Using Frameworks in Implementation Science Research

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Figure: Three aims of the use of theoretical approaches in implementation science and five categories of theories, models, and frameworks

# Theories, Models & Frameworks

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
<th>Example</th>
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</thead>
<tbody>
<tr>
<td>Process models</td>
<td>• Specify steps</td>
<td>• Model for evidence based practice in healthcare by Grol &amp; Wensing*</td>
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Consolidated Framework for Implementation Research (CFIR)

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Theory of Diffusion

Figure. Roger’s Adoption/Innovation Curve
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<td>• Theory of diffusion</td>
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<tr>
<td></td>
<td>• Aim: Provide understanding and/or explanation</td>
<td>• Social network theory</td>
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<td>• Psychological theory</td>
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Organisational Readiness

- Organisational-level construct
- Members’ shared resolve to implement a change (change commitment) and shared belief in their capability to do so (change efficacy).
- Influenced by perceived value of change, task demands, resource availability and situational factors.

Implementation Science

Debate
A theory of organizational readiness for change
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Abstract
Background: Organizational readiness for change in healthcare settings is an important factor in successful implementation of new policies, programs, and practices. However, research on the topic is hindered by the absence of a brief, reliable, and valid measure. Until such a measure is developed, we cannot advance scientific knowledge about readiness or provide evidence-based guidance to organizational leaders about how to increase readiness. This article presents results of a psychometric assessment of a new measure called Organizational Readiness for Implementing Change (ORIC), which we developed based on Weiner’s theory of organizational readiness for change.

Methods: We conducted four studies to assess the psychometric properties of ORIC. In study one, we assessed the content adequacy of the new measure using quantitative methods. In study two, we examined the measure’s factorial structure and reliability in a laboratory simulation. In study three, we assessed the reliability and validity of an organization-level measure of readiness based on aggregated individual-level data from study two. In study four, we conducted a small field study utilizing the same analytic methods as in study three.

Results: Content adequacy assessment indicated that the items measured change commitment and change efficacy reflected the theoretical content of these two facets of organizational readiness and distinguished the facets from hypothesized determinants of readiness. Exploratory and confirmatory factor analysis in the lab and field studies revealed two correlated factors, as expected, with good model fit and high item loadings. Reliability analysis in the lab and field studies showed high inter-item consistency for the resulting individual-level scales for change commitment and change efficacy. Inter-rater reliability and inter-rater agreement statistics supported the aggregation of individual level readiness perceptions to the organizational level of analysis.

Conclusions: This article provides evidence in support of the ORIC measure. We believe this measure will enable testing of theories about determinants and consequences of organizational readiness and, ultimately, assist healthcare leaders to reduce the number of health organization change efforts that do not achieve desired benefits. Although ORIC shows promise, further assessment is needed to test for convergent, discriminant, and predictive validity.

Keywords: Readiness for change, Measure development, Psychometrics
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| Process models               | • Specify steps  
• Describe &/or guide                                                 | • Quality Implementation Framework                                        |
| Determinant Frameworks       | • Specify types of determinants that influence implementation  
• Barriers & enablers  
• Understand and/or explain influences on implementation outcomes | • CFIR  
• Active Implementation Framework  
• Theoretical Domains Framework                                         |
| Classic theories             | • Originate from other disciplines  
• Provide understanding and/or explanation                              | • Theory of diffusion  
• Social network theory  
• Psychological theory                                                   |
| Implementation theories      | • Developed or expanding on existing theories  
• Understand &/or explain specific aspects of implementation              | • Implementation Climate  
• Organisational Readiness  
• Normalisation Process Theory                                              |
Implementation Outcomes Framework

Effects of deliberate and purposive actions to implement a new treatment/service/intervention

Acceptability: intervention is agreeable or satisfactory

Adoption: intention, initial decision or use of intervention

Appropriateness: perceived fit, relevance, compatibility

Feasibility: extent to which intervention can be used in a setting.

Penetration: Integration of practice within setting

Cost: of implementation efforts

Sustainability: Extent to which intervention is maintained

Fidelity: degree to which intervention was implemented as intended.
Implementation Intervention

- Any activities or strategies designed to support an intervention and help make it happen.
  - Deliberate & purposeful
  - Should be specified
Which framework to choose

- Synthesis of existing frameworks or drawing on classic theories
- Some specify stages of implementation
- Others focus on determinants of implementation outcomes
- Comprehensive but not all-encompassing
Using Frameworks in Research

An Evaluation of the Implementation of a Falls Prevention & Treatment Service
Cork Integrated Falls and Fracture Prevention Pathway

Specialist Clinic

Community Rehabilitation & Support Team

Falls Risk Assessment Clinic
Complex Falls Prevention Intervention

Implementation Strategy
- Training & education
- Advertising & communications strategy
- Pathway coordinator & administrative support

Falls Risk Assessment Clinic
- Multifactorial risk assessment, intervention, onward referral
- Standardised risk assessment tool
- Delivered by multidisciplinary team
Aims

