

An Overview of Models of Assistive Technology

As a result of this presentation, learners will be able to:

1. Explain the importance of use of models to guide practice
2. Articulate the components of the Human-Activity-Assistive Technology (HAAT) model
3. Articulate the components of the Technology Adoption Model
4. Use the UTAUT2 model to describe factors influencing acceptance and use of technology

Models Introduction ⁽¹⁾

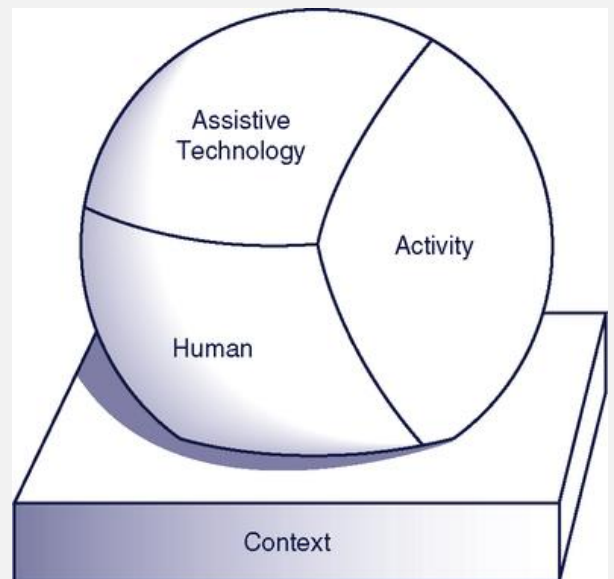
- “Models and frames of reference are based on theory and help organize knowledge so that it can be used as a guide.” (p. 49)
- Use as a lens for therapy
- Based upon chosen model of practice, emphasis areas are different
- Use of models helps to keep practitioners evidence based
 - Focus areas provide an outline

Models in this Module:

- Human-Activity-Assistive Technology Model (HAAT)
- Technology Adoption Model (TAM)
- Unified Theory of Acceptance and Use of Technology Model (UTAUT2)

Human-Activity-Assistive Technology ⁽²⁾

- **Human**
 - Consider physical, mental, and emotional function
 - Are they a novice or an expert?
 - Choose technology to fit their lifestage
 - What are their roles?
- **Activity**
 - What is the meaning of the activity?
 - How is it performed?
 - What do they need to be competent?
- **Assistive Technology**
 - Human/technology interface
 - Processor
 - Environment
 - Activity output
- **Context**
 - Physical context
 - Social context
 - Institutional context (legislation, funding source(s))



Tim's Case – Shared with His Permission

Tim is an older adult who has progressive Parkinson's disease. He was becoming increasingly isolated due to his inability to walk long distances without falls. He had also become reliant on his sister to meet his needs that required leaving his apartment. Tim lives near the downtown area of his suburban town which has sidewalks and is generally accessible. Tim enjoys being involved in his community and would like to be more involved and independent.

- What human considerations are important in this case?
- What activities need to be prioritized?
- How does Tim's context impact her?
- What types of AT may be useful to support Tim at home?

Tim's Case Follow Up

A physical therapist worked with Tim and his sister. They determined that a power scooter would best meet his mobility needs. Since receiving his scooter, Tim has been able to attend concerts and classic car shows in his community. He also makes the occasional trip to the drug store across the street – Something he was previously relying on his sister to do for him. He is enjoying his increased independence.

