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# Barriers and facilitators to the adoption and use of assistive technology for adults with an intellectual disability who live in supported accommodation: a mixed methods systematic review protocol

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JBI Evidence Synthesis

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# JBI Evidence Synthesis

## Barriers and facilitators for adoption of assistive technology for adults with an intellectual disability living in supported accommodation: a mixed methods systematic review protocol --Manuscript Draft--

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<b>Corresponding Author:</b>	Benjamin Morris, BsC Plymouth University: University of Plymouth Plymouth, Devon UNITED KINGDOM
<b>Corresponding Author's Institution:</b>	Plymouth University: University of Plymouth
<b>Corresponding Author E-Mail:</b>	benjamin.morris@plymouth.ac.uk
<b>First Author:</b>	Benjamin Morris, BsC
<b>Order of Authors:</b>	Benjamin Morris, BsC Alison Warren Hannah Bradwell Miriam Noonan
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- TOC: protocols
- Header: mixed methods systematic review

# Barriers and facilitators to the adoption and use of assistive technology for adults with an intellectual disability who live in supported accommodation: a mixed methods systematic review protocol

Benjamin Morris <sup>1,3</sup>

Alison Warren <sup>1,3</sup>

Hannah Bradwell <sup>2,3</sup>

Miriam Noonan <sup>1,3</sup>

1. School of Health Professions, Faculty of Health, University of Plymouth, Plymouth, Devon, United Kingdom
2. School of Nursing and Midwifery Faculty of Health, University of Plymouth, Plymouth, Devon, United Kingdom
3. The University of Plymouth Centre for Innovations in Health and Social Care: A JBI Center of Excellence

