

**Development of a process protocol to guide practice  
in the design and construction of home modification  
for older and disabled people**

Dr Rachel Russell

Long Oral Presentation WFOT 2018

# How the built environment influences Occupational Performance and participation



- Most generic models of occupational therapy practice identify that built aspects of the environment (including the home) influence how we perform and participate in occupations
- Most generic models of occupational therapy practice imply that **design and construction methods** can be used to maintain, restore, or acquire occupational performance skills or enable occupational participation

# Why research the home modification process?

**Some authors have been critical of the process used by OTs when modifying home environments.**



- Don't fully explore what clients require from a modification. Accessibility Vs Usability (Fange & Iwarrson 2005)
- Fail to adopt a collaborative approach with people needing a modification, and when OTs do collaborate the individual finds it confusing (Nord et al 2009)
- 'Patchwork of services' (Pynoos 1998)
- A poor home modification process leads to an adaptation that does not provide the right fit for the person, resulting in financial waste and potential harm to the person (Heywood 2004).

# Research to understand the problem?

## The research:

- On-line questionnaire
- Mix of open and closed questions
- 135 respondents
- UK based



## Findings:

### **No clear description of the Occupational Therapist's role in the home modification process**

When describing the process, respondents tended to use the term “assessment of need” to describe their role, which appeared to combine the assessment, goals setting, and solution planning phases of the OT process.

# How the Design and Construction Industry can help Occupational Therapists with this problem:

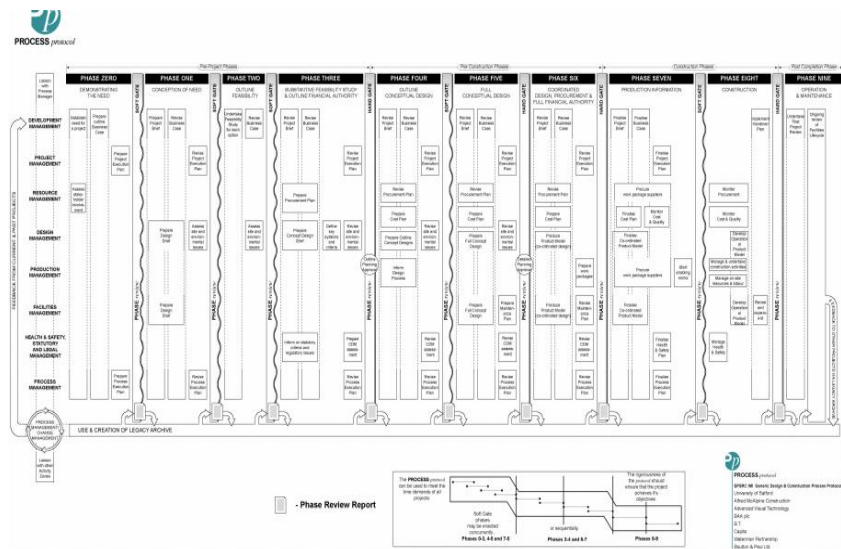
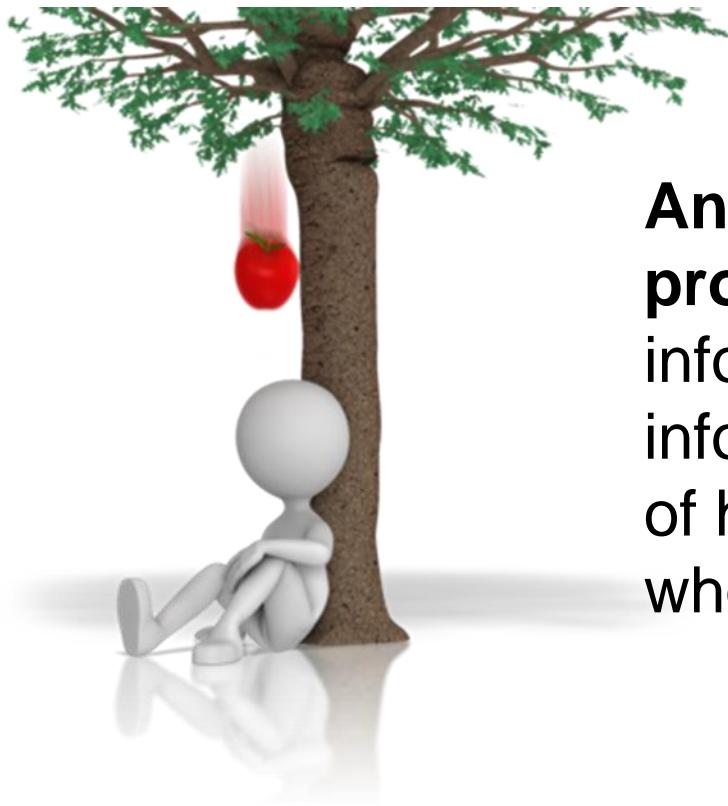


Figure 6.1. The Generic Design and Construction Process Protocol Model

- Faced similar issues to Occupational Therapists
- Developed a number of standardised processes to help manage their practice.
- Collect the right information, at the right time, and to use the information to design and construct buildings that meet the needs of those occupying them.

