

BMHP6027_BIRM:

Empowering the Older Person

Week 8- Critical Evaluation of Technological Solutions- Dementia



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Learning Objectives for this Session

- Evaluate the benefits and limitations of technological solutions in elderly care.
- Discuss ethical concerns, including autonomy, privacy, and dignity.
- Engage in debates regarding the ethical use of technology in the care of older adults.

Recap from Last Sessions



- What are some key types of technologies used in elderly care?
- How does telemedicine benefit elderly patients, especially those in rural or remote areas?
- What are some challenges older adults may face when using assistive technologies like wearable devices or smart home systems?
- Can you name an example of an AI-driven solution in elderly care? What role does it play?
- What are some of the ethical considerations we discussed regarding the use of technology in elderly care, particularly regarding PWD?

Recap Activity



What assistive or digital technologies have we seen across the module so far?

- Week 5: Assistive technologies
 - Week 6: Dementia-friendly innovations
 - Week 7: Empowerment tools
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- Group brainstorm or quick discussion.

Evaluation Framework

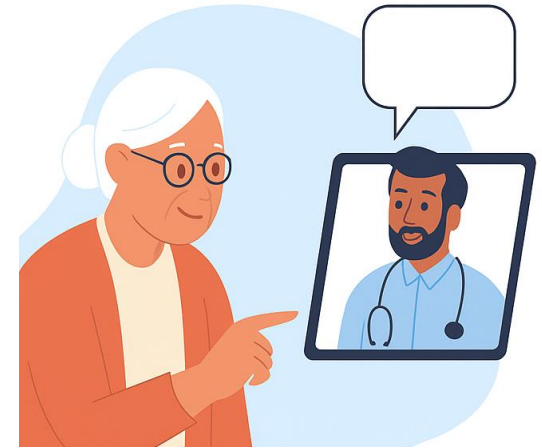


- Independence and Empowerment
- Dignity and Autonomy (Ethics)
- Accessibility and Digital Inclusion
- Cost and Scalability
- Theoretical Lens (Activity, Continuity, Disengagement)

Telehealth Platforms

Benefits:

- Remote GP access
- Prescriptions
- Appointment booking



Challenges:

- Digital literacy gaps
- Privacy

How does this link with the Continuity Theory?

(Age UK, 2024)

Wearables and Monitoring

Benefits:

- Falls/health alerts

Challenges:

- Surveillance
- Maintenance
- Ethical Considerations



How does this link to the Activity Theory?



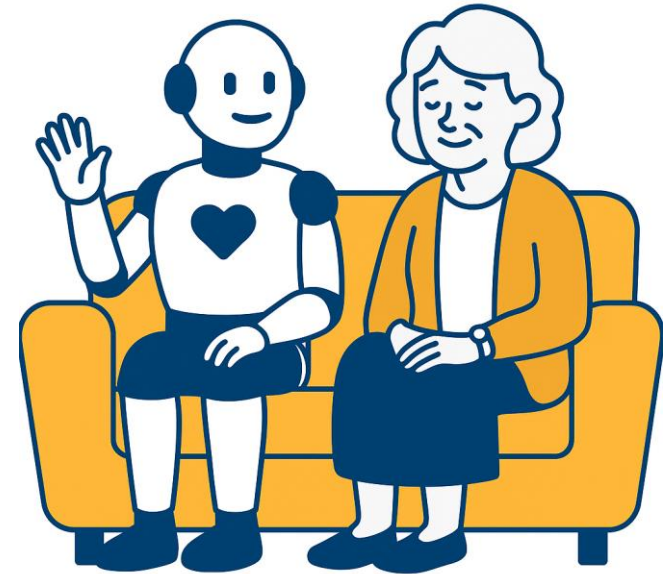
Social Robots

Benefits:

- Companionship
- Reduces loneliness

Challenges:

- Replace human care?



How does this link to the Disengagement Theory?



Smart Homes and AI

Benefits:

- Medication reminders
- Safety

Challenges:

- Cost
- Reluctance



How does this Promote Independence?