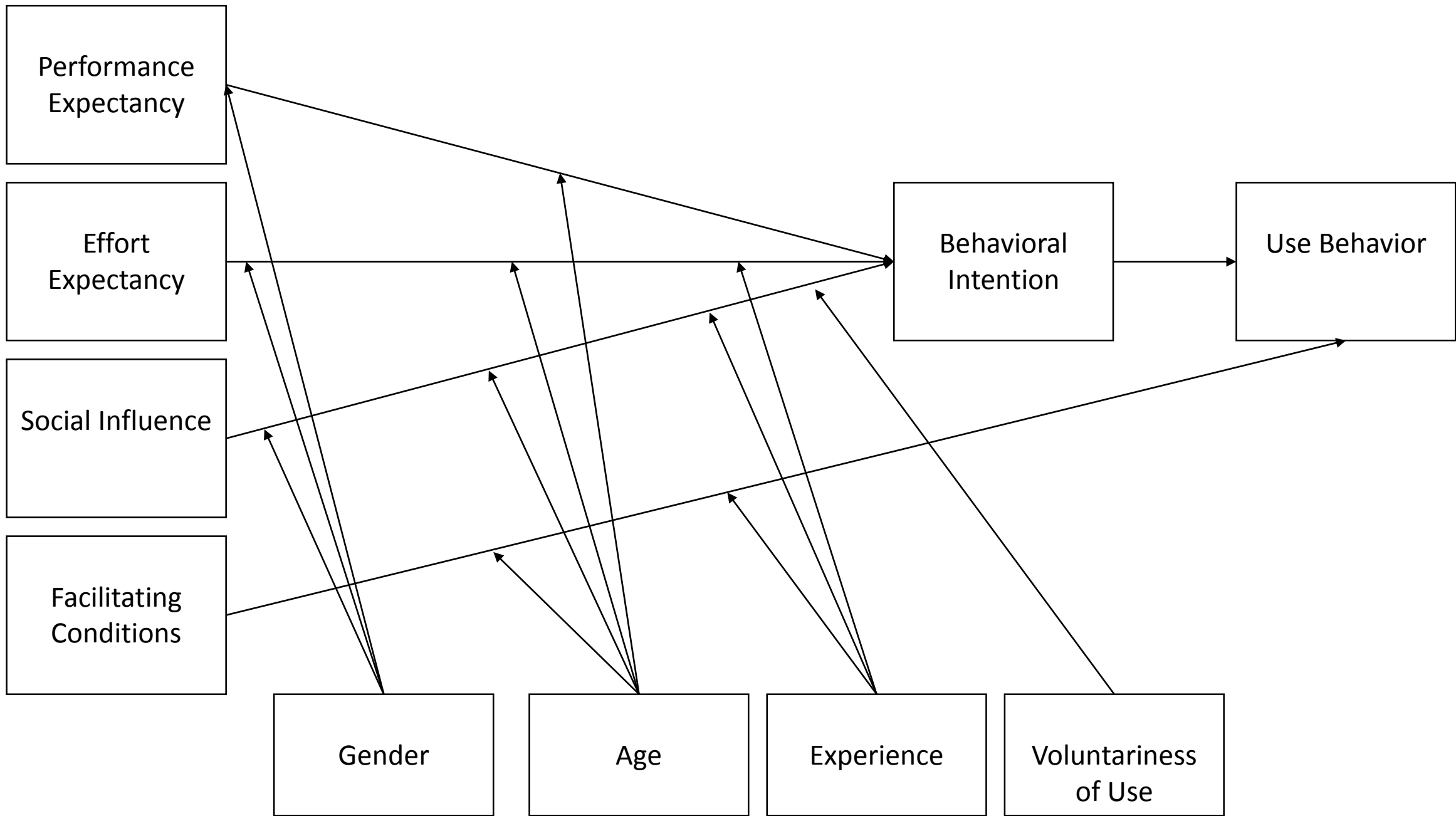
Corresponding author

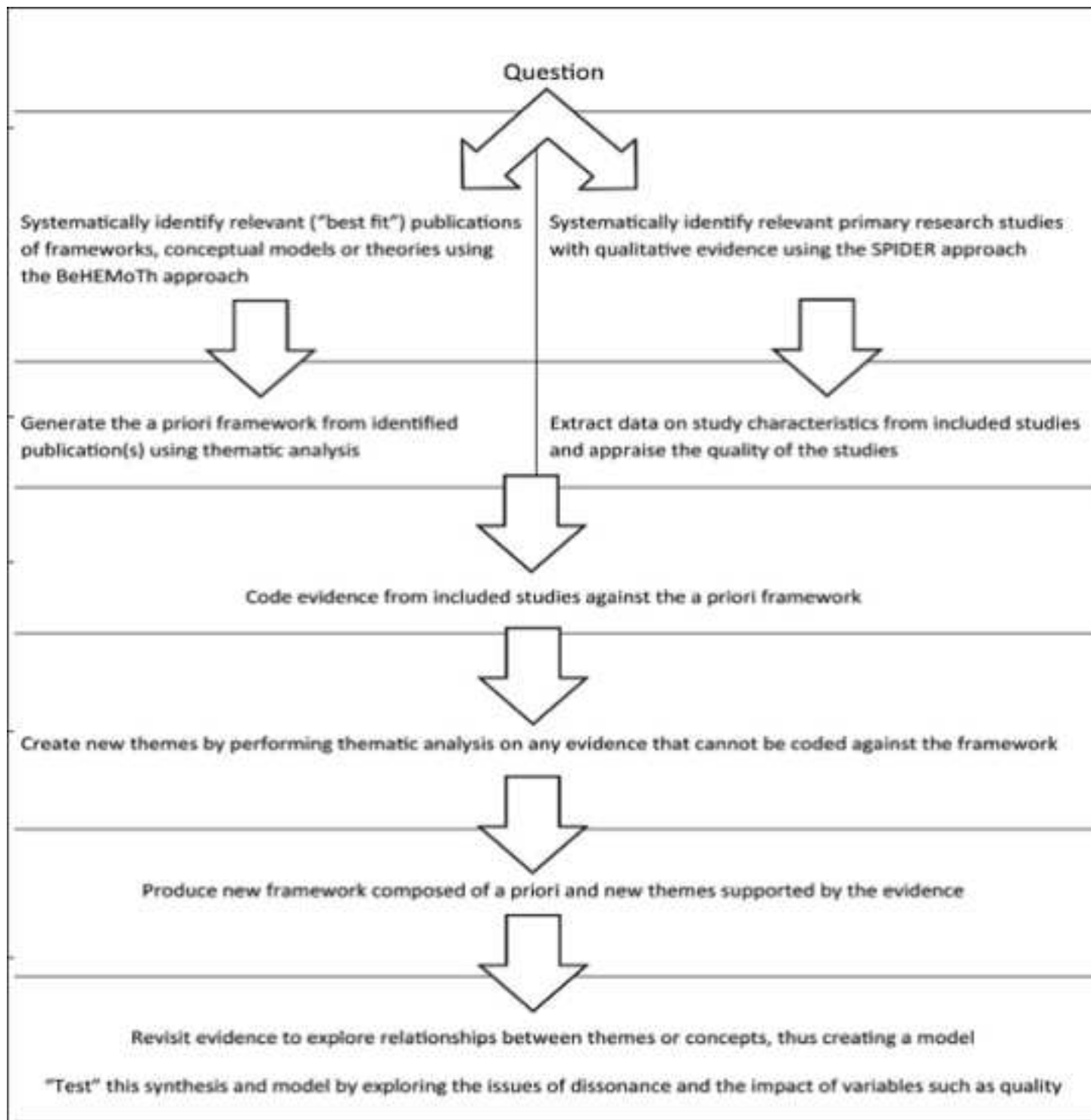
Benjamin Morris

[benjamin.morris@plymouth.ac.uk](mailto:benjamin.morris@plymouth.ac.uk)

The authors declare no conflicts of interest

Figure





Carroll, C., Booth, A., Leaviss, J. and Rick, J., 2013. "Best fit" framework synthesis: refining the method. *BMC medical research methodology*, 13(1), pp.1-16. Figure 1: Qualitative evidence synthesis using "Best-fit" framework synthesis.

# 1 Barriers and facilitators of the adoption and use of 2 assistive technology for adults with an intellectual 3 disability who live in supported accommodation: a mixed 4 methods systematic review protocol

## 5 Abstract <level 1 heading>

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6 **Objective:** This review will identify the barriers and facilitators of assistive technology adoption and use  
7 in adults with intellectual disabilities living in supported accommodation. This will inform the  
8 development of an assistive technology adoption framework for these settings.

