EVALUATING SUPPORT, TECHNOLOGY AND BUILT DESIGN IN HOUSING FOR PEOPLE WITH DISABILITY AND COMPLEX CARE NEEDS

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Background

- Integrated apartments (IAs) have emerged over the last decade, desegregating housing for people with disability and complex care needs

  (Summer Housing, 2019; Tregloan et al., 2014).

  - Significant focus is placed on the built environment, technology and human support in IAs to maximise tenant's participation and independence (Ryan, 2017; Ryan & Reynolds, 2015).

- The National Disability Insurance Scheme (NDIS) enables people to purchase the support they need to live independently in the community (National Disability Insurance Agency, 2019).

- Increased accessible housing stock, and improved funding for support should mean that less people under 65 years will be admitted to residential aged care or other inappropriate settings (Summer Foundation, 2019)

- Broad range of smart home and communication technology exists that may support independence and participation of people with disabilities and complex needs

- Soft-technology supports, including assessment, training and evaluation of technology implementation, may play just as important a role in shaping outcomes as the technology itself

- Systematic research is required to ensure there is quality evidence to inform investment in technology, and the soft-technology supports that promote its successful use

(Jamwal et al, 2020)

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Research aim

This research aims to explore:

- how design and technology features, built into IAs, are used by tenants

- how each environmental component influences tenant participation at home

Research findings will inform the development of a framework that will be used to guide future IA design.

Methods

Participants

Participants are people with disability and complex needs, aged 18-65, who have recently moved into an IA

Data collection timepoints

- Timepoint one: semi-structured interviews (3-6 months following the person's move to the IA)
- Timepoint two: time sampling methodology employed to collect data via observation (one month post timepoint one)
- Timepoint three: final interview to discuss the researcher's observation of the participant's interaction with their environment (one month post timepoint two).

Time sampling

- Timepoint one: participants provide research team with their weekly schedule
  - Researchers randomly sample days and times to attend participant's home to observe routine activities

- Timepoint two: 3 x 2 hour observation sessions over 7 day period
  - Personal, domestic and other home-based ADLs observed

- Time sampling data collection tool guided by Beadle-Brown, Bigby & Bould (2015) approach
  - Piloted with paid consumer; two observers reviewed usability and inter-rater reliability
  - Collects data on type of activity, who is present, assistance required, support available, support worker activity (when not engaged with participant, use of built features, use of assistive technology
  - Rates participant satisfaction with supports received during observation period
  - Rates observer's impression of how the environment fosters independence.

- Nine people approached to consider participation
  - Five people did not respond
  - Two declined
    - nature of observation sessions and time commitment required
    - Context of recruitment timing: 3-6 months post move to new home

- Two participants recruited
  - Data to the end of timepoint two collected for one participant

Preliminary Results

Activity	Session #1 (minutes)	% of session	Session #2 (minutes)	% of session	Session #3 (minutes)	% of session	Total	% of total time
Personal Care	30	25.0%	25	20.8%	15	12.5%	70	19.4%
Meal Prep	10	8.3%	30	25.0%	30	25.0%	70	19.4%
Eating/Drinking	15	12.5%		0.0%	30	25.0%	45	12.5%
Domestic tasks	15	12.5%	35	29.2%	35	29.2%	85	23.6%
Instrumental activities		0.0%		0.0%		0.0%	0	0.0%
Social Activity/ Interaction	105	87.5%	95	79.2%	110	91.7%	310	86.1%
Other Social Media		0.0%		0.0%		0.0%	0	0.0%
Passive Leisure	35	29.2%	20	16.7%	5	4.2%	60	16.7%
Other home-based leisure		0.0%		0.0%		0.0%	0	0.0%
Work/Volunteer Activities		0.0%		0.0%		0.0%	0	0.0%
Health care management		0.0%		0.0%		0.0%	0	0.0%
Other	10	8.3%	10	8.3%	10	8.3%	30	8.3%

- Participant included and involved in activities across all areas of the home

- Activities completed with and by the support worker 92.8% of the time

- Participant observed to exercise choice and control over when and how activities took place

  - Observer impression: consistent roster of support staff with strong working relationships with the participant

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- Participant moved freely through their home the majority of the time (83.3%)

- Design features provided as standard were used 43.1% of the time

- Design features not used included bathroom grab rails elongated toilet

  - These features impacted the circulation space available to the participant.

Observations – Assistive Technology

- Participant's ability to access technology was limited.

  - AT use was always initiated by, and used with, support workers

  - Devices in use included: Alexa, iPad, Hi/Lo Bed, ceiling hoist, intercom and automatic entry door

- Despite participant engagement with technology, operation issues were noted

  - E.g. environmental control via Alexa could not be accessed in the bathroom, bedroom or second living area.

