

**Please cite the Published Version**

Keenan, JR and Lionarons, H (2018) Obstacles that stand in the way of digital intervention within mental health. *Journal of mHealth*, 5 (3).

**Publisher:** Simedics Ltd

**Version:** Accepted Version

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**Obstacles that stand in the way of digital intervention within Mental Health**

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Implementation sciences represent an important knowledge base for the adoption of eHealth by mental health care professionals and the public. In order to create a sustainable eHealth culture we need to approach its dissemination and implementation on a cross disciplinary base, introducing implementation sciences into the health care field.

Radhakrishnan, et al. (2012) identified that the use of digital interventions resulted in improved clinical outcomes, cost-reduction of service provision, and an increased level of autonomy for service users. Despite a growing evidence base highlighting the effectiveness of digital interventions a number of obstacles still exist preventing wider adoption. Vis, et al. (2018) conducted a systematic review exploring the barriers of implementation of digital innovation within routine practice and identified three key challenges; (i) expectations and preferences of patients and professionals, (ii) the appropriateness of using digital interventions to support mental health, and (iii) the extent to which they interact with existing methods of care. A deduction from this review is the perceived acceptability of digital interventions represents a core obstacle facing the integration of digital interventions within mental health. This thought piece aims to discuss how the concept of service user and provider acceptability as a barrier, can be explained through the application of theories of implementation science, and motivation.

***Importance of Implementation Science***

Theories of implementation science including Unified Theory of Acceptance and Use of Technology (UTAUT; Venkatesh, et al., 2003) and Normalisation Process Theory (NPT; May, 2006) provide some explanation of constructs that predict behavioural intention of the use of technology within the context of mental health service provision.

UTAUT (Venkatesh, et al., 2003) consists of four constructs that aim to predict behavioural intention and usage of technology; performance expectancy, effort expectancy, social influence, and facilitating conditions. Performance expectancy refers to the degree to which an individual perceives an additional benefit to working practice using technological systems. Effort expectancy refers to the perceived ease

of use of technological systems and how this differs from current practice. Social influence refers to how others within an organisation perceive the appropriateness of technology and how it should be used. Facilitating conditions include contextual issues surrounding the adoption of technology and may include the age of the user, gender, user familiarity of technology use, and the resources available within a particular organisation.

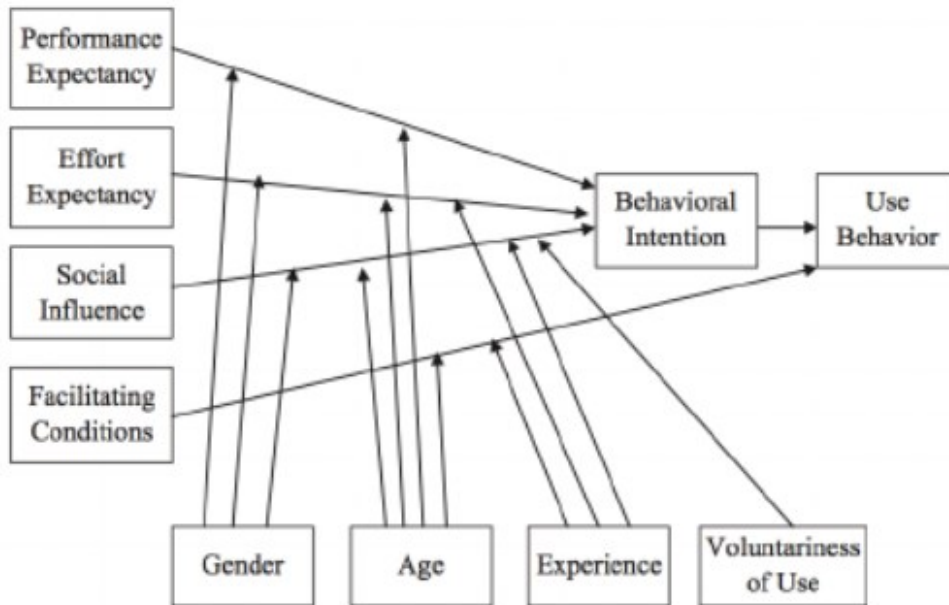


Figure 1 - Overview of the Unified Theory of the Acceptance and Use of Technology (Venkatesh, et al., 2003)

NPT (2006) focuses on four constructs that are used to analyse the work involved in implementing technological health care solutions; interactional workability, relational integration, skill-set workability, and contextual integration. These factors consider; how operators utilise a digital health intervention, how knowledge and work are understood and mediated within a team of health care providers, the distribution of work to use the system within a team, and how digital health interventions integrate with an already existing service.