9 **Introduction:** Assistive technology has the potential to increase the independence and well-being of  
10 people with intellectual disabilities; however, it is often not adopted. Generic models of technology  
11 adoption exist, and a recent systematic review has explored factors influencing access to assistive  
12 technology by people with intellectual disabilities. However, no review has presented a framework of  
13 adoption or use of technology specifically for people with intellectual disabilities living in supported  
14 accommodation.

15 **Inclusion criteria:** This review will include qualitative, quantitative, and mixed method studies as well as  
16 gray literature published from 1989 to 2023 on the barriers and facilitators of technology adoption and  
17 use by adults with intellectual disabilities living in supported accommodation. Systematic reviews and  
18 theses will be excluded.

19 **Methods:** The review will be conducted in accordance with the JBI methodology for mixed methods  
20 systematic reviews and the Preferred Reporting Items for Systematic Reviews and Meta-Analyses  
21 guidelines. Databases to be searched will include PubMed, Scopus, Web of Science Core Collection,  
22 CINAHL, IEEE Xplore, and SocINDEX. Two independent reviewers will screen titles and abstracts for  
23 relevance and quality. Data will be extracted by 1 reviewer and validated by a second independently.  
24 Data analysis will use a convergent integrated approach, with quantitative data “qualitized” using  
25 thematic analysis to allow comparison. All data will be mapped onto an existing framework of  
26 technological adoption via framework synthesis.

27 **Systematic review registration number:** 353732

28 **Keywords:** assistive technology; intellectual disabilities; supported accommodation

29 **Abstract word count:** 260

30 **Total manuscript word count:**

## 31 Introduction <level 1 heading>

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32 Assistive technology (AT) refers to any products, systems, or services used to enhance an individual’s  
33 functioning and well-being (1). AT has the potential to help address individuals’ needs by supporting  
34 independence, well-being, engagement, and allowing individuals to remain in their homes (2). The  
35 potential for AT to support engagement in meaningful and purposeful activity in the intellectual disability  
36 (ID) population has been established in several areas, from facilitating social relationships and leisure  
37 activities (3) to independent planning and engagement (4). Yet the abandonment rate of new AT is  
38 roughly 30% (+/- 10%) (5). The successful adoption of technology is inhibited by a variety of factors,

39 including meaning and purpose to the individual (6), the individual's support network (7), durability and  
40 ease of use (8), attractiveness of the device (9), and the cost and ease of setup (10). Multiple frameworks  
41 have been developed to identify barriers and facilitators of AT adoption and use (11-14), with the aim of  
42 facilitating this process. However, these frameworks need to be adapted to specific settings as adoption  
43 and use factors vary across different settings and populations (15). Supported accommodation (ie,  
44 domestic-scale settings with paid staff delivering support at least once a day) are one such setting where  
45 adoption and use factors remain unknown.

46 A recent systematic review of access factors (16) failed to identify any papers specifically related to  
47 supported living. This systematic review explored the barriers and facilitators of access to AT for people  
48 with ID, providing an important understanding of these factors in the general ID population. However, as  
49 adoption and use factors specific to supported accommodation remain unknown, the review cannot be  
50 used to create an adoption framework for this setting. Moreover, the study focuses on access to AT  
51 without clearly distinguishing between access to, and the sustained use of, AT post acquisition. This  
52 further limits its use in the creation of a framework concerned with both accessing and using AT. Finally,  
53 the scope of this review did not include the COVID-19 pandemic, which spurred the unprecedented  
54 adoption of new technology in a short time frame (17), thereby enabling the capture of previously  
55 unidentified adoption factors.

56 To address the gap in the literature, this review will establish a more detailed understanding of the  
57 factors that influence the adoption and use of AT by people with an ID living in supported  
58 accommodation. This will inform the development of a framework which can be used by clinicians to  
59 facilitate adoption and use of AT by individuals with ID, improving their safety and increasing engagement  
60 in daily life. In contrast to the previous systematic review, the proposed review will explore both the  
61 adoption and the sustained use of AT. The time period (1989 to 2023) also covers the COVID-19  
62 pandemic and the research stemming from it.

63 The Unified Theory of Acceptance and Use of Technology (UTAUT) (14) (see Figure 1) is the theoretical  
64 framework of the proposed review, serving as the "best fit" framework synthesis (see Figure 2). The  
65 UTAUT has 4 key constructs (performance expectancy, effort expectancy, social influence, and enabling  
66 conditions) that predict use behavior and intention. These factors are moderated by 4 moderators  
67 (gender, age, experience, and voluntariness of use). The "best fit" framework synthesis will seek to match  
68 the barriers and facilitators identified by the systematic review to existing constructs and moderators,  
69 expanding or removing these as needed.

70 As the earlier systematic review included qualitative and quantitative methodologies, the proposed  
71 systematic review will have a mixed methods design. Extracted quantitative data will be converted into  
72 qualitative data through thematic analysis, using a priori codes taken from the UTAUT. The qualitized  
73 data and data from qualitative studies will be thematically analyzed. The generated codes will be used to  
74 identify adoption factors that will be synthesized into an updated framework. A preliminary search of 3  
75 databases (PROSPERO, *JBIEvidence Synthesis*, and Cochrane) has been undertaken and no existing or  
76 ongoing mixed methods or individual systematic reviews on the topic have been identified.