# The solution to the problem....



**An occupation-focused design and construction process** that helps practitioners to collect the right information, at the right time, and to use the information to **support** the design and construction of home modification that meet the needs of people who use them.

# Developing the Process for Home Modifications





# Home Modification Process Protocol

PET = Person, Environment, Task © Dr Rachel Russell 2017

	Assessment Main Phases			Intervention Planning Main Phases			Intervention Implementation Main Phases		Evaluation Main Phase
	Sub-Phase 0	Sub-Phase 1	Sub-Phase 2	Sub-Phase 3	Sub-Phase 4	Sub-Phase 5	Sub-Phase 6	Sub-Phase 7	Sub-Phase 8
<b>Description of sub-phase:</b>	Demonstrate an occupational need within the person-centred performance context	Conceptualise the occupational need as identified by the person(s)	Conduct an analysis to identify the Person, Environment and Task (PET) factors impacting on occupational performance/participation	Develop collaborative goal(s) by identifying the detailed PET design requirement for the home modification	Conduct a substantive feasibility study for achieving the PET requirements (including funding route)	Obtain agreement on the full detailed design and specification of the home modification	Co-ordinate and support procurement of the occupation-focused home modification	Construct the occupation-focused home modification	Conduct site visit to check the operation and maintenance of the occupation-focused home modification
<b>Key Questions</b>	What is the situation that has prompted contact with the occupational therapist/service as an occupation-focused home modification intervention appropriate for the situation is the person aware of the limitation in this practice setting	What are the reported occupation(s) the person(s) needs/wants to address through an occupation-focused home modification	How does the transaction between the Person, Environment and Task (PET) factors impact on occupational performance/participation	<ul style="list-style-type: none"> <li>Are the person(s) goal(s) for the modification to:               <ul style="list-style-type: none"> <li>Restore their occupational performance/participation</li> <li>Maintain their occupational performance/participation</li> <li>Develop their skills or role to perform or participate in a new occupation</li> </ul> </li> <li>Does the detailed PET design requirements for achieving the collaborative goal</li> </ul>	<ul style="list-style-type: none"> <li>Are design options available for meeting the PET requirements</li> <li>What other factors in the person's occupational context will affect choice of design options (including the question of how will the modification be funded)</li> <li>Does the design proposal meet the PET requirements, outlined in sub-phase 3</li> </ul>	<ul style="list-style-type: none"> <li>Does the full detailed design provide the solution to address the occupational performance requirements of the person</li> <li>Do the detailed design plans and specifications provide the person with the information they need to agree to the design</li> </ul>	<ul style="list-style-type: none"> <li>What information and action is required to procure the home modification</li> <li>Has all the information been obtained for the builder/contractor/other to construct the home modification</li> </ul>	<ul style="list-style-type: none"> <li>Is the appropriate support being provided to the person(s) and building professional during the construction phase of the home modification</li> </ul>	<ul style="list-style-type: none"> <li>Is the home modification operating in the way it is intended to</li> <li>Does the home modification perform in the way that achieves the goals and requirements identified in sub-phases 3-7</li> <li>What can we learn from the process</li> </ul>
	<b>Should a Home Modification Approach be taken?</b>			<b>Should a Home Modification Approach be taken?</b>					
<b>Action needed</b>	Identify the context of the situation Identify who (person(s)) is involved in the situation Identify the tasks involved in the situation Identify how resources, and other limitations within the practice setting may affect the situation Identify how a collaborative relationship with the occupational therapist/service could impact on the situation	Identify the specific occupation(s) the person(s) wants/needs/has to do Identify the person(s) occupational priorities Identify occupations that cannot be addressed through occupation-focused home modification intervention	Identify the actions, within the occupation(s), the person(s) does not perform effectively Identify actions, within the occupation(s), the person(s) does perform effectively Identify the elements of the Person/Environment/Task (PET) (Risher 2008) that is affecting the person(s) occupational performance/participation Identify how occupational performance/participation can be improved	Identify, with the person(s), the goals for the home modification are: <ul style="list-style-type: none"> <li>Restoring their occupational performance/participation</li> <li>Maintaining their occupational performance/participation</li> <li>Developing their skills or role to perform or