1. To identify the barriers and facilitators to implementation
2. and their influence on implementation outcomes.
3. What is the relationship between these factors and specific outcomes?
Determinant Framework

Linking CFIR & Implementation Outcomes Framework
Study design

• Mixed methods with concurrent qualitative & quantitative data collection

• Qualitative: semi-structured interviews
  • Clinic staff (18)(0 & 4-6 months)
  • Referrers (n=10) (4-6 months)
  • Service users (n=12)

• Quantitative
  • User experience survey
  • Administrative data: demographics, source of referral, attendance rates, rates of onward referral, implementation inputs
Guide for Data Collection & Analysis

Implementation

- Characteristics of the intervention
  - Intervention source
  - Evidence strength and quality
  - Relative advantage
  - Adaptability
  - Trialability
  - Complexity
  - Design quality
  - Cost

- Inner Setting
  - Structural characteristics
  - Networks and communications
  - Culture
  - Implementation climate

- Outer Setting
  - Patient needs and resources
  - Cosmopolitanism
  - Peer pressure
  - External policies and incentives

- Individuals involved
  - Knowledge and beliefs about the intervention
  - Self-efficacy
  - Individual stage of change
  - Individual identification with organisation
  - Other personal attributes

- Implementation Process
  - Planning
  - Engaging
  - Executing
  - Reflecting and evaluating
Tools and Templates

Data Collection Tools:

- **Interview Guide Tool**: An interactive online tool to create an interview guide. For more information on using this tool, please see the Data Collection section on the [Design an Evaluation: Qualitative Data](#) page.

- **Observation Template**: A Microsoft Excel template used to document observations organized by CFIR construct during a site visit. For more information on using this template, please see the Data Collection section on the [Design an Evaluation: Qualitative Data](#) page.

- **Meeting Minutes Template**: A Microsoft Excel template used to gather notes organized by CFIR construct in meetings. For more information on using this template, please see the Data Collection section on the [Design an Evaluation: Qualitative Data](#) page.

Data Analysis Tools:

- **Codebook Template**: A Microsoft Word template pre-populated with CFIR definitions and guidance for coding qualitative data. For more information on using this codebook, please see the Data Analysis section on the [Design an Evaluation: Qualitative Data](#) page.

- **NVivo Project Template**: An NVivo project populated with CFIR codes and useful queries. For more information on using this NVivo project, please see the Data Analysis section on the [Design an Evaluation: Qualitative Data](#) page. Note: This file can only be opened and used with NVivo10 Software. If you use another type of qualitative data analysis software (e.g., ATLAS.ti, MAXQDA) and would like to share a coding template, please contact us and we will provide it on the website.

- **Memo Template**: A Microsoft Word template to aggregate data at the organizational level. For more information on using this template, please see the Data Analysis section on the [Design an Evaluation: Qualitative Data](#) page.

- **Rating Rules**: A PDF guide for applying ratings consistently across sites and/or studies. For more information on using these rating rules, please see the Data Analysis section on the [Design an Evaluation: Qualitative Data](#) page.

- **Matrix Template**: A Microsoft Excel template to aggregate data by all organizations and data collection time points. For more information on using this template, please see the Data Analysis section on the [Design an Evaluation: Qualitative Data](#) page.
<table>
<thead>
<tr>
<th>Outcome</th>
<th>Level of Analysis</th>
<th>Measure</th>
</tr>
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<tbody>
<tr>
<td>Adoption/Uptake</td>
<td>Clinic staff, Service users, Referrers</td>
<td>Administrative data</td>
</tr>
<tr>
<td>Acceptability</td>
<td>Clinic staff</td>
<td>Interviews</td>
</tr>
<tr>
<td>Appropriateness</td>
<td>Clinic staff, Service users, Referrers</td>
<td>Interviews</td>
</tr>
<tr>
<td>Feasibility</td>
<td>Clinic staff, Service users, Referrers</td>
<td>Interviews</td>
</tr>
<tr>
<td>Fidelity</td>
<td>Clinic staff</td>
<td>Admin data, audit, qualitative descriptions, Service user survey</td>
</tr>
<tr>
<td>Reach</td>
<td>Referrers</td>
<td>Number of referrers of those eligible in an area</td>
</tr>
<tr>
<td>Sustainability</td>
<td>Clinic staff, Referrers</td>
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</tr>
<tr>
<td>Wider impact</td>
<td>Provider organisation (HSE)</td>
<td>Onward referrals</td>
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Using Frameworks to support Implementers

• Providing formative feedback at different stages
• Outcomes framework useful to guide evaluation plan & negotiation around data collection
• Setting realistic expectations around evaluation
• CFIR did not account for some crucial factors during the planning phase of an implementation process
• Could easily be used by researchers, and scope was appropriate for complexity of project.
• Facilitated qualitative data analysis and provided a structure that allowed results to be organised and viewed in a broader context to explain the main findings.
Summary

• Framework selection depends on aim of the research & the stage & level at which you are studying implementation.

• Guide for hypothesis generation, data collection, analysis & interpretation.

“Well I can see that it works in practice but does it work in theory?” – Garrett Fitzgerald