theory development [21]. The policy world is complex, with multiple elements interacting over time. How can complex situations be simplified in order to understand them? In attempting to create a deeper understanding Sabatier and colleagues have described three dominant approaches to policy analysis and implementation, and within this analytic framework they have also put forward a typology for understanding the different 'mental representations' we could use to hold onto the complex world. This analytic framework, first proposed by Ostrom [22] [23], has been used as a way of trying to make sense of the different ways that frameworks, theories and models could be used to inform our research activity. Ostrom [23] argued that "given the need for multiple disciplinary languages and given the multiple levels of analysis involved in studying configural relationships between rules, relevant aspects of the world and cultural phenomena, the study of institutions does

depend on theoretical work undertaken at three levels, namely frameworks, theories and models”(p39).

Both Sabatier [21] and Ostrom [23] argue that for the effective development of policy theory the following distinctions can be made: a conceptual framework identifies a set of variables and relationships that should be examined in order to explain the phenomena. Indeed, a framework can provide anything from a skeletal set of variables to something as extensive as a paradigm (a paradigm is the notion which places emphasis on professional consensus within a particular scientific community. It stands for the entire constellation of beliefs, values, and techniques shared by members of that community [24]). A conceptual framework need not specify the direction of relationships or identify critical hypotheses. In contrast, a theory provides a more dense and logically coherent set of relationships. Theories offer views on the causal relationships and seek to explain the phenomena. Numerous theories may be consistent within the same framework. Models, by contrast, represent a specific situation, are narrower in scope and are more precise in their assumptions [23] (pp 39-40) [21] (pp 262-263). This approach would seem to offer one way of testing conceptual coherence between the typological levels within the discourse of implementation science.

For Ostrom [23] a conceptual framework helps to identify elements and relations among those elements that one needs to consider for an analysis of organisations and their ability to absorb and adopt institutions. Frameworks also organise diagnostic and prescriptive enquiry and provide a more general list of variables that can be used to analyse types of institutional arrangements. Conceptual frameworks provide a meta-theoretical language that can be used to compare theories and they attempt to identify universal elements of any theory relevant to the same kind of phenomena that would need to be included in order to understand the “bigger conceptual picture”. Thus, for example, in Ostrom’s

analysis, the question would be whether the elements as identified in the PARIHS framework survive continuous scrutiny and testing against multiple theories that have a relevance and coherence to research implementation strategies. So long as this is the case, the elements remain intact: once exceptions begin to emerge the basic tenets of the conceptual framework are placed under further scrutiny.

Whilst the PARIHS framework has been subject to an on-going development process, questions about it remain, including:

1. How do the elements (evidence, context and facilitation) and sub-elements interrelate and interact?
2. Do the elements and sub-elements have equal weighting in getting evidence into practice?
3. Is the content of the framework comprehensive?

For the framework to usefully inform the development and testing of current and emerging theories, these questions need to be answered. Arguably, work to date has provided evidence of the framework's content and construct validity ([6];[7]; [8];[11]); that is, we can be reasonably confident that PARIHS is a *conceptually* robust framework, which is a sufficient basis upon which to begin testing a range of theories and building new theories. The test of its effectiveness as a conceptual framework is whether it can generate such diagnostic, analytic, prescriptive and evaluative discourse.

According to Ostrom [23] (p64) key questions to test the coherence of any conceptual framework, include:

1. Does the framework provide a coherent language for identifying universal elements of theories attempting to explain an important range of phenomena?

2. Does the framework help scholars to identify similarities or differences of diverse theories as well as to analyse the relative strengths and weaknesses of theories in explaining particular types of phenomena?
3. Does the framework stimulate new theoretical developments?

Questions used to test the usefulness of any conceptual framework in empirical research include:

1. Does the framework help organise empirical research in those areas where well-specified theories are not yet formulated?
2. Does empirical research drawing in the framework lead to new discoveries and better explanation of important phenomena?
3. Can the framework be applied to multiple levels of analysis in empirical research?

And finally, in relation to conceptual frameworks, Ostrom's typology includes questions about the ease by which the framework aids the better understanding and dialogue across disciplinary boundaries:

1. Does the framework encourage integration across other disciplines?
2. Is the framework consistent with other frameworks initially developed to focus on a particular level of analysis?
3. Does the framework perform better than others in a similar stage of application?