participate in a new occupation</li> </ul> Identify, with the person(s), how the above approach will impact on the evaluation phases Identify the specific "person factors/needs/functional" design requirements Identify the specific "task" design requirements Identify any areas of occupational performance/participation that cannot be addressed through an occupation-focused home modification	Identify that the design has addressed all the requirements identified in sub-phase 3 Identify the design needs any other occupational performance context requirements Identify any practice setting contextual issues that will influence the person(s) choice of design solution Identify any potential built environment issues, in the existing spaces, that will impact on the PET requirements being accommodated Identify funding requirements for the home modification	Identify the person(s) understands how the design solution addresses their occupational performance requirements Identify how any unmet requirement will impact on the occupational performance of the modification Identify the person(s) agrees to proceed with the design solution	Identify and communicate information required for the procurement of the home modification Identify and communicate the information required for the builder/contractor/other to proceed with the construction of the home modification Identify and communicate what on-going support will be required of the occupational therapist/service during construction phase	Provide on-going support and advice during the construction of the home modification Provide and/or supply tools not part of the construction process Provide advice on final positioning of tools	Provide re-ablement, rehabilitation, and/or training needed to enable the use of the modification Conduct re-evaluation following completion of the home modification and compare with sub-phase 3-7 Provide training around maintenance of the home modification Complete professional evaluation of the intervention and what can be learned
<b>Outcome</b>	Referral accepted/declined Key referral (substantial) information documented Person(s) aware of limitations with the CP's field of practice i.e. funding criteria for home modification Consent documented	Identify the person(s) occupational priorities Or provide advice including referral to alternative services	Occupational Performance Analysis completed and effective and ineffective elements of performance documented PET elements (including effective or ineffective occupational performance) documented PET information needed to support sub-phase 4 documented Re-ablement, rehabilitation and/or training requirements Or provide advice including referral to alternative services	Person(s) has collaborated on the goals for home modification documented The PET design requirements to achieve the goal(s) documented (if appropriate) Identify specific products and spatial requirements Re-ablement, rehabilitation and/or training requirements following the completion of the home modification documented	Professional reasoning on the modification design solution process documented Issues in the practice setting contextual issues and/or built environment that prevents optimum design solution being provided, documented The specification related to space, space layout and tools documented	Person(s) agreement to the design documented	Funding application/support completed Plans, specifications, product information, and health and safety information provided to builder and/or those involved in construction of the modification Agree with person and builder support being provided by occupational therapist during construction	Modification completed	Complete and document the re-ablement, rehabilitation, and/or training provided Person(s) provided with information and documentation needed to manage the home modification Person(s) satisfied with the performance of the modification, feedback documented Occupational therapist satisfied with performance of the modification completed Outcome documented Modification resolves the occupational need and requirements identified in sub-phase 3-7
<b>Tools to assist with sub-phase</b>		Canadian Occupational Performance Measure	Canadian Occupational Performance Measure Occupational Circumstances Assessment – Interview and Rating Scale (OCARS) Occupational Self-Assessment Occupational Performance History Interview II (OPHI)	Comprehensive Assessment and Solution Process for Aging Residents (CASPAR) The Home Environment Assessment Protocol (HEAP) HOME 9437 Housing Enabler 3.442R Usability in my Home (UMH) Residential Environment Impact Scale (REIS) SelfIR SelfIR-HOME v2 The Home Occupational Environment Assessment (HOOE) webA					COPM i-Hope Housing Enabler REIS



Description of  
sub-phase:

Key Questions

Action needed

Outcome

Tools to assist  
with sub-phase

- 4 Phases – 9 sub-phases
  - Assessment
  - Intervention Planning
  - Intervention
  - Evaluation
- Description of each sub-phase
- Key question
- Action needed at each phase
- Outcome of each phase
- Tools to assist with phase

Collect the 'right' information, at the 'right' time, and to use the information in the 'right' way to design and construct the 'right fit' home modification.