Activity 1: Small Group Debate

Topic: 'Technology enhances care more than it replaces human connection.'

- Prep 10 mins
- Present 3 mins per group
- Whole-class discussion 10 mins
- Use theory and real-life examples.

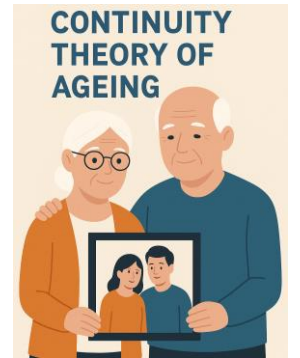


Applying Theory Critically

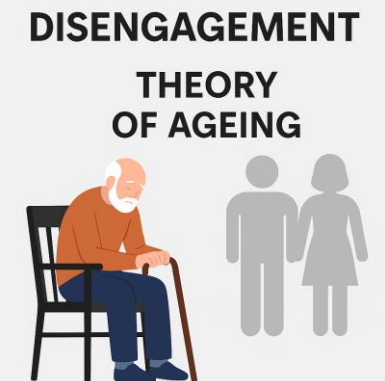
- **Activity Theory:** supports participation
 - **Continuity Theory:** routine-based support
 - **Disengagement Theory:** unintended withdrawal?
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- Use multiple perspectives.
 - Critique these theories



Activity Theory



CONTINUITY
THEORY OF
AGEING

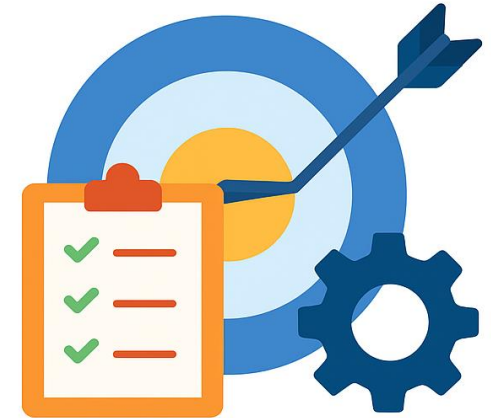


DISENGAGEMENT
THEORY
OF AGEING

Policy and Strategy Alignment

These include...

- NHS Long Term Plan
- WHO Healthy Ageing
- Local Digital Care Plans



- Do interventions align with strategic priorities?
- Is this enough?
- What changes would you like to see?

Key Benefits of Technological Solutions in Elderly Care

Increased Independence for Older Adults

- Technologies such as wearable health devices, fall detection systems, and smart home technologies enable older adults to live more independently.

Examples

- Wearables like **Fitbit** or **Apple Watch** track heart rate, steps, and sleep patterns.
- Smart home systems such as Amazon **Alexa** remind users to take medication, lock doors, or adjust the thermostat without assistance.

The **benefit** is that these technologies reduce the need for constant caregiver oversight, giving older adults more autonomy while ensuring safety.

Key Benefits of Technological Solutions in Elderly Care

Enhanced Safety and Monitoring

- Continuous monitoring systems improve safety by detecting falls or abnormal health patterns and alerting caregivers or emergency services.

Examples

- **Fall detection sensors** integrated into wearables like Life Alert can automatically contact emergency services if the wearer falls.
- **Remote health monitoring** tools allow healthcare providers to keep track of patients' vitals from a distance, reducing the need for frequent in-person visits.

The **benefit** is that these systems ensure timely intervention in emergencies, potentially saving lives and reducing hospitalisation rates.

Key Benefits of Technological Solutions in Elderly Care

Improved Access to Healthcare via Telemedicine

- Telemedicine expands access to healthcare services for older adults, especially those living in rural or remote areas with limited healthcare facilities.

Examples

- **Video consultations** with doctors through platforms like **Zoom** or Microsoft **Teams** allow patients to receive medical advice from the comfort of their home.
- **Remote diagnostic tools** help doctors monitor patient vitals and send prescriptions without the need for a physical visit.

The **benefit** is that this reduces the burden of travel, which is particularly useful for elderly individuals who may have mobility issues, while providing timely medical intervention.