These questions are helpful because they enable an assessment to be made of the PARIHS framework's stage of development and provide an agenda for further work. For example, there is evidence to indicate that PARIHS does help organise empirical research where theories are yet to be formulated (e.g. [11]; [25]), and

that the framework has led to better explanations of important phenomena (e.g. [10]; [26]). However, consideration still needs to be given to the framework's capability for theory application and development. Questions about the range and diversity of applicable theories still need to be explicated. Adopting Ostrom's typology, which acknowledges multiplicity, it could be argued that rather than placing PARIHS within one particular theoretical perspective or offering a single theory for research implementation (we are using the term research implementation generically to cover activity that is also described as knowledge translation, knowledge transfer and research utilization), which could limit its applicability, the framework could be populated by multiple theories, at multiple levels. Further consideration of these issues forms the basis of the next phase of work/development.

Frameworks, Theories and Models in use: The Chess Game.

How does this analysis help to guide users in successfully implementing evidence into practice? We could use the analogy that the PARIHS framework is like a chess game: there is a defined set of rules and an agreed number of chess players. The pawns, knights, king, queen, bishops etc. each have a set of rules to follow. Each chess piece has its own provenance or theoretical background that would explain the reason why different pieces move in certain ways. Equally, in each game the unique configuration of the chess pieces creates an almost infinite number of moves that can test the boundaries of movement of each piece, and equally test the boundaries of the higher rules of the game (framework) itself. Each new game could be like a model that will test the theories of the chess pieces within the boundaries of the chess game, i.e. the conceptual framework.

However, unlike the chess game, we still do not know the rules (should there be any) of the knowledge translation game and the movements of the different pieces are yet to be fully understood. Of course, this analogy only works if we

accept the prior assumption that implementation processes are predictable and that there are certain causes and effects at work. The converse position is to assume that all interactions are random and that there is no predictive capacity because of the complexity involved in working with so many variables. Given that we do not know which of these positions is the more accurate, and is largely dependent on one's world view of how these issues should be studied, we argue that it is legitimate to proceed with the "chess game analogy" until there is sufficient evidence amassed to disprove it. Taking such an a priori position is consistent to Kuhn's notion that all good scientific endeavours are about the business of empirically falsifying propositions within a theoretical framework [21].

Thus, to conceptualise the process of introducing evidence into practice we are suggesting that to use the PARIHS framework, practitioners and researchers contemplate the interplay of evidence, context and facilitation and their sub-elements. Each element and sub-element has a conceptual and theoretical order that determines its intrinsic properties; the interaction of these elements is conditional on their state, maturity, context and many other factors. The modelling or experimentation that can be constructed is a way of tracking the nature of the different elements and beginning to map the processes by which change occurs through the interaction of these elements.

Table 2 illustrates how the PARIHS framework elements (Evidence, Context and Facilitation) could draw on multiple theoretical perspectives, which in turn offer even more models that can then be used to explore systematically the consequences of these propositions in a clearly defined and controlled set of outcomes. What begins to emerge when looking at table 2 is that, depending on the theoretical approach taken, there are any number of entry points into testing elements of the framework. How researchers and practitioners "make sense" of the bigger conceptual framework is a fundamental question and an on-going

challenge reflecting the complexities involved. The choice of theoretical perspective will necessarily put a boundary around the area of investigation; for example, if we want to investigate the impact of opinion leaders on research implementation using transformational leadership theory, then we will still be left with the job of integrating these findings into the bigger conceptual picture of how research findings get into practice. Holding one piece of the conceptual jigsaw without negating the possible impact of other factors is very important but very difficult to manage.

[Table 2 here]

Such an approach to framework and theory use and development requires researchers to be flexible and holistic. To date, the knowledge translation literature describes theory use and development as a linear and discrete process (e.g. [16]; [17]). Looking to other methodologies such as realist evaluation [27] may limit reductionism, and provide enlightening findings about the interactions and complexities involved in knowledge translation activity [28]. However, we still need to be mindful of the relationship between the theory and the subsequent methodology and consider their fit with each other and with philosophical perspectives.