77 This systematic review has 2 objectives to facilitate the synthesis of the UTAUT into an updated adoption  
78 framework: (i) to ascertain the extent to which key constructs are identified in supported living; and (ii) to  
79 ascertain which moderators influence adoption.

80

81 **Figure 1: The Unified Theory of Acceptance and Use of Technology (UTAUT) model**

82 <insert Figure 1 here>



## 83 Review question <level 1 heading>

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84 What are the barriers and facilitators of the adoption and use of assistive technology for adults with an  
85 intellectual disability who live in supported accommodation?

## 86 Inclusion criteria <level 1 heading>

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### 87 Participants <level 2 heading>

88 This review will consider studies that investigate adults > 18 years who have a developmental global  
89 cognitive deficit impacting intellectual functioning and adaptive functioning, and who live in supported  
90 accommodation (domestic-scale settings with paid staff delivering support at least once a day).

91 Studies will be excluded if ID diagnosis is not confirmed or is otherwise unclear in the participant  
92 population; if ID is not present; and if the accommodation does not meet supported accommodation  
93 criteria (domestic scale settings with a paid staff member delivering support at least once a day) for  
94 example, secure units, hospitals, people supported by families at home, or large-scale residential settings  
95 (greater than 10 people per house).

### 96 Phenomena of interest <level 2 heading>

97 This review will consider studies that investigate barriers (factors that limit or inhibit) and facilitators  
98 (factors that encourage or enable) of adoption and use of AT (any products, systems, or services used to  
99 enhance an individual's functioning and well-being)(1).

### 100 Context <level 2 heading>

101 This review will consider studies that investigate AT adopted and used by people living or working in  
102 supported accommodation. This technology may be used by adults with an ID, by staff to support the  
103 adults with an ID, or by both. The technology will be included even when used outside the  
104 accommodation (eg, a smart watch). There will be no limitations on the geographic location of studies.

### 105 Types of studies <level 2 heading>

106 This review will consider quantitative, qualitative, and mixed method studies. These sources will include  
107 peer-reviewed studies and gray literature, such as third-sector reports, program evaluations, conference  
108 papers, and surveys. Gray literature sources will be searched because supported accommodation for  
109 people with ID in the UK is generally run by third-sector organizations. These organizations experience  
110 significant barriers to accessing and producing peer-reviewed literature (18); therefore, it is expected that  
111 much of the research on the success of implementations will exist in end-of-year reports to funders or  
112 client satisfaction surveys. Theses will be excluded; however, where relevant theses are identified, efforts  
113 will be made to find linked published works, including but not limited to, contacting the author. Theses  
114 will be excluded as the analysis of such documents is beyond the resources available to the authors of  
115 this review.

116 The time frame of the search will be 1989 to 2023. This is because the seminal Technology Acceptance  
117 Model was published in 1989. This model has the widest body of research based on its factors predicting  
118 technology use (19), with much of the research involving modification of the base model by introducing  
119 new factors to it. These represent novel barriers and facilitators, and are therefore likely to meet the  
120 inclusion criteria for the review. Additionally, the model led to the creation of the UTAUT—the model  
121 providing the basis for the “best fit” framework synthesis. Consequently, its publication date was  
122 identified as a suitable starting year. The end date will ensure the inclusion of data from the COVID-19  
123 pandemic.

## 124 **Methods** <level 1 heading>

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125 The proposed systematic review will be conducted in accordance with the JBI methodology for mixed  
126 methods systematic reviews (20). The study will also follow the Preferred Reporting Items for Systematic  
127 Review and Meta-Analyses (PRISMA) guidelines (21). The study has been registered on the JBI systematic  
128 review register and PROSPERO (CRD4202235373).

### 129 **Search strategy** <level 2 heading>

130 An initial limited search of Google Scholar was undertaken to identify articles on the topic. The text words  
131 contained in the titles and abstracts of relevant articles and the index terms used to describe the articles  
132 were used to develop a full search strategy for PubMed (see Appendix I). The search strategy, including  
133 all identified keywords and index terms, will be adapted for all unpublished studies and gray literature  
134 searches. The reference lists of all studies selected for critical appraisal will be screened for additional  
135 studies. The search strategy was developed with the support of an information specialist employed by  
136 the University of Plymouth.

137 Studies published from 1989 to 2023 will be included. The databases to be searched will include  
138 PubMed, Scopus, Web of Science Core Collection, CINAHL (EBSCO), IEEE Xplore, and SocINDEX (EBSCO).  
139 Sources of unpublished studies and gray literature to be searched will include IEEE Xplore, Kings Fund,  
140 and Social Science Research Network. As preliminary searches of the databases specified above and past  
141 related searches (22) have yielded limited results when using combined search terms (technology,  
142 intellectual disability, supported living/health care, and adults), a snowballing strategy will be used.  
143 Technology and implementation studies journals (eg, MIS Quarterly, Implementation Science) identified  
144 as relevant during the snowball search will be hand-searched.