	Assessment Main Phases			Intervention Planning Main Phases			Intervention implementation Main Phases		Evaluation Main Phase
	Sub-Phase 0	Sub-Phase 1	Sub-Phase 2	Sub-Phase 3	Sub -Phase 4	Sub-Phase 5	Sub-Phase 6	Sub-Phase 7	Sub-Phase 8
Description of sub-phase:	Demonstrate an occupational need within the person-centred performance context	Conceptualise the occupational need as identified by the person(s)	Conduct an analysis to identify the Person, Environment and Task elements impacting on occupational performance/p articipation	Develop collaborative goal(s) by identifying the detailed PET design requirement for the home modification	Conduct a substantive feasibility study for achieving the PET Requirements (including funding route)	Obtain agreement on the full detailed design and specification of the home modification	Co-ordinate and support procurement of the occupation-focused home modification	Construct the occupation focused home modification	Conduct site visit to check the operation and maintenance of the occupation focused home modification

**PET = Person, Environment, Task**

<b>Sub-Phase 8</b>	
<b>Description of sub-phase:</b>	Conduct site visit to check the operation and maintenance of the occupation focused home modification
<b>Key Questions</b>	<p>Is the home modification operating in the way it is intended to?</p> <p>Does the home modification perform in the way that achieve the goals and requirements identified in sub-phases 1 - 2?</p> <p>What can we learn from the process?</p>
<b>Action needed</b>	<p>Provide re-ablement, rehabilitation, and/or training needed to enable the use of the modification</p> <p>Conduct re-evaluation following completion of the home modification and compare with sub-phase 1 - 2</p> <p>Provide training around maintenance of the home modification</p> <p>Complete professional evaluation of the intervention and what can be learned</p>
<b>Outcome</b>	<p>Complete and document the re-ablement, rehabilitation, and/or training provided</p> <p>Person(s) provided with information and documentation needed to manage the home modification</p> <p>Person(s) satisfied with the performance of the modification. Feedback documented</p> <p>Occupational therapist satisfied with performance of the modification completed. Outcome documented</p> <p>Modification resolves the occupational need and requirements identified in sub-phase 1 - 2</p>
<b>Tools to assist with sub-phase</b>	<p>COPM</p> <p>I-Hope</p> <p>Housing Enabler</p> <p>REIS</p>

# A proof of concept with an Occupational Therapy Housing Team in England



- Provided a step-by-step guide to the home modification process
- The person (and family/carers) remained at the centre of all elements of the process
- Supported the team to examine their practice and how their role fitted within the wider housing (design and procurement) team
- Respect gained from housing/building colleagues as the team were able to illustrate and explain their role in all aspects of the design and construction of major modifications

# How the HMPP could be used to support practice

- **Demonstrates the complexity of what we do**

- Use with stakeholders to help communicate what we do
- Justify why it take so long to do the process
- Justify the value we add to all aspects of design and construction process



- **Training tool**

- Outline for students/Induction tool for new staff
- Framework for thinking about OT roles
- Refresher for what we should be doing



- **Tool for service improvement**

- Audit trail
- Efficient management of cases
- Supervision tool to check due process followed
- Identify where in the process an issue has arisen
- Improve transition of cases between OT teams

- **Tool for improving occupational therapy practice**

- Identify where in the process further research is needed
- Identify where we need tools to support practice
- Development of professional reasoning tools to support sub phases



# Thank you and references



- **Rachel Russell twitter @Bronteot**
- **r.c.russell@Salford.ac.uk**

- Brandt Jr, E. N. and A. M. Pope (1997). Enabling America:: Assessing the Role of Rehabilitation Science and Engineering, National Academies Press.
- Fange, A. and S. Iwarsson (2005). "Changes in accessibility and usability in housing: An exploration of the housing adaptation process." Occupational Therapy International **12**(1).
- Fisher, A. (2009). Occupational Therapy Intervention Process Model: A model for planning and implementing top-down, client centered and occupation based interventions. USA, Three Star Press Inc.
- Fisher, A. G. (2013). "Occupation-centred, occupation-based, occupation-focused: Same, same or different?" Scand J Occup Therapy(0): 1-12.
- Heywood, F. (2004). "Understanding needs: a starting point for quality." Housing Studies **19**(5): 709-726.
- Kagioglou, M., Cooper, R., Aouad, G. and Sexton, M., 2000. Rethinking construction: the generic design and construction process protocol. Engineering construction and architectural management, 7(2), pp.141-153.
- Nord, C., et al. (2009). "An exploration of communication between clients and professionals in the design of home adaptations." British Journal of Occupational Therapy **72**(5).
- Russell, R., Ormerod, M. and Newton, R., 2018. The development of a design and construction process protocol to support the home modification process delivered by occupational therapists. Journal of Aging Research, 2018.