An additional set of definitional challenges that Sabatier and Ostrom's typology raises is their definition of models. Ostrom [23] (p40) describes models as precise assumptions about a limited set of parameters and variables. Logic, experimentation and a variety of simulations can be used to explore systematically the consequences of these assumptions in a limited set of outcomes. Multiple models are compatible with most theories and frameworks. So, for example, in this typology, we could set up an experiment that would test the model of audit and feedback as a precise intervention. The theoretical

underpinning of the model could be decision theory or learning organisation theory, both embedded within the bigger conceptual framework of evidence, context and facilitation. The challenge then is to draw sufficiently cogent paradigmatic boundaries around the framework so that it does not become a 'catch all' of ideas and conjectures. How we do this is where the real scientific discipline comes into focus and where logical coherence and consistency of terms and relationships are set out for scrutiny, and it is where causal processes seek to explain how certain patterns of phenomena have come about. And of course this requires the ability to measure the variables under scrutiny.

From conceptual framework to measurement and evaluation

Estabrooks et al [29] have outlined the challenges of measuring knowledge utilisation in health care. These include a lack of underpinning theory, construct clarity, measurement theory, psychometric assessment, and a presumption of linearity. Additionally Rich [30] claimed that there tends to be a bias to measure things that are easy to capture. These measurement challenges reflect the general complexity of research implementation. As described above, the purpose of the PARIHS framework is to provide a map to enable others to make sense of this complexity, and the elements that require attention if implementation is more likely to be successful. The next step is to consider whether the PARIHS conceptual framework lends itself to guiding the development of diagnostic and evaluative approaches and instruments, which could be used by both researchers and practitioners.

Given that more theoretical work needs to be conducted on the PARIHS framework these ideas are at an early stage. Table 3 shows some draft questions, which may begin to facilitate the identification of those elements within 'evidence' and 'context' that require development work, and active intervention(s) ('facilitation') to be successfully introduced within specific implementation

projects. The questions developed in the tool could enable individuals and teams to test their appreciation and understanding of evidence, context and facilitation. For example, using the four sub-elements of 'evidence', the tool enables the development of a better understanding of assumptions and perceptions about the research base, how this conflicts with and/or supports clinical experience, professional judgement and patient preferences, and whether routine information is sufficiently robust to be able to offer data on current practices and what needs to change. Similarly, the questions about 'context' encourage an evaluation of the preparedness of the context to embrace and sustain implementation. These questions could be answered individually and/or through a facilitated dialogue where each team members' assumptions, prejudices, views about existing practice and the proposed change are discussed and debated. Through this process the team would come to an agreed ranking of the 'readiness' of the team to embrace the new practice, evidence or innovation.

[Table 3 here]

One approach to representing this state of readiness would be to aggregate responses to the questions, and then translate them onto a grid that plots the position the team judges themselves to be in before they embark upon the implementation process. An example of this is presented in Figure 1. At this stage the location on the grid enables an assessment of the type of facilitation support that would most effectively lead to the successful implementation of evidence, likely requiring changes in behaviour and working patterns. The diagnosis identifies the position of the team. The trajectories in Figure 1 illustrate examples of three possible positions:

- F1 where the context elements are weak but evidence is strong.
- F2 where both the context and the evidence elements are weak.
- F3 where evidence is weak but the context conducive to change.

[Figure 2 about here]

Whilst it is likely that many sources of information will be required to decide on an appropriate course of action, the diagnostic score may provide an indication of the starting point. Facilitation, as the intervention, can then combine a range of approaches ranging from task focused (e.g. project management, resource identification), to more enabling processes (e.g. personal development, action learning). The role of the facilitator then is concerned with assessment of the situation, assessment of individual, team and workplace readiness, development of change and evaluation strategies, support of the implementation process and coaching and mentoring the team through the change.

The final task is to evaluate and check whether the self-assessment scores have migrated further towards the top right hand quadrant. By considering the evaluation questions individuals and team can evaluate their implementation efforts. These could be administered at both process and summative evaluation opportunities, and progress mapped.

Using PARIHS as the basis for a tool may shift thinking away from conventional, arguably narrow, notions of measurement to more wide ranging and eclectic approaches to evaluation. Given that we predict so much variation in appreciation of evidence and context, the way to test the measurement tool has to accommodate variety and multiple interpretations. This is why we wish to set up networks of researchers and practitioners who are willing to work together to test out these assumptions and ideas.

