

## How to reach a target group with Internet-delivered interventions?

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### Once upon a time...

...there was the Internet. This article starts as a fairy tale, since this is in accordance with the way people used to talk about the Internet and its possibilities during the early days of its growth (in the late nineties of the 20<sup>th</sup> century). This fairy tale turned out to be true, insofar as the growth of the Internet has been enormous. Through its interactive character, for example, the Internet is thought to have great potential as a communication channel that can combine a high reach with tailored or targeted health promotion (Brug, Oenema, Kroeze, & Raat, 2005). The huge increase in possibilities of and access to the Internet has initiated an expansion of Internet-delivered health behaviour change interventions. It has been shown that Internet-delivered interventions can be effective in changing behaviour, but evidence from efficacy trials indicates that exposure rates are low (De Nooijer, Oenema, Kloek, Brug, De Vries, & De Vries, 2005). Exposure rates may be even lower when these interventions are implemented in real life rather than in a research setting (Evers, Cummins, Prochaska, & Prochaska, 2005). These findings touch upon a critical issue regarding Internet-delivered interventions: How could behaviour change ever be established if people are not exposed to the intervention itself? Prior to this question, it is important to know more about how to attract people to an Internet-delivered intervention among innumerable other websites that probably serve their gratification to a larger extent. This issue pertains to the concept of dissemination. Dissemination refers to the distribution of the intervention to the target population, including bringing the intervention to the attention of the target population. Successful dissemination of an Internet-delivered intervention is required before the target population can be exposed to the intervention's content and use its components.

In this article, we will focus on strategies for enhancing dissemination of Internet-delivered interventions. First, we will discuss intervention dissemination in an existing social context. Second, we will discuss possible limitations regarding this strategy and provide an alternative strategy, i.e. dissemination through popular online places. Subsequently, examples regarding the latter strategy and implications for future research and practice will be discussed.



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### Embedding in a social context

Embedding the intervention in a social context could be defined as a feasible and appropriate way to disseminate Internet-delivered interventions (Crutzen, De Nooijer, Brouwer, Oenema, Brug, & De Vries, 2008a; 2008b). For example, an Internet-delivered intervention aimed at adolescents could be embedded in a social context by linking the intervention to school activities. Social embedment of Internet-delivered interventions makes these types of interventions comparable to offline (non-Internet-delivered) interventions, where adolescents also indicate that interventions should be provided during class hours instead of by their parents (Martens, Wind, Van Assema, & Brug, 2002). Social context is not limited to schools; the intervention can also be embedded into e.g., sports clubs, youth centres or hospitals. The feasibility, appropriateness and effectiveness of such a social context could be explained by the infrastructure being available and intermediaries (e.g. teachers) being accustomed to such settings (e.g. providing education during class hours) (Reinaerts, De Nooijer, & De Vries, 2007).

It remains, however, questionable whether this is suitable for (1) all available Internet-delivered interventions, because there are too many available interventions that would need social embedment, ►

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and (2) interventions aimed at hard-to-reach, but highly relevant target groups (e.g. school drop-outs) for health behaviour change. An alternative strategy, i.e. dissemination of Internet-delivered interventions through popular online places, will be presented in the next paragraph. This strategy is not dependent on social embedment in a physical infrastructure and not limited to target groups within such an infrastructure, therewith addressing the limitations of embedment in a social context.

#### Dissemination through popular online places

One could question to what extent people realise that behaviour change interventions are available and delivered through the Internet. Even if people are willing to change their behaviour, they will not search online if they are unaware of the existence of Internet-delivered interventions. In line with the precaution adoption process model (Weinstein & Sandman, 1992), one could assume that people need to be aware of the existence of Internet-delivered interventions and realise that these have personal relevance, before they take action and actually visit websites containing such interventions. If people are unaware of the existence of Internet-delivered interventions, one should question whether a possible solution would be to raise awareness by disseminating these interventions at online places which are already popular.