145 Only studies written in English will be considered. This is because the primary researcher is not fluent in  
146 any other languages to a level that would allow academic analysis. Resources for translation are not  
147 available. The total number of articles retrieved at the title and abstract screening phase published in a  
148 language other than English, as well as a breakdown of the numbers by language, will be reported to  
149 provide context on information missing from the review.

### 150 **Study selection** <level 2 heading>

151 Following the search, all identified citations will be loaded into Zotero 6.0.x (Corporation for Digital  
152 Scholarship and Roy Rosenzweig Center for History and New Media, VA, USA) and duplicates removed.  
153 Following a pilot test, titles and abstracts will be screened by 2 independent reviewers for assessment  
154 against the inclusion criteria. Potentially relevant studies will be retrieved in full, and their citation details  
155 imported into JBI System for the Unified Management, Assessment and Review of Information (JBI  
156 SUMARI; JBI, Adelaide, Australia) (23). The full text of selected citations will be assessed in detail against  
157 the inclusion criteria by 2 independent reviewers. Reasons for exclusion of full-text studies that do not  
158 meet the inclusion criteria will be recorded and reported in the systematic review. Any disagreements  
159 that arise between the reviewers at any stage of the study selection process will be resolved through  
160 discussion or with a third reviewer. The results of the search will be reported in full in the final review and  
161 presented in a PRISMA flow diagram (21).

### 162 **Assessment of methodological quality** <level 2 heading>

163 Quantitative studies (and quantitative components of mixed methods studies and gray literature)  
164 selected for retrieval will be assessed by 2 independent reviewers for methodological validity prior to  
165 inclusion in the review using the appropriate standardized critical appraisal instruments from JBI SUMARI  
166 (23).

167 Qualitative studies (and qualitative components of mixed methods studies and gray literature) selected  
168 for retrieval will be assessed by 2 independent reviewers for methodological validity prior to inclusion in

169 the review using the standardized critical appraisal instrument (checklist for qualitative research) from JBI  
170 (24).

171 Authors of papers will be contacted to request missing or additional data for clarification, where  
172 required. Any disagreements arising between the reviewers will be resolved through discussion or with a  
173 third reviewer. The results of critical appraisal will be reported in narrative format and in a table.

174 All sources, regardless of the results of their methodological quality, will undergo data extraction and  
175 synthesis, where possible. Sources will only be considered if data from the quantitative or qualitative  
176 components can be clearly extracted. As per guidance (25) regarding the critical appraisal of sources  
177 using the JBI checklist for case series, no specific thresholds will be set for source quality. Instead, the  
178 source will be assessed via discussion between the 2 reviewers, facilitated with an appropriate JBI  
179 checklist (26). The results of this appraisal will be presented in tabular format.

## 180 Data extraction <level 2 heading>

181 Quantitative and qualitative data will be extracted from sources included in the review by 1 reviewer,  
182 with a second reviewer verifying 20% of the sources. To reduce outcome errors, the first reviewer will use  
183 an unedited, standardized data extraction tool (see Appendix II) (25), as suggested by Mathes et al. (27).

184 The data extracted will include specific details about the populations, study methods, phenomena of  
185 interest, context, and outcomes of relevance to the review questions. Specifically, quantitative data will  
186 comprise data-based outcomes of descriptive or inferential statistical tests. Qualitative data will comprise  
187 themes or subthemes with corresponding illustrations (ie, a direct quotation from a participant, an  
188 observation or other supporting data from the source) and will be assigned a level of credibility using the  
189 JBI checklist for qualitative research (24).

190 Any disagreements that arise between the reviewers will be resolved through discussion or with a third  
191 reviewer. Authors of papers will be contacted to request missing or additional data, where required.

## 192 Data transformation <level 2 heading>

193 The quantitative data will be converted into “qualitized data.” This involves transforming quantitative  
194 results into textual descriptions or narrative interpretation in a way that answers the review questions.  
195 This will be carried out via thematic analysis of the results and discussion sections to generate codes,  
196 representing barriers or facilitators. The first step of this process will involve both reviewers familiarizing  
197 themselves with the relevant quantitative text, and then converting it to single-sentence description (28).  
198 These sentences will be coded independently by both reviewers using the a priori codes identified from  
199 the UTAUT. These codes will be checked for consistency between the 2 reviewers. Any disagreement will  
200 be adjudicated and resolved by a third reviewer. These codes will then be compared to the codes  
201 identified in the qualitative data. Evidence will be coded using JBI SUMARI.

## 202 Data synthesis and integration <level 2 heading>

203 This review will follow a convergent integrated approach according to the JBI methodology for mixed  
204 methods systematic reviews using JBI SUMARI (29). This will involve assembling the “qualitized”  
205 quantitative data with the qualitative data. Assembled data is categorized and pooled together based on  
206 similarity in meaning to produce a set of integrated findings in the form of line of action statements.  
207 These factors will then be compared with an existing model of technology adoption as per the “best fit”  
208 framework synthesis (30), with minor adaptations (use of PICO rather than SPIDER and use of an existing  
209 framework rather than creating a framework) to fit mixed methodology synthesis. Figure 2 shows details  
210 of the unmodified process.