Facilitation and interventions

An assumption of the PARIHS framework is that real implementation success comes when there is a diagnosis of what needs to be done, and then through a systematic process of facilitation this is enabled. However, this assumes that the

knowledge translation community have the same or similar notion of what an intervention is. We suggest that *facilitators* have a key role in helping individuals and teams understand what they need to change and how to change it to successfully implement evidence into practice. As such, facilitation has been identified as an intervention that enables the implementation of evidence into practice. However, facilitation is complex and multi-faceted, and poorly understood in the context of knowledge translation. Whilst carrying out a facilitator role, facilitators are likely to use or integrate other implementation interventions (e.g. audit and feedback, interactive education, experiential work-based learning) while performing a problem-solving and supportive role [25]. As such there is significant work to be conducted both with respect to the impact facilitation may have on the successful implementation of evidence in practice (particularly in comparison to other change agent roles), and also its usefulness, and discreteness within multi-intervention implementation projects.

We argue that more careful theoretical work, modelling and testing of the concept of facilitation is required because it is the process by which individuals and teams first of all interact and engage with evidence (either as guidelines, research reports or any new innovation entering the system) and then try to negotiate its adoption/acceptance into their organisation. So far, we have found that apart from some approaches such as the practice development movement in nursing ([31]; [32]; [33]) and the quality improvement [25] there has been little acknowledgement of the importance of the facilitation process within the knowledge translation research community. For example Greenhalgh et al's [34] comprehensive review offered a model that attempted to make sense of the current research evidence on successful implementation of innovation, which did not identify the role and potential contribution of facilitators or facilitation.

These conclusions would lead one to surmise that the future direction of travel will be around the development of much more complex and bespoke interventions that will fit local contexts. Whether this is different from what the PARIHS framework terms “facilitation” is an appropriate question to ask.

Concluding remarks

There is a small, but growing body of evidence from research and practice that shows the PARIHS framework has conceptual integrity, face and concept validity. However, there are major challenges ahead if the framework is to help in the systematic exploration of these complexities around the art and science of implementation.

The three challenges outlined include the need to integrate theoretical perspectives into the framework in a way that enables us to make sense of the complexities and to construct appropriate models to explore what works in knowledge translation. PARIHS was developed inductively, which points to an interpretive lens on theory application and development. However, using Ostrom’s helpful analytical approach it may be more helpful to begin to see the framework as being populated by various theoretical positions, which some would view as a strength, some as a weakness. These issues have yet to be debated in the knowledge translation literature generally, and in relation to the PARIHS framework specifically.

A second area of investigation is the development and testing of diagnostic and evaluative methodologies and associated instruments based on the elements and sub-elements of the PARIHS framework. What seems to be emerging is the need for a high level set of principles (conceptual framework) that can help people on

the ground understand what they can do. The principles can offer a framework within which a number of approaches or attempts at implementation and evaluation of the effectiveness of the intervention can be made by both the players on the ground and any researchers involved with them.

Thus it would seem that the current knowledge base around successful implementation of innovations into practice emphasises processes of engaging local practitioners as well as outlining a set of key principles that help guide the activity.

Whilst there are some studies underway [35], to date there have been few, if any, systematic investigations of facilitation as an intervention. We believe that much more conceptual clarification is needed before the science around it can improve. Equally, the arguments put forward here, that future implementation tools ought to have both diagnostic and evaluative properties also need to be tested. Our proposal to create communities of researchers, practitioners and other stakeholders undertaking pieces of work to test the whole framework is presented as a way of moving the agenda forward. We see the need for this collaborative approach, not only between researchers but also between research teams and those practitioners at local level who actually have the task of implementing evidence into practice. This need for greater alignment of these two groups has been reinforced by Greenhalgh et al's work [34] where they broaden out the notion of implementation of evidence to include innovations in general and by practice development researchers (e.g., [36]). We also note the semantic and conceptual shift in the discourse and seminal work of Van de Ven and colleagues [37] who have, two decades earlier, tried to measure these very same complexities. Their elegantly designed studies could help us to construct more appropriate studies that take account of the multiple elements at work.