An example of such a popular online place (in which health promoting interventions are delivered) is Second Life, which is part of the Web 2.0 movement and its future. Second Life is a unique social experience, allowing people to meet and interact with each other (interpersonal) and in groups, using a comprehensive and an integrated range of communication tools, both asynchronous and synchronous<sup>1</sup> (Kamel Boulos, Hetherington, & Wheeler, 2007). It is a virtual world in which multiple users are “present” within a simulated space through their avatars<sup>2</sup>. Second Life could be a suitable place to disseminate health promotion programs. In the Nutrition Game proposed by Ohio University, for example, people can learn about the impact that fast food has on health. This is achieved by allowing people to experiment with different eating styles in simulated fast-food restaurants to learn about the short- and long-term health impacts of their choices (Kamel Boulos et al., 2007). These simulated fast-food restaurants are present in a virtual world (Second Life) which is already popular among and accessed by a large number of people, thereby streamlining the process of dissemination.

Another example of a popular online place is YouTube. Health promotion has embraced both mass media and interpersonal communication, but the field has not fully recognised the growing benefit of hybrid communication forms like YouTube which appeal to a large number of people. The mainstream use of the Internet means that YouTube videos are open to nonstop, widespread observation and could be used to enhance intervention adoption (Lillie, 2008), e.g. as a gateway to another website. This gateway principle is, for example, also applied in an Internet-based HIV-prevention program that uses virtual pursers<sup>3</sup> on a popular e-dating website to invite users to the intervention website (Kok, Harterink, Vriens, De Zwart, & Hospers, 2006). The intervention (about dating and sexual behaviour) was brought to the attention of chatters (at an e-dating website for men who have sex with men) by these virtual chatters, before and after they logged on.

#### Future directions

It is important to realise that Internet-delivered interventions could be disseminated through popular online places, but people may be less interested in health behaviour change when visiting popular online places compared to more “serious” online places (e.g. intervention delivered through the website of a community health service), since they visit these places for other reasons (i.e. distraction) than behaviour change. It should be taken into account, therefore, that people recruited through popular online places may not be very involved and should first be motivated to change behaviour. Moreover, they may have less attention for the intervention’s content. In spite of this, collaborations with (commercial) partners regarding the use of popular online place for health promotion purposes may have a positive effect on dissemination of Internet-delivered interventions. A good example is the collaboration with the chat room operator of a popular e-dating website to promote the previously mentioned intervention about dating and sexual behaviour (Kok et al., 2006). Other possibilities to deploy in the near future are collaborations with social networking websites (e.g. Facebook, MySpace) which are popular among and repeatedly visited by certain target groups (e.g. adolescents). Fruitful collaborations could be established by including these partners in a linkage group at the beginning of the development process of the intervention (Bartholomew, Parcel, Kok, & Gottlieb, 2006) and actively using them for consultation purposes (Kok et al., 2006). Such collaborations, ►

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however, should not interfere with the way in which one would like an intervention to come across.

Although some positive examples of recruitment through popular online places are quoted, it needs to be investigated whether this is effective to successfully disseminate Internet-delivered interventions. An important issue to keep in mind, however, is that motivation to change health behaviour among people recruited through popular online places may be low. Therefore, future research needs to look at other differences regarding socio-demographic, psychosocial, or behavioural measures of people recruited through different online places.

**Concluding remark**

The possibility to disseminate Internet-delivered interventions through popular online places has been discussed in this article. Although examples of successfully applying this strategy have been provided, there are still issues for future research and practice (e.g. individual differences, collaborations with other parties) regarding this strategy. ■

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**Notes**

<sup>1</sup> Asynchronous communication refers to communication with a significant time delay between one person's message and another person's response to this message, while synchronous communication refers to real-time interaction between those communicating.

<sup>2</sup> An avatar is an Internet user's representation of him/herself, whether in the form of a three-dimensional model used in computer games (Lessig, 1999) or a two-dimensional icon used on Internet forums and other communities (Fink, 1999).

<sup>3</sup> Virtual pursers are listed as users on a chat box and invite other chat box users to the intervention website.