211 **Figure 2. Qualitative evidence synthesis using “best-fit” framework synthesis.**

212 <insert Figure 2 here>

## 213 Acknowledgments <level 1 heading>

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215 PhD. This systematic review will contribute to the PhD thesis under the purview of the University of  
216 Plymouth.

## 217 Author contributions <level 1 heading>

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218 All authors have contributed to protocol and analysis design, including search terms. Searches will be  
219 carried out by BM, while selection and extraction will be conducted by all authors. Writing the  
220 manuscript will be carried out primarily by BM, with contributions from the other authors. All authors  
221 may contribute to data screening, analysis, or writing the manuscript.

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294 **Appendix I: Search strategy <level 1 heading>**

295 PubMed <Level 2 heading>

296 Searched conducted in October 2022.

#	Query	Results
1	Intellectual Disability [mh]	67,129
2	Intellectual* (Disab*[Title/Abstract] OR Diso*[Title/Abstract] OR Impairment*[Title/Abstract] OR Retard*[Title/Abstract] OR Defici*[Title/Abstract])	47,916
3	Mental* (Disab*[Title/Abstract] OR Impairment*[Title/Abstract] OR Retard*[Title/Abstract] OR Defici*[Title/Abstract] OR subnormal*[Title/Abstract] OR Handicap[Title/Abstract])	124,464
4	Idiocy[Title/Abstract]	6
5	Development* Disorder*[Title/Abstract]	620
6	Handicap[Title/Abstract]	10,153
7	Learning* Disab*[Title/Abstract]	8277
8	Develop* Disab*[Title/Abstract]	80,136
9	Amentia[Title/Abstract]	12
10	"Slow Learner"[Title/Abstract]	20
11	(((((Intellectual Disability [mh]) OR (Intellectual* (Disab*[Title/Abstract] OR Diso*[Title/Abstract] OR Impairment*[Title/Abstract] OR Retard*[Title/Abstract] OR Defici*[Title/Abstract]))) OR (Mental* (Disab*[Title/Abstract] OR Impairment*[Title/Abstract] OR Retard*[Title/Abstract] OR Defici*[Title/Abstract] OR subnormal*[Title/Abstract] OR Handicap[Title/Abstract]))) OR (Idiocy[Title/Abstract])) OR (Development* Disorder*[Title/Abstract])) OR (Handicap[Title/Abstract])) OR (Learning* Disab*[Title/Abstract])) OR (Develop* Disab*[Title/Abstract])) OR (Amentia[Title/Abstract])) OR ("Slow Learner"[Title/Abstract])	257,142
12	Equipment and Supplies [mh]	1,279,307
13	Computing Methodologies [mh]	1,107,843
14	Self-Help Devices [mh]	10,700
15	Rehabilitation [mh] [Instrumentation]	16,469
16	Diffusion of innovation[Title/Abstract]	642
17	Technology [mh]	421,321
18	(Technolog* (accept*[Title/Abstract] OR adopt*[Title/Abstract] OR develo*[Title/Abstract] OR implement*[Title/Abstract] OR dissemin*[Title/Abstract]))	755,924

19	(Assistive*[Title/Abstract] OR Rehab*[Title/Abstract] OR "Self help"[Title/Abstract] OR "Daily living") (Technolog*[Title/Abstract] OR Product*[Title/Abstract] OR Device*[Title/Abstract])	29,328
20	"universal design"[Title/Abstract]	638
21	Co-Design[Title/Abstract]	1801
22	"Internet of things"[Title/Abstract]	5721
23	Smart home[Title/Abstract]	748
24	"digital technology"[Title/Abstract]	2555
25	"self help device"[Title/Abstract]	13
26	IOT[Title/Abstract]	4933
27	((((((((((Equipment and Supplies [mh]) OR (Computing Methodologies [mh])) OR (Self-Help Devices [mh])) OR (Rehabilitation [mh] [Instrumentation])) OR (Diffusion of innovation[Title/Abstract])) OR (Technology [mh])) OR ((Technolog* (accept*[Title/Abstract] OR adopt*[Title/Abstract] OR develo*[Title/Abstract] OR implement*[Title/Abstract] OR dissemin*[Title/Abstract]))) OR ((Assistive*[Title/Abstract] OR Rehab*[Title/Abstract] OR "Self help"[Title/Abstract] OR "Daily living") (Technolog*[Title/Abstract] OR Product*[Title/Abstract] OR Device*[Title/Abstract]))) OR ("universal design"[Title/Abstract])) OR (Co-Design[Title/Abstract])) OR ("Internet of things"[Title/Abstract])) OR (Smart home[Title/Abstract])) OR ("digital technology"[Title/Abstract])) OR ("self help device"[Title/Abstract])) OR (IOT[Title/Abstract])	3,140,720
28	Long-Term Care[mh] OR Residential Facilities[mh] OR Nursing Homes[mh] OR Homes for the Aged[mh]	59,801
29	Community* (living[Title/Abstract] OR accom*[Title/Abstract] OR hous*[Title/Abstract] OR home[Title/Abstract] OR tenanc*[Title/Abstract] OR comm*[Title/Abstract] OR facility[Title/Abstract])	646,286
30	hous*[Title/Abstract] OR accom*[Title/Abstract] OR environment*[Title/Abstract]	1,865,317
31	suppor* (living OR accom* OR hous* OR home OR tenanc* OR comm* OR facility)	2,689,104
32	resident* (living[Title/Abstract] OR accom*[Title/Abstract] OR hous*[Title/Abstract] OR home[Title/Abstract] OR tenanc*[Title/Abstract] OR com*[Title/Abstract] OR facility[Title/Abstract])	58,617
33	shelter* (living[Title/Abstract] OR accom*[Title/Abstract] OR hous*[Title/Abstract] OR home[Title/Abstract] OR	6672