Lastly, we suggested the analogy of a chess game as a way of trying to understand the task in hand. We have a board in front of us (metaphorically speaking) with game pieces (PARIHS elements and sub-elements) whose moves we need to test out. Once we know what these pieces do, we can set up the games i.e. the particular interventions to see what happens. Our research endeavours will, if we are lucky, be able to produce guiding principles for the moves that practitioners can use to successfully implement research into practice. However, we acknowledge the significant work that practitioners will always have to do to transform the principles into effective actions in their own workplaces.

Summary

- The PARIHS Framework is a useful practical and conceptual heuristic for research implementation but it remains largely untested, hence there is not an evidence base to discount or refine it.
- The paper summarises the conceptual and theoretical thinking around the use of the Framework, inviting colleagues who have or are using it to comment on its utility and effectiveness.
- The first stages of developing diagnostic and evaluative methodologies based on the Framework are presented.
- A research implementation science collaborative working on various elements of the Framework is proposed to accelerate the production of the evidence base.

Competing Interests

The authors declare that they have no competing interests.

Authors' contributions

Alison Kitson: lead author and co-ordinator of the paper.

Jo Rycroft-Malone: co-writing and re-drafting the paper

Gill Harvey, Brendan McCormack, Kate Seers, Angie Titchen: ideas contained within the paper and commenting on drafts

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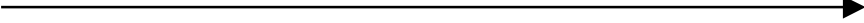
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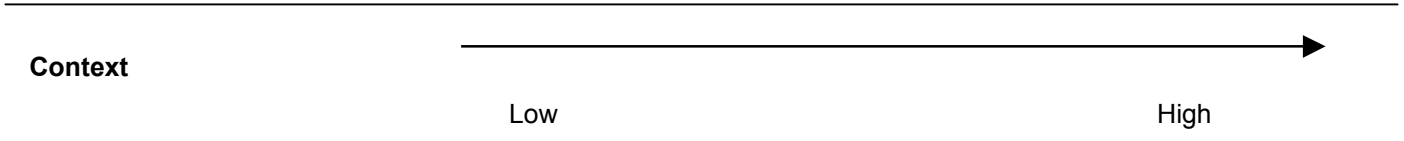
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Figure 1 – The Core Elements and Sub-Elements of the PARIHS Framework

Elements	Sub-Elements	
Continuum		
Evidence		High
	Low	
Research	<ul style="list-style-type: none"> ▪ Poorly conceived, designed and/or executed research ▪ Seen as the only type of evidence ▪ Not valued as evidence ▪ Seen as certain 	<ul style="list-style-type: none"> ▪ Well conceived, designed and executed research, appropriate to the research question ▪ Seen as one part of a decision ▪ Valued as evidence ▪ Lack of certainty acknowledged ▪ Social construction acknowledged ▪ Judged as relevant ▪ Importance weighted ▪ Conclusions drawn
Clinical Experiences	<ul style="list-style-type: none"> ▪ Anecdote, with no critical reflection and judgement ▪ Lack of consensus within similar groups ▪ Not valued as evidence ▪ Seen as the only type of evidence 	<ul style="list-style-type: none"> ▪ Clinical experience and expertise reflected upon, tested by individuals and groups ▪ Consensus within similar groups ▪ Valued as evidence ▪ Seen as one part of the decision Judged as relevant ▪ Importance weighted ▪ Conclusions drawn

Patient Experience	<ul style="list-style-type: none"> ▪ Not valued as evidence ▪ Patients not involved ▪ Seen as the only type of evidence 	<ul style="list-style-type: none"> ▪ Valued as evidence ▪ Multiple biographies used ▪ Partnerships with health care professionals ▪ Seen as one part of a decision ▪ Judged as relevant ▪ Importance weighted ▪ Conclusions drawn
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Local data/information	<ul style="list-style-type: none"> ▪ Not valued as evidence ▪ Lack of systematic methods for collection and analysis ▪ Not reflected upon ▪ No conclusions drawn 	<ul style="list-style-type: none"> ▪ Valued as evidence ▪ Collected and analysed systematically and rigorously ▪ Evaluated and reflected upon ▪ Conclusions drawn
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Culture	<ul style="list-style-type: none"> ▪ Unclear values & beliefs ▪ Low regard for individuals ▪ Task driven organisation ▪ Lack of consistency 	<ul style="list-style-type: none"> ▪ Able to define culture(s) in terms of prevailing values/beliefs ▪ Values individual staff and clients ▪ Promotes learning organisation ▪ Consistency of individuals role/experience to value:
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relationship with others