Key Benefits of Technological Solutions in Elderly Care

Cost Efficiency

- Many technological solutions reduce the overall cost of care by decreasing hospital readmissions, reducing the need for in-home caregivers, and facilitating preventative care.

Examples

- Telemedicine consultations are often less expensive than in-person visits.
- Preventative health monitoring through wearable devices helps detect health issues early, avoiding costly emergency treatments.

The **benefit** is that Technology provides a cost-effective way for elderly care facilities and families to ensure the well-being of older adults without sacrificing quality.

Key Benefits of Technological Solutions in Elderly Care

Social Connectivity and Emotional Support

- Companion robots and social apps combat loneliness and isolation, which are common issues among older adults.

Examples

- Robots like Paro (a therapeutic robot designed to comfort older adults) and Pepper (a humanoid robot) engage with patients to alleviate loneliness.
- Social platforms like Facebook or WhatsApp allow elderly individuals to maintain contact with family and friends, reducing feelings of isolation.

The **benefit** is that these technologies enhance mental well-being by providing older adults with companionship and maintaining their social networks.

Key Benefits of Technological Solutions in Elderly Care

Improved Quality of Life

- Technology not only supports the physical health of older adults but also improves their overall quality of life by addressing mental and emotional needs.

Examples

- Digital platforms for cognitive training (e.g., brain games) help maintain cognitive function in older adults.
- Music therapy apps and platforms that stream personalized content bring joy and emotional stimulation.

The **benefit** is that by improving mental and emotional health, these technologies contribute to a more holistic approach to elderly care.

Limitations of Technological Solutions

Key Limitations

- Digital literacy barriers for older adults.
- Over-reliance on technology can reduce human interaction.
- High costs of advanced technologies (e.g., companion robots, wearable devices).

How do we ensure older adults are not excluded from care because of technology?

Digital Exclusion

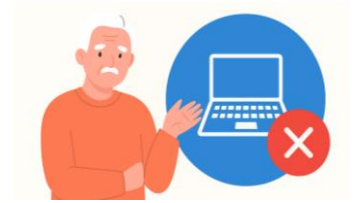
Age UK: 40% of 75+ not online

- Language and sensory barriers
- Accessibility needs

Are there sufficient Inclusive strategies?



Digital Inclusion in Older People



Please look at the Age UK Briefing

- Facts and figures about digital inclusion and older people

(you can access this below or through Moodle)

<https://www.ageuk.org.uk/globalassets/age-uk/documents/reports-and-publications/reports-and-briefings/active-communities/internet-use-statistics-june-2024.pdf>

What does this tell you about digital inclusion/exclusion in the older population?

Digital Exclusion in Older People



65-70 Year Olds

- 16.3% of people with disabilities have **never** used the internet
- 8.7% of people without disabilities have **never** used the internet

Over 75's

- 44.6% of people with disabilities have never used the internet
 - 32.2% of people without disabilities have never used the internet
- (ONS, 2021)

Limitations of Technological Solutions

- Digital literacy barriers and accessibility for older adults.
- High costs of advanced technologies (e.g., companion robots, wearable devices).
- Over-reliance on technology can reduce human interaction.
- Privacy and security concerns.
- Technological Failures and Reliability Issues.
- Ethical Concerns- Autonomy vs. Safety

How do we ensure older adults are not excluded from care because of technology?

Activity 2: Technology Pitch Challenge

In groups- Design a NEW tech for older persons.

- Include: name, empowerment, ethics, inclusion.
- Look at potential barriers to its success and propose possible solutions
- Pitch in 2 mins per group + feedback.

EXAMPLE-

The Use of GPS Tracking in Dementia Care

What is GPS Tracking?

- **GPS** (Global Positioning System) tracking is a technology used to monitor the real-time location of an individual or object.
- For dementia patients, **wearable devices** (e.g., watches, bracelets) equipped with GPS allow caregivers to track their movements

The Use of GPS Tracking in Dementia Care

GPS Tracking – Purpose in Dementia Care

Safety- GPS tracking is used primarily to ensure the safety of people with dementia who may wander and become lost, a common behaviour associated with dementia as it becomes more advanced.