	tenanc*[Title/Abstract] OR comm*[Title/Abstract] OR facility[Title/Abstract])	
34	long term* (living[Title/Abstract] OR accom*[Title/Abstract] OR hous*[Title/Abstract] OR home[Title/Abstract] OR tenanc*[Title/Abstract] OR comm*[Title/Abstract] OR facility[Title/Abstract])	230,332
35	"care home"[Title/Abstract]	2959
36	"core and cluster"[Title/Abstract]	0
37	Nurs* home*[Title/Abstract]	78,245
38	Assist* (living*[Title/Abstract] OR accom*[Title/Abstract] OR hous*[Title/Abstract] OR home*[Title/Abstract] OR tenanc*[Title/Abstract])	57,600
39	"Hub and spoke"[Title/Abstract]	541
40	(((((Long-Term Care[mh] OR Residential Facilities[mh] OR Nursing Homes[mh] OR Homes for the Aged[mh]) OR (Community* (living[Title/Abstract] OR accom*[Title/Abstract] OR hous*[Title/Abstract] OR home[Title/Abstract] OR tenanc*[Title/Abstract] OR comm*[Title/Abstract] OR facility[Title/Abstract]))) OR (hous*[Title/Abstract] OR accom*[Title/Abstract] OR environment*[Title/Abstract])) OR (suppor* (living OR accom* OR hous* OR home OR tenanc* OR comm* OR facility))) OR (resident* (living[Title/Abstract] OR accom*[Title/Abstract] OR hous*[Title/Abstract] OR home[Title/Abstract] OR tenanc*[Title/Abstract] OR com*[Title/Abstract] OR facility[Title/Abstract]))) OR (shelter* (living[Title/Abstract] OR accom*[Title/Abstract] OR hous*[Title/Abstract] OR home[Title/Abstract] OR tenanc*[Title/Abstract] OR comm*[Title/Abstract] OR facility[Title/Abstract]))) OR (long term* (living[Title/Abstract] OR accom*[Title/Abstract] OR hous*[Title/Abstract] OR home[Title/Abstract] OR tenanc*[Title/Abstract] OR comm*[Title/Abstract] OR facility[Title/Abstract]))) OR ("care home"[Title/Abstract]) OR ("core and cluster"[Title/Abstract]) OR (Nurs* home*[Title/Abstract]) OR (Assist* (living*[Title/Abstract] OR accom*[Title/Abstract] OR hous*[Title/Abstract] OR home*[Title/Abstract] OR tenanc*[Title/Abstract]))) OR ("Hub and spoke"[Title/Abstract])	4,430,279
41	Adult [mh]	6,332,462
42	Adult*[Title/Abstract]	1,359,726
43	(Adult*[Title/Abstract]) OR (Adult [mh])	8,585,805
44	((("intellectual disability"[MeSH Terms] OR ("intellectual*" [All Fields] AND ("disab*" [Title/Abstract] OR "diso*" [Title/Abstract] OR "impairment*" [Title/Abstract] OR "retard*" [Title/Abstract] OR "defici*" [Title/Abstract])) OR ("mental*" [All Fields] AND ("disab*" [Title/Abstract] OR "impairment*" [Title/Abstract] OR "retard*" [Title/Abstract] OR "defici*" [Title/Abstract] OR	3737

