

Theories, models and frameworks to understand barriers to the provision of mobility assistive technologies: A scoping review

Appendix 4 Table. Propositions identified in the theories, models and frameworks

Name of the theory, model or framework	Propositions
International Classification of Functioning, Disability, and Health (ICF)	<ol style="list-style-type: none"><li data-bbox="813 541 1333 636">1. A health condition can affect both the mental and physical body functions.<li data-bbox="813 674 1333 768">2. An individual's activities are impacted by their health condition.<li data-bbox="813 806 1333 963">3. Health conditions affect an individual's engagement in activities, determining their level of participation.<li data-bbox="813 1001 1333 1159">4. External factors, for example, social factors, can either inhibit or facilitate an individual's level of functioning.<li data-bbox="813 1197 1333 1497">5. Society may create barriers, for example, inaccessible services or lack of facilitators, such as the unavailability of AT, which can affect an individual's performance.<li data-bbox="813 1535 1333 1759">6. An individual's functioning is affected by the presence or absence of services, for example, equipment, products, and technologies in their environment.

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7. External elements like systems and policies that regulate and facilitate the provision of services can impact a person's functional capacity.
 8. An individual's level of functioning can also be influenced by external factors such as support and relationships, including family, people in positions of authority, and health professionals.
 9. Personal factors of an individual represent their internal aspects, including psychological factors, that can affect their level of functioning.
 10. Individuals' functioning and disabilities are influenced by their health status as well as contextual factors, such as environmental and personal factors.
 11. Functioning is defined as encompassing body functions, body structures, activities, and participation.
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12. An impairment, an activity limitation, or a restriction on participation constitutes a disability.

Levesque's conceptual framework

1. The concept of approachability is related to the ability of individuals with health needs to recognise the existence of available services, access them, and receive effective healthcare that can improve their health.
 2. Cultural and social factors determine the acceptability of health services within their context.
 3. The reachability of health services depends on their physical presence and timeliness.
 4. Factors like personal mobility, transportation availability, adaptability in occupation, and knowledge of accessible health services are interconnected and contribute to an individual's capacity to access healthcare providers physically.
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5. The concept of affordability in healthcare refers to the ability of people to pay for services without causing undue financial hardship or affecting their ability to afford basic necessities.
 6. The ability to afford healthcare services is connected to a person's financial resources, including income, savings, and borrowing capacity.
 7. Appropriateness in healthcare refers to the fit between the services provided and the needs and preferences of clients, as well as the quality and safety of those services.
 8. Engaging in healthcare involves the active participation of clients in decision-making and treatment planning, which helps to ensure that care is aligned with their goals and values.
 9. Accessibility of health services is affected by the availability of information.
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	<p>10. Personal autonomy and the ability to choose care-seeking are linked to the ability to access health care.</p>
<p>The Human Activity Assistive Technology model (HAAT)</p>	<ol style="list-style-type: none">1. AT enhances an individual's capabilities to complete desired tasks.2. Human activities are essential, learnable, and influenced by societal and cultural contexts.3. The use of desired technology is influenced by human skills and abilities (physical, cognitive, emotional).4. An individual's ability to perform activities is affected by their skills and abilities (physical, cognitive, emotional).5. The use of AT to perform an activity is influenced by various factors in the environment, including physical, social, cultural, and institutional elements.

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6. Choosing and implementing the right

AT requires considering the interaction between different elements, including the activity being performed, the user's needs and abilities, and the broader environmental context in which the technology will be used.

7. The process of performing an activity leads to a functional result of human performance.

Gibson's affordances theory

1. Cognition: Affordances exist as a cognitive process which comes through people and organisations interacting with material entities.

2. Perception: Affordances need to be perceived or recognised by the person or organisation.

3. Behaviour: the affordance is actualised as the behaviour that people/organisations adopt acting on the perceived opportunity for action.

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	<ol style="list-style-type: none">4. Evaluation: Evaluating the effects of this behaviour.5. Environmental factors and structures can impact disabilities.
Systemic development model (SDM)	<ol style="list-style-type: none">1. Understanding personal, organisational, and institutional capacity requires consideration of factors such as health, culture, economics, and politics.2. It is crucial to provide appropriate services to improve the health, well-being, and fundamental freedoms of individuals in need.3. Limited access to services can create a cycle of poverty and disability.4. Service delivery systems that are tailored to specific contexts play a significant role in ensuring appropriate service provision.5. Economic factors impact the availability of products and services

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	<p>and can affect the viability of service provision.</p> <p>6. Evaluation of the quality, development, performance, and procurement standards of products is crucial for improving service delivery systems and individual health outcomes.</p> <p>7. Political governance also plays a role in ensuring access to appropriate services.</p>
<p>Multi Intervention Paradigm for Assessment and Application of Concurrent Treatments (IMPACT²)</p>	<p>1. The results of interventions can be outlined by examining the six phases, including: 1) Pre-Intervention, 2) Context, 3) Baseline, 4) Intervention Strategies, 5) Outcome Covariates, and 6) Outcomes.</p> <p>2. Personal and contextual factors influence the products and services used by individuals to perform activities.</p>

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3. Universal design and health promotion are two methods that can be utilised to enhance functional performance.
 4. The context in which AT is used to perform a task within an environment is crucial for improving participation and QoL.
 5. Intervention approaches, such as reducing the impairment, compensating for the impairment, using AT, and redesigning the activity, are used to support the use of AT and optimise an individual's functioning.
 6. Consumer satisfaction is a desirable outcome of AT provision.
 7. Outcome(function) is defined as participation, QoL, and engagement.
 8. Cost influences the Intervention approaches therefore affecting Outcomes.
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Matching Person and Technology (MPT)

1. AT serves as a bridge between individual capabilities and the demands of tasks within their environment.
 2. Personal autonomy and the performance of everyday activities are enhanced by integrating technology that matches individual needs.
 3. The compatibility of assistive products with the user's lifestyle is crucial for successful adoption and satisfaction.
 4. The user's physical, cognitive, and emotional dimensions must be considered to optimise the functionality of AT.
 5. AT should empower individuals, promoting independence and self-efficacy in their desired roles and activities.
 6. The design and functionality of assistive technology must reflect the
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	<p>user's self-image and socio-cultural identity to foster acceptance.</p> <p>7. AT should assist and elevate the user's ability to engage in social roles and activities with confidence and ease.</p> <p>8. The choice of AT is personal, influenced by individual preferences, aspirations, and the context of their lives.</p> <p>9. Effective AT integrates into the user's environment, enhancing their capabilities without introducing new barriers.</p> <p>10. The success of an assistive product is measured not only by its technical features but also by its ability to align with the user's psychosocial context and enhance their QoL.</p>
<hr/> <p>Penchansky and Thomas' framework of access</p>	<hr/> <p>1. Access is defined by the degree to which healthcare systems are</p>

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equipped to meet the requirements of patients

2. Affordability assesses whether the costs imposed by the provider align with the client's financial capacity and willingness to pay for the services offered.
 3. Availability refers to the provider's capacity to meet the client's needs through adequate resources, including staff and technology.
 4. Accessibility concerns the ease with which clients can physically reach the provider's location.
 5. Accommodation evaluates the extent to which the provider's operational procedures, such as hours of operation and telephone communication, are convenient for the client.
 6. Acceptability pertains to the degree of comfort the client experiences with the provider's fixed characteristics and encompasses considerations of the client's
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health condition and type of health

coverage.