Real-time Alerts- Caregivers can set "safe zones" and receive alerts if the person leaves the designated area.

The Use of GPS Tracking in Dementia Care

Benefits-

Improved Safety- Enables quick intervention if a patient is at risk, reducing incidents of wandering and the danger of injury or getting lost.

Peace of Mind for Families- Families and caregivers are reassured knowing they can monitor the patient's movements remotely.

Increased Independence- Allows people with dementia more freedom to move within monitored areas rather than being physically restricted.

The Use of GPS Tracking in Dementia Care

Ethical Concerns

Autonomy vs. Safety- Is it ethical to track someone without their explicit consent? Does the technology infringe on the patient's freedom?

Privacy- Continuous monitoring raises concerns about the right to privacy for patients who may not fully understand the technology.

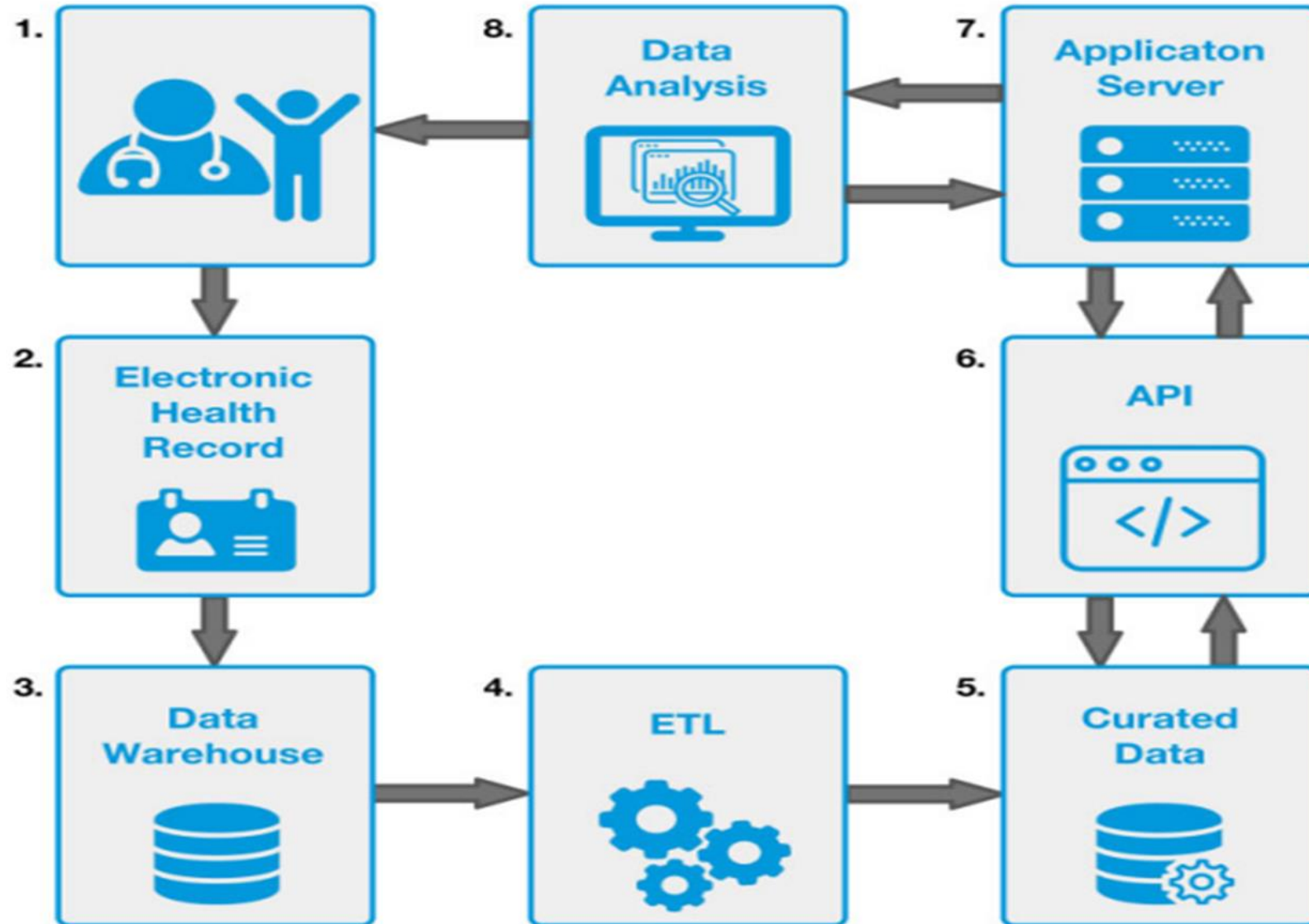
Informed Consent- Can dementia patients truly give consent to be tracked, or should the decision be made by caregivers and family members?