"subnormal\*" [Title/Abstract] OR "Handicap" [Title/Abstract])  
 OR "Idiocy" [Title/Abstract] OR "development  
 disorder\*" [Title/Abstract] OR "Handicap" [Title/Abstract] OR  
 "learning disab\*" [Title/Abstract] OR ("develop\*" [All Fields]  
 AND "disab\*" [Title/Abstract]) OR "Amentia" [Title/Abstract] OR  
 "Slow Learner" [Title/Abstract]) AND ("equipment and  
 supplies" [MeSH Terms] OR "computing methodologies" [MeSH  
 Terms] OR "self help devices" [MeSH Terms] OR  
 ("rehabilitation" [MeSH Terms] AND ("instrumentation" [MeSH  
 Subheading] OR "instrumentation" [All Fields] OR  
 "instrumentation s" [All Fields] OR "instrumentational" [All  
 Fields] OR "instrumentations" [All Fields] OR  
 "instrumention" [All Fields])) OR "diffusion of  
 innovation" [Title/Abstract] OR "technology" [MeSH Terms] OR  
 ("technolog\*" [All Fields] AND ("accept\*" [Title/Abstract] OR  
 "adopt\*" [Title/Abstract] OR "develo\*" [Title/Abstract] OR  
 "implement\*" [Title/Abstract] OR "dissemin\*" [Title/Abstract]))  
 OR (("assistive\*" [Title/Abstract] OR "rehab\*" [Title/Abstract]  
 OR "Self help" [Title/Abstract] OR "Daily living" [All Fields]) AND  
 ("technolog\*" [Title/Abstract] OR "product\*" [Title/Abstract] OR  
 "device\*" [Title/Abstract])) OR "universal  
 design" [Title/Abstract] OR "Co-Design" [Title/Abstract] OR  
 "Internet of things" [Title/Abstract] OR "smart  
 home" [Title/Abstract] OR "digital technology" [Title/Abstract]  
 OR "self help device" [Title/Abstract] OR "IOT" [Title/Abstract]  
 AND ("long term care" [MeSH Terms] OR "residential  
 facilities" [MeSH Terms] OR "nursing homes" [MeSH Terms] OR  
 "homes for the aged" [MeSH Terms] OR ("community\*" [All  
 Fields] AND ("living" [Title/Abstract] OR  
 "accom\*" [Title/Abstract] OR "hous\*" [Title/Abstract] OR  
 "home" [Title/Abstract] OR "tenanc\*" [Title/Abstract] OR  
 "comm\*" [Title/Abstract] OR "facility" [Title/Abstract])) OR  
 ("hous\*" [Title/Abstract] OR "accom\*" [Title/Abstract] OR  
 "environment\*" [Title/Abstract]) OR ("suppor\*" [All Fields] AND  
 ("lived" [All Fields] OR "lives" [All Fields] OR "living" [All Fields]  
 OR "livings" [All Fields] OR "accom\*" [All Fields] OR "hous\*" [All  
 Fields] OR ("home environment" [MeSH Terms] OR ("home" [All  
 Fields] AND "environment" [All Fields]) OR "home  
 environment" [All Fields] OR "home" [All Fields]) OR  
 "tenanc\*" [All Fields] OR "comm\*" [All Fields] OR ("facilities" [All  
 Fields] OR "facility" [All Fields] OR "facility s" [All Fields])) OR  
 ("resident\*" [All Fields] AND ("living" [Title/Abstract] OR  
 "accom\*" [Title/Abstract] OR "hous\*" [Title/Abstract] OR  
 "home" [Title/Abstract] OR "tenanc\*" [Title/Abstract] OR  
 "com" [Title/Abstract] OR "facility" [Title/Abstract])) OR  
 ("shelter\*" [All Fields] AND ("living" [Title/Abstract] OR  
 "accom\*" [Title/Abstract] OR "hous\*" [Title/Abstract] OR  
 "home" [Title/Abstract] OR "tenanc\*" [Title/Abstract] OR  
 "comm\*" [Title/Abstract] OR "facility" [Title/Abstract])) OR  
 (("long" [All Fields] AND "term\*" [All Fields]) AND  
 ("living" [Title/Abstract] OR "accom\*" [Title/Abstract] OR

"hous\*"[Title/Abstract] OR "home"[Title/Abstract] OR  
"tenanc\*"[Title/Abstract] OR "comm\*"[Title/Abstract] OR  
"facility"[Title/Abstract])) OR "care home"[Title/Abstract] OR  
("nurs\*"[All Fields] AND "home\*"[Title/Abstract]) OR  
("assist\*"[All Fields] AND ("living\*"[Title/Abstract] OR  
"accom\*"[Title/Abstract] OR "hous\*"[Title/Abstract] OR  
"home\*"[Title/Abstract] OR "tenanc\*"[Title/Abstract])) OR  
"Hub and spoke"[Title/Abstract]) AND ("adult\*"[Title/Abstract]  
OR "adult"[MeSH Terms])) AND (1989:2023[pdat])

## 298 Appendix II: Data extraction instrument <level 1 heading>

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299

300 Reviewer:

Date:

301

302 Author(s) of the publication:

Year:

303

304 Journal:

Record Number:

305

306 Type of study:

307

308 Quantitative study

309 Qualitative study

310 Mixed methods study

311 Methodology: (eg, randomized controlled trial, phenomenology)

312

313 Number of participants:

314

315 Characteristics of participants:

316

317 Phenomena of interest:

318

319 Setting and other context-related information (eg, cultural, geographical):

320

321 Outcomes or findings of significance to the review objectives:

For a quantitative study, for example:

Results

- 29% of survey participants reported feeling embarrassed having an asthma attack with friends; only 39% disclosed their asthma to friends.
- 32% were embarrassed about taking asthma medication in front of friends; only 38% reported taking asthma pump when going out.

Reference: (Cohen et al., 2003)

322

323 For a qualitative study, for example:

Themes or Subthemes	Illustration (a direct quotation from a participant, an observation or other supporting data from the paper)
Parental support	"I can take my medicines by myself, but my parents remind me of taking the medicines and they fill prescriptions at the pharmacy. I always talk to the pediatrician or asthma nurse together with my parents." (Koster et al., 2015, p. 834)

324

325 Author's conclusion:

326

327 Reviewer's comments:

328