- teamwork
- power & authority
- rewards/recognition

- Resources not allocated
- Well integrated with strategic goals

- Resources – human, financial, equipment – allocated
 - Initiative fits with strategic goals and is a key practice/patient issue
-

Leadership

- Traditional, command and control leadership
- Lack of role clarity
- Lack of teamwork
- Poor organisational structures
- Autocratic decision making processes
- Didactic approaches to learning / teaching / managing

- Transformational leadership
 - Role clarity
 - Effective teamwork
 - Effective organisational structures
 - Democratic inclusive decision making processes
 - Enabling/empowering approach to teaching / learning / managing
-

Evaluation

- Absence of any form of feedback
- Narrow use of performance information sources
- Evaluations rely on single rather than multiple methods

- Feedback on:
 - individual
 - team
 - system performance
- Use of multiple sources of information on performance
- Use of multiple methods:
 - clinical
 - performance
 - economic

-experience
evaluations

Facilitation

Low =
inappropriate facilitation

High =
appropriate facilitation

Purpose

Role

Task

Doing for others:

- Episodic contact
- Practical/technical help
- Didactic, traditional approach to teaching
- External agents
- Low intensity – extensive coverage

Holistic

Enabling others:

- Sustained partnership
- Developmental
- Adult learning approach to teaching
- Internal/external agents
- High intensity – limited coverage

Skills & Attributes

Task/doing for others

- Project management skills
- Technical skills
- Marketing skills
- Subject/technical/clinical credibility

Holistic/enabling others

- Co-counselling
- Critical reflection
- Giving meaning
- Flexibility of role
- Realness/authenticity

Table 1**SUMMARY OF DEVELOPMENT AND REFINEMENT STEPS OF PARIHS FRAMEWORK**

Phase 1: Development and Concept Analysis 1998 – 2002	
Origins	<ul style="list-style-type: none"> - Emerged from working with clinicians in helping them to improve practice, introduce new ideas and implement guidelines.
Main Attributes	<ul style="list-style-type: none"> - Successful implementation of new ideas (evidence, guidelines, etc.) is a function of the interrelations between three key elements – evidence, context, facilitation: $SI = f(E,C,F)$
Face Validity	<ul style="list-style-type: none"> - 4 research studies were analysed retrospectively to test the hypothesis that $SI = f(E,C,F)$. - Strong face validity.
Construct Validity	<ul style="list-style-type: none"> - Assumption that Evidence, Context and Facilitation as described are discrete and interdependent and can be manipulated in a purposeful way.
Refinement	<ul style="list-style-type: none"> - Need to undertake detailed concept analysis of each of the elements and sub-elements (E,C,F).
Future Action	<ul style="list-style-type: none"> - Concept analysis and empirical testing.
Publications	<ul style="list-style-type: none"> - [4]; - [7]; [6]; - [5]
Phase 2: Empirical Case Studies 2001-2003	
Main Research Questions	<ul style="list-style-type: none"> - What factors do practitioners identify as the most important in enabling implementation of evidence into practice? - Do concepts of evidence, context and facilitation constitute the key elements of a framework for getting research into practice?

Refinement	<ul style="list-style-type: none"> - Important additions to evidence – information from local context; resources, physical and political influences in context. - Experience of facilitators on the ground with very little, limited support.
Future Action	<ul style="list-style-type: none"> - Further testing through larger scale empirical enquiry testing the checklist and developing an evaluation tool.
Publications	<ul style="list-style-type: none"> - [5] & [8]

Phase 3: Development of Diagnostic/Evaluation Tool 2003 – Present	
Main Research Questions	<ul style="list-style-type: none"> - Is it possible to develop a diagnostic and evaluative tool to measure the successful implementation of new ideas (evidence, innovation) into practice using the PARIHS framework?
Refinement	<ul style="list-style-type: none"> - Pre-test diagnostic phase <ul style="list-style-type: none"> • Summary scores for evidence and context (E,C) • Narrative summary • Information on prototypes of facilitation approaches - The facilitation process - The post test evaluation <ul style="list-style-type: none"> • Re-plot summary scores for E + C • Narrative summary • Evaluation of facilitation approach

Table 2

Conceptual Frameworks, Theories and Models: Interrelationship between the elements of the PARIHS Framework and linked theories and models.