How is Health Care Data Shared?

- The following slides show how healthcare data travels from patient facing devices to Health Care Providers
- Consider the steps this goes through
- Do you think this system is completely safe

Discuss at the end of the session

The Flow of Health Data from Devices to Healthcare Providers (HCP's)





The Flow of Health Data from Devices to HCP's



1. Clinician and Patient Encounters- Clinicians document patient interactions during care encounters, recording observations and treatments.



2. Data Captured in EHR Systems- Patient data from encounters are collected and stored within Electronic Health Records (EHRs). This includes structured data like vital signs, medications, and medical history.



3. Data Processed into Data Warehouse- The EHR data are then processed overnight, meaning the system takes the data and transfers it into a larger storage facility, known as the EPIC Clarity Data Warehouse.



4. Automated Extraction, Transformation, and Loading (ETL) In this step, data from the warehouse are further processed through an ETL system (Extraction, Transformation, Loading), which ensures the data is ready for analysis by cleaning, formatting, and integrating it.



The Flow of Health Data from Devices to HCP's.



5. Data Stored in PostgreSQL Database- The processed data is stored in a PostgreSQL database, a structured database optimized for fast querying, auditing, and generating reports.



6. API and Data Request Handling- RequePostgreSQLts for this data are handled by an API (Application Programming Interface) built using Python. It interacts with the database and prepares the data in a format suitable for web applications.



7. Data Access Through Web Applications- Health providers and other users can access this data through a LAMP (Linux, Apache, MySQL, PHP/Perl/Python) stack, which is a suite of software used to run and deliver applications.



8. Data Visualization- Finally, the system presents the data in an easy-to-understand format using Google Charts or DataTables, which allow healthcare professionals to visualize the data, such as through graphs, dashboards, and reports.

Summary

- Tech empowers but must be inclusive and ethical
- Theories enrich critique
- Link to policy for real-world relevance

Reference List

- Age UK (2024) *Facts and figures about digital inclusion and older people*. Available at: <https://www.ageuk.org.uk/globalassets/age-uk/documents/reports-and-publications/reports-and-briefings/active-communities/internet-use-statistics-june-2024.pdf> (Accessed: 23 October 2025).
- Alzheimer's Disease International (2025) *World Alzheimer Report 2025* Available at- [World Alzheimer Report 2025 | Alzheimer's Disease International \(ADI\)](#) (Accessed: 23 October 2025).
- JDR (2024) *Study explores views on new technology to locate missing people with dementia* Available at- <https://news.joindementiaresearch.nihr.ac.uk/study-explores-value-new-technology-locate-missing-people-dementia/> (Accessed: 23 October 2025).
- NHS (2020) *What is Dementia?* Available at- <https://www.nhs.uk/conditions/dementia/about/#~:text=What%20is%20dementia,between%20Alzheimer's%20disease%20and%20dementia.> (Accessed: 23 October 2025).
- ONS (2021) *Dataset- Internet Users* Available at- <https://www.ons.gov.uk/businessindustryandtrade/itandinternetindustry/bulletins/internetusers/2020> (Accessed: 4 October 2025).
- WHO (2025) *Dementia* Available at- <https://www.who.int/news-room/fact-sheets/detail/dementia> (Accessed: 23 October 2025).