Multimedia Appendix 11 - Conceptual networks of clustered metaphors

- Reciprocal translation (=)
- Refutational translation (<>)

Grey boxes are themes and organizers for the synthesis
Health development creates new infrastructures for improving health, care, health, and well-being.

AIMS

SOCIALLY PERSPECTIVE

METHODS

PHASES

OPERATIONALIZATION

Conceptualization (DEP)
Stage of development where experts decide on the theoretical basis, review the evidence, and plan the development process. Brainstorming sessions can cover how to translate the theory and evidence into practical methods and techniques

[Development and Evaluation Process for mHealth]

Policy categories
Policy categories represent types of decisions made by authorities that help to support and enact an intervention [Behavior Change Wheel/COM-B model]

Service provision
Policy categories; Delivering a service [Behavior Change Wheel/COM-B model]

Social planning
Policy categories; Designing and or controlling the physical or social environment [Behavior Change Wheel/COM-B model]

Guidelines
Policy categories; Creating documents that recommend or mandate practice [Behavior Change Wheel/COM-B model]

Remote delivery of system refinements
Following delivery of the eHealth technology at the patient’s home, remote refinements of the system can be initiated, thereby saving valuable human resources [Iterative Refinement and Patient Participatory Approach]

Interdisciplinary methods
Development state-of-the-art; Limitations of study/project; There is a growing need to consider adopting methods from other disciplines rather than using deployment–evaluation cycles [54]. Theories, models, and methods to support this approach can be found in engineering and related sectors (e.g., use of factorial or fractionated evaluation designs that have been utilized well within the HCI sphere) [Walsh et al. 2018a]

Interpersonal level
The SEM incorporates a wide range of individuals involved at various points of the CVD illness journey through its various levels (eg, individual, interpersonal, organizational, community, and policy) [Social Ecological Model]

Organizational level
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Policy level
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Community level
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Facilitating conditions
Determinants of technology acceptance; Consumers’ perceptions of the resources and support available to perform a behavior [Unified Theory of Acceptance and Use of Technology model]

Guidelines
Policy categories; Creating documents that recommend or mandate practice [Behavior Change Wheel/COM-B model]

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eHealth development is intertwined with implementation

Line of argument (Conceptual network)
### eHealth development integrates theory, evidence, and participatory approaches for persuasive design

**Line-of-argument (Conceptual network)**

#### OPERATIONALIZATION

**Integrating theory-, evidence- and person based approaches**

*Approach to eHealth: A combination of theory-, evidence- and person based approaches are important to increase the acceptability, engagement with, and effectiveness of an intervention (Band et al. 2017)*

#### AIMS

| Tailoring and personalization | Habit | Automatic Motivation |
|-------------------------------|-------|----------------------|
| Heterogeneity (CVD): An individual assessment (e.g., on psychological readiness for change) and tailored and personalized features can be useful to achieve health behavior change, to empower patients to make choices and direct them to the most appropriate content for them at a specific time (Walsh et al. 2018a) | Determinants of technology acceptance: The extent to which people tend to perform behaviors automatically because of learning, also equated with automaticity (Unified Theory of Acceptance and Use of Technology model) | Parameters of effectiveness; Target constructs (sources of behaviors); Automatic processes involving emotional reactions, desires (wants and needs), impulses, inhibitions, drive states and reflex responses (Band et al. 2017; Behavior Change Wheel/COM-B model) |
| Facilitating conditions | Determinants of technology acceptance; Consumers’ perceptions of the resources and support available to perform a behavior (Unified Theory of Acceptance and Use of Technology model) | Parameters of effectiveness; Sources of behavior; Motivation describes the brain processes that energize and direct behavior and includes both automatic motivation (e.g., habits) and reflective motivation (e.g., cost-benefit decision making) (Walsh et al. 2018a; Behavior Change Wheel/COM-B model) |
| Hedonic motivation | Determinants of technology acceptance: The fun or pleasure derived from using a technology (Unified Theory of Acceptance and Use of Technology model) |  |
| Performance expectancy | Determinants of technology acceptance: The degree to which using a technology will provide benefits to consumers in performing certain activities (Unified Theory of Acceptance and Use of Technology model) |  |
| Social influence | Determinants of technology acceptance: The extent to which consumers perceive that important others (e.g., family and friends) believe they should use a particular technology (Unified Theory of Acceptance and Use of Technology model) |  |
eHealth development requires continuous evaluation cycles

Line-of-argument (Conceptual network)
Experience

User-centred design process

OPERATIONALIZATION
development and maintenance of eHealth systems is likely to increase the extent of successful uptake and impacts on outcomes for patients

Line-of-argument (Conceptual network)

Technology adoption

Tailored, personalized, and timely

Personalization and tailoring

access to personalized information

empower patients by providing better

accessible to the majority of patients

eHealth added value; eHealth state-

2015
capacity and preferences should be (monitoring) systems to user's

The need to tailor eHealth system more passively. This could

control (engagement) of their health

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different levels of involvement and

Heterogeneity (Heart failure); Users

[Triantafyllidis et al. 2015]
range of patients to monitor their

implementation. Regular adaptation

PSMS

Development assumption; Evidence

Acceptability and fit of hardware in

Routine

Adaptation to personal routines

[Chantler et al. 2016]
readings or health information

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