Framework	Theory Example	Model(s)
Evidence	Decision making Cognitive theory Knowledge generation Propositional/non-propositional Inductive-deductive reasoning	Guideline implementation Electronic reminders Patient narratives Audit and feedback
Context	Organisational theory Evaluative theories e.g., critical Social science, 4 th generation Evaluative research Learning organisation theory Leadership theory Marketing theory	Continuing professional development Leadership styles Practice development Audit and feedback
Facilitation	Adult learning theory Humanistic psychological theory Psychoanalytical group theory Social theory Therapeutic client-centred approaches Experiential learning theory Self-efficacy	Co-counselling Critical reflection Project management

Table 3

**PARIHS Framework:
Stages of Refinement**

Phase 1 –	Phase 2 –	Phase 3 -
EVIDENCE	EVIDENCE	EVIDENCE
Research –		
* randomised controlled trials	* well conceived, designed and executed research appropriate to the research question	The research evidence is of sufficiently high quality
* systematic reviews	* seen as one part of a decision	The research will be used as one part of the evidence
* evidenced based guidelines	* lack of certainty acknowledged	I value the research evidence
	* social construction acknowledged	The research evidence fits with my understanding of the issue
	* judged as relevant	The research evidence is useful in thinking about the issue
	* importance weighted	I am clear about what the key messages for the planned intervention are
	* conclusions drawn	There is consensus amongst my colleagues about the usefulness of this research to this issue
Clinical Experience-		
* high levels of consensus	* clinical experience and expertise reflected upon, tested by individuals and groups	I have reflected on my own clinical experience in relation to this issue
* consistency of view	* consensus within similar groups	I have shared and critically reviewed my clinical experience in relation to this issue

	* valued as evidence	I have shared and critically reviewed my clinical experience with knowledgeable colleagues outside of my (clinical) workplace
	* seen as one part of the decision	There is a consensus of (clinical) experience about this issue
	* judged as relevant	Clinical experience will be used as one part of the evidence
	* importance weighted	The consensus of clinical experience fits with my understanding of the issue
	* conclusions drawn	Clinical experience evidence is useful in thinking about the issue
		I am clear what the key messages for the planned intervention are
Patient Experience –		
* partnerships	* valued as evidence	We routinely (and systematically) collect users/patients' experiences about this particular issue
	* multiple biographies used	Users/patients experiences will be used as one part of the evidence
	* partnerships with health care professionals	I value patient experiences evidence

	* seen as one part of a decision	The evidence of patients experiences fits my understanding of the issue(s)
	* importance weighed	Patient experiences are useful in thinking about the issue
	* conclusions drawn	I am clear about what the key messages for the planned intervention are
		There is a consensus amongst my colleagues about the usefulness of patient experiences to this issue
Information/Data from Local Context –		
Not identified	* valued as evidence	Data/information is routinely (and systematically) collected about this issue
	* collected and analysed systematically and rigorously	Data/information from the local context will be used as one part of the evidence
	* evaluated and reflected upon	I value the data/information from the local context
	* conclusions drawn	The data/information from the local context fits with my understanding of the issue(s)
		The data/information from the local context is useful in thinking about the issue
		I am clear about what the key messages for the planned intervention are