Technology Adoption Model ⁽³⁾

- Individual
- Technology
- Social
- Delivery

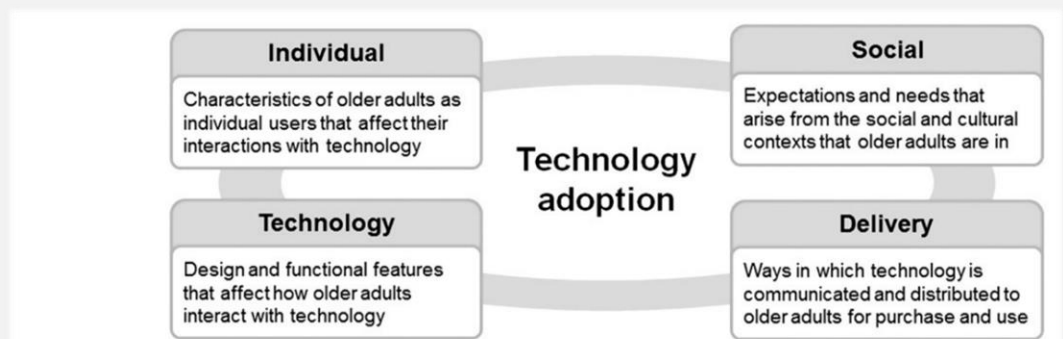


Figure 1. Four Aspects Addressed by Technology Adoption Factors

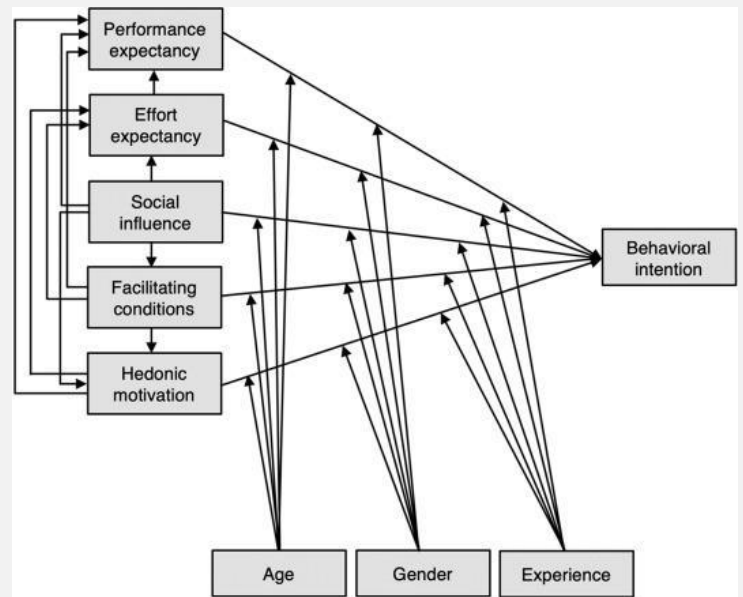
TAM Case Study

Patricia is a 89-year-old widowed woman who lives in rural MN. She lives in an accessible mother-in-law suite in the basement of a house owned by her 54-year-old son and his wife. Patricia has early-stage dementia and family has been noticing that she forgets to do things at times. Most recently, they have noticed that she tends to leave on the stove, forgets to take her scheduled medications, and infrequently locks the door. Patricia and her family recently met with an OT (ATP) and have elected to try Reminder Rosie, a stove shutoff sensor, and an automatic door lock. The selected equipment was sent to the home with the instruction to contact the OT for set-up and education upon arrival. The OT set up the devices and gave a brief overview of how to program and use each. He then instructed the family to call him if any questions or concerns arose. The OT has received 4 calls from Patricia's family in the month since installation. They have shared that the things they set up with the OT work well, but they have a very hard time accessing additional functions or completing further set-up.

- What individual factors should be considered in Patricia's case?
- How does Patricia's social context impact her use of AT?
- Do you think the technology chosen was appropriate for this situation?
- What went well with delivery? What could be improved upon?

Unified Theory of Acceptance and Use of Technology Model (4)

- Main factors of:
 - Performance expectancy
 - Effort expectancy
 - Social influence
 - Facilitating conditions
 - Hedonic motivation
- Mediating factors of:
 - Age
 - Gender
 - Experience
- Behavioral intention
 - The end product influenced by all factors



Key Takeaways

- Using models is a great way to guide practice and ensure framing is evidence-based
- HAAT, TAM, and UTAUT2 all have different components that can be used to support AT use with older adults
- Practitioners should consider use of models of practice as they seek to effectively support older adults in their use of AT

References

1. Sames, K. M. (2015). *Documenting occupational therapy practice* (3rd ed.). Upper Saddle River, NJ: Pearson Education, Inc.
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3. Chaiwoo, L. & Coughlin, J. F. (2015). Perspective: Older adults' adoption of technology: An integrated approach to identifying determinants and barriers. *The Journal of Product Innovation Management*, 32(5), 747–759. <https://doi.org/10.1111/jpim.12176>
4. Koon, L. M., McGlynn, S. A., Blocker, K. A., & Rogers, W. A. (2020). Perceptions of digital assistants from early adopters aged 55. *Ergonomics in Design*, 28(1), 16–23. <https://doi.org/10.1177/1064804619842501>