Through examining the constructs of these theories of implementation science, we can begin to focus on elements of organisational behaviour change within the context of mental health services. For instance, if a health care professional retains a preference for traditional models of care and perceives no additional benefit (low performance expectancy) in the introduction of a digital intervention, this will result in a reduced level of acceptability – creating an obstacle towards implementation.

### **Consideration of intrinsic motivation**

Theories of motivation, such as Self-Determination Theory (Deci & Ryan, 1985) illuminate the importance of how using digital interventions must satisfy the inherent psychological needs of both service providers and users in order for them to be motivated to engage in its use. Self-determination theory postulates that people have three inherent psychological needs: competence, autonomy, and relatedness. From a self-determination perspective, these needs are identified as universal to ensure

proactivity, optimal development and psychological health of all people (Deci & Van Steenkiste, 2004). When one of the needs is thwarted, it is expected that the person will experience passivity, and an inhibition to engage in a target behaviour (Deci & Van Steenkiste, 2004).

Consequentially, a digital intervention should aim to satisfy each of these psychological needs in order to encourage engagement. This may include functions such as videoconferencing, messaging services, to ensure two-way communication between service providers and service users (satisfying relatedness), allowing the service user to make decisions about how to engage in the intervention (satisfying autonomy), and being simple to learn and easy to use (satisfying competence).

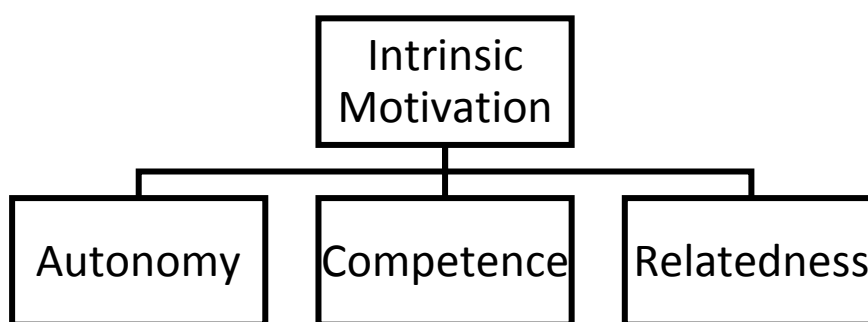


Figure 2 - Overview of Self-Determination Basic Needs Theory (Deci & Ryan, 1985)

### ***Blended care as a means to improve implementation***

One way of improving its attractiveness to professionals and service users alike is to blend eHealth and traditional face-to-face therapy. Van de Vaart, et al. (2014) show that blended therapy was positively perceived among all respondents, especially to enhance the self-management of service users. According to respondents, practical therapy components (psycho education, diaries, and homework assignments) should be provided via online modules, while process-related components conducted face-to-face.

For providers blended care gives the opportunity to stay in contact with service users and thus not estrange them from one of their core values. E-Health solutions should satisfy this need in order to become an intrinsic part of their clinical workflow. Other components having to do with the technological workability (interactional workability, skill-set workability), relational and contextual integration, and financial aspects of the implementation are also part of the process.

### ***Conclusion***

Framing acceptability as a key obstacle to successful implementation in mental health, places importance on how digital interventions are designed in the first instance. An equilibrium of satisfying practical concerns and psychological needs of

service users and providers must be achieved. If an equilibrium of these is not achieved a likely consequence is a reduced level of acceptability from either (or both) the service provider or service user. One potential method of achieving this equilibrium is to engage in an ongoing period of consultation with stakeholder groups at each stage of the development of an intervention. A view shared by Rasmussen, et al. (2018) who suggest that awareness, mutual goals, and coproduction are core components linked to the sustainability and level of engagement with interventions.

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