		There is a consensus amongst my colleagues about the usefulness of the information/data from the local context for this issue
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CONTEXT	CONTEXT	CONTEXT
The environment or setting in which the proposed change is to be implemented		
Receptive Context –		
Not identified	* physical / social / cultural / structural / system – boundaries clearly defined and acknowledged	The physical location is conducive to the implementation of this issue
	* professional/social networks clearly defined and acknowledged	There are sufficient human resources to implement this intervention successfully
	* appropriate and transparent decision making processes	There are sufficient financial resources to implement this intervention successfully
	* power and authority processes	There is the right equipment to implement this intervention successfully
	* human/financial /technological/ equipment – resources appropriately allocated	There is the right IT support to implement this intervention successfully
	* information and feedback systems in place	I have access to the appropriate/useful professional networks and implement this intervention successfully
	* initiative fits with strategic goals and is seen as a key priority	The intervention fits with the strategic intent and goals of the organisation
	* receptiveness/openness to change/new ideas	Decision making processes in the

		organisation are clear to me
		I have the power and authority to carry out this intervention
		I have access to the appropriate skills and knowledge to carry out this intervention
Culture -		
* learning organisation	* able to define culture(s) in terms of prevailing values/beliefs	This organisation values innovation
* patient centred	* values individual staff and clients	This organisation values people who innovate
* valuing people	* promotes learning of organisation	This organisation values staff as individuals
* continuing education	* consistency of individual role/experience to value: - relationships with others - team work - power and authority - rewards/recognition	This organisation values open communication and dialogue
		I feel there is open communication and dialogue within my immediate work place
		I value open communication and dialogue
		This organisation values collaborative partnership working
		I feel there is collaborative partnership working in the wider organisation
		I feel there is collaborative partnership working within my immediate work place

		I value collaborative partnership working
		There is a culture of continuous improvement in this organisation
		There is a culture of continuous improvement with my immediate workplace
		This organisation embraces change
		This organisation values patients as individuals
		My immediate workplace embraces change
		This organisation involved key stakeholders when introducing change
Leadership –		
* clear roles	* transformational leadership	I work within an effective team
* effective teamwork	* role clarity	I am clear what my role is within the team
* effective organisational structure	* effective teamwork	I am clear what my role is in the implementation of this initiative
* clear leadership	* effective organisational structures	
	* democratic, inclusive decision making	
	* enabling/empowering approach to learning / teaching/managing	

MEASUREMENT	EVALUATION	EVALUATION
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* internal measures used routinely	* feedback on individual/team/system - performance	We have routine mechanisms in place to collect data on:
		* individual performance (e.g. appraisal, clinical supervision, 360° feedback)
		* team performance (e.g. audit and feedback, patient feedback, 360° feedback)
		* system performance (e.g. audit and feedback, formal inspections, economic data)
* audit or feedback used routinely	* use of multiple sources of information on performance	Multiple sources of evaluation are used routinely in my workplace
* peer review	* use of multiple methods - clinical (o/c) / individual /personal/economic/(patient) experience - evaluations	This type of evaluative information is routinely used to improve and change practice
* external measures		
Facilitation –		
A technique by which one person makes things easier for others [4]	Facilitation refers to the process of enabling (making easier) the implementation of evidence into practice.	
Characteristics (of facilitators) * respect * empathy * authenticity * credibility	It is achieved by an individual carrying out a specific role (a facilitator) which aims to help others. This suggests that facilitators are individuals with the appropriate roles, skills and knowledge to help individuals, teams and organisations apply evidence into practice [6]	
Role		

<ul style="list-style-type: none"> * access * authority * change agenda * successfully negotiated <p>Style</p> <ul style="list-style-type: none"> * range and flexibility of style * consistency and appropriate presence and support 		
<p>Purpose</p> <p>Role</p> <p>Skills and attributes</p>	<p>* appropriate mechanisms for facilitation in place</p> <hr style="width: 30%; margin-left: 0;"/> <p>TASK</p> <ul style="list-style-type: none"> * doing for others: <ul style="list-style-type: none"> - episodic contact - practical/technical help - didactic, traditional approach to teaching - external agents - low intensity – extensive coverage * Task/doing for others: <ul style="list-style-type: none"> - project management skills - technical skills - marketing skills - subject/technical/clinical credibility 	<div style="text-align: right; margin-bottom: 10px;">  </div> <p>HOLISTIC</p> <ul style="list-style-type: none"> * enabling others: <ul style="list-style-type: none"> - sustained partnerships - developmental - adult learning approach to teaching - internal/external agents - high intensity – limited coverage * holistic/enabling <ul style="list-style-type: none"> - co-counselling - critical reflection - giving meaning - flexibility of role - realness/authenticity