Chapter 7

Serious Game for Relationships and Sex Education:
Application of an Intervention Mapping Approach to Development

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ABSTRACT

This chapter illustrates the application of an Intervention Mapping approach to the development and design of a Serious Game addressing relationships and sex education (RSE) needs in British adolescents. Needs assessment identified experience of pressure/coercion in sexual relationships as the topic for a Serious Game-based RSE session. The process of applying intervention mapping including evidence review, identification of a programme goal, performance objectives and associated determinants, and change objectives are explicated. The way that these were translated into a concept and content for a Serious Game is explained. Evaluation plans grounded in the planning process, and commentary on challenges experienced, are also provided. The chapter provides an important contribution to approaches that can ensure efficacy of Serious Games applied to healthcare issues.

INTRODUCTION

Ensuring that Serious Games aimed at improving health outcomes deliver their objectives is critical. This chapter illustrates the application of an *Intervention Mapping* approach (Bartholomew, Parcel, Kok et al., 2011) to the development and design of a Serious Game addressing relationships and sex education (RSE) needs in British adolescents. The principles and processes involved in Intervention Mapping are explained in detail in section 3. Broadly speaking, the approach aims to ensure maximum efficacy of health promotion programmes by ensuring that the needs and per-

spectives of stakeholders and end users, as well as the best available evidence about 'what works', lead the development process. The approach also sets out a clear mandate that evaluation strategies should be considered throughout the process and implemented in order that interventionists and programme planners are able to assess the efficacy of their work.

Below, we provide an overview of the sexual health issues faced in Britain amongst adolescents and young adults and explain our rationale for considering the development of a Serious Game as an appropriate strategy for helping to address some of these issues. We provide an overview of the intervention mapping approach as set out by Bartholomew and colleagues, and explicate the iterative process as it was specifically applied to the development of the concept for our Serious Game. We also explain how the development gave consideration to our evaluation strategy and how the process enabled identification of evaluation measures.

Finally, in addition to links to our website and access to the end product, we provide commentary on some of the challenges of applying this approach to Serious Game development. In writing this chapter, we aim to illustrate and promote the use of this rigorous approach to health promotion programme development amongst those interested in the development of Serious Games for Healthcare. It provides a valid contribution to research establishing methodologies, frameworks, and development approaches necessary to ensure efficacy of Serious Games.

BACKGROUND

Teenage pregnancy and sexual health are significant UK social and policy issues due to their adverse social-economic and health consequences (NHS Centre for Reviews and Dissemination, 1997; Brown, Arden and Hurst, 2007; Health Inequalities Unit, 2007; Paranjothy, Broughton, Adappa, and Fone, 2009; Mellanby, Pearson and Tripp,1997; Churchill, Allen, Pringle, and Hippisley-Cox, 2002). In 2009, 38,259 women under 18 years of age conceived in England and Wales, and just over half led to live births (Office of National Statistics [ONS], 2011). The National Teenage Pregnancy Strategy (Social Exclusion Unit [SEU], 1999) aimed to halve rates of conception amongst under 18s by 2010 (from a 1998 baseline) but this has not been achieved and despite evidence of modest decline, these rates remain the highest in Western Europe (ONS, 2011). Similarly despite strategic targets to reduce the transmission of Sexually Transmitted Infections (STIs) amongst young people (National Strategy for Sexual Health and HIV, Department of Health, 2001), and some evidence of stability and a minor decline in the latest figures (HPA, 2011), rates of STI remain very high (HPA, 2011).

Determinants of adolescent sexual health and well-being involve a complex interplay between environmental, social and psychological factors further complicated by a dyadic context. Social factors such as having drunk alcohol (Kiene, Barta, Tennen, and Armeli, 2009), difficulties carrying or asking a partner to use condoms (Hillier, Harrison,Warr 1998), and broader social norms such as cultural acceptance of teenage pregnancy (Arai, 2007), limit contraceptive and risk protective behaviours. Psychological factors such as adolescent egocentrism (Muuss, 1982), unrealistic optimism (Weinstein, 1980), inadequate risk appraisal (Newby, Wallace and French, in press), self-efficacy (Sheeran and Taylor, 1999) ambivalence about pregnancy (Bayley, Brown and Wallace, 2009) along with broader concepts of self esteem and aspirations (Newby, Brady, Bayley and Sewell, 2011) also influence decisions to have unprotected sex.

Behavioural science, including psychology, draws on theoretical concepts and higher order theoretical models to target such complex be-

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