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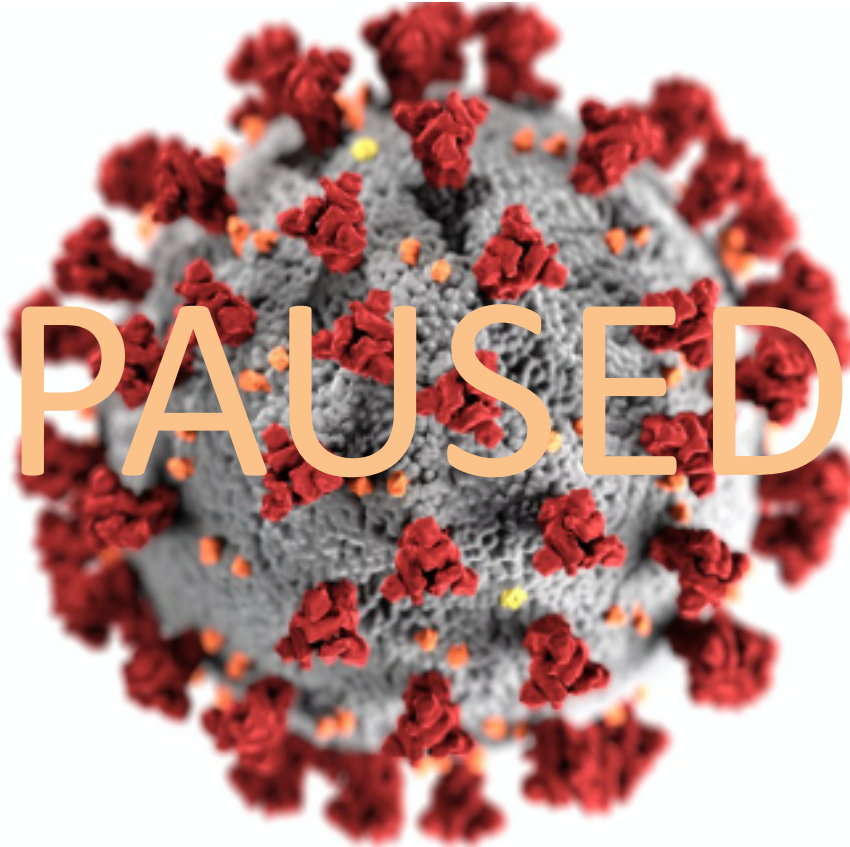
Limitations of current data collection method

- Confounded by the COVID-19 pandemic

  Limitations include:

- subjective nature of the data recorded by the human researcher

- the resource intensive nature using a paid researcher to complete the time-sampling observation

- health and safety risks associated with home attendance at the homes of people with disability

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Future direction for data collection

- Remote data collection

- Range of monitoring technologies that may be used to provide relevant data

- Potential to repurpose existing technology available within the participant's home

  - May provide more representative data (e.g. data over a 24 hour period), rather than the two hours of data currently collected via time-sampling observation.

  - Could offer a more complete data set for analysis

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Next steps

- Despite difficulties with recruitment encountered to date, it is anticipated that the findings of this research will guide future housing design for people with disability and complex needs

- The continuation of this research will assist in identifying design and technology features that should be included as standard in housing for this group, as well as features that can be later customised to meet the needs of individual tenants

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References

Beadle-Brown, J., Bigby, C., & Bould, E. (2015). Observing practice leadership in intellectual and developmental disability services. *Journal of Intellectual Disability Research*, *59*(12), 1081-1093.

Jamwal, R., Jarman, H. K., Roseingrave, E., Douglas, J., & Winkler, D. (2020). Smart home and communication technology for people with disability: a scoping review. *Disability and Rehabilitation: Assistive Technology*, 1–21. https://doi.org/10.1080/17483107.2020.1818138

National Disability Insurance Agency. (2019). *Supports funded by the NDIS.* Retrieved from: https://www.ndis.gov.au/understanding/supports-funded-ndis

Ryan, S. (2017). Designing for Inclusion and Independence – An Explanatory guide to support the briefing and design of accessible housing. Melbourne: Summer Housing Ltd

Ryan, S., Reynolds, A., (2015), *New housing options for people with significant disability – Design Insights*, Melbourne: Summer Foundation Ltd.

Summer Foundation. (2019) *Younger people in residential aged care: true stories, practical solutions.* Melbourne: Author

Summer Housing. (2019). *Annual Report 2018/2019.* Retrieved from: https://summerhousing.org.au/2018-2019-summer-housing-annual-report/

Tregloan, K., Callaway, E., Meyer, B., Wood, R., & Iannello, N. (2014). *RIPL Project One: Post-occupancy built and technology design evaluation*. Melbourne Vic Australia: Monash University Publishing.

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