"Testing is Healthy" TimePlay campaign: Evaluation of sexual health promotion gamification intervention targeting young adults

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ABSTRACT

OBJECTIVES: The objectives of the study were to 1) describe the implementation of the “Testing is Healthy” campaign in four locations in British Columbia (BC) and 2) report process evaluation indicators for the campaign.

PARTICIPANTS: Young adults ages 20–29 years, the age group with the highest reported rates of chlamydia and gonorrhea in BC.

SETTINGS: Movie theatres located in Langley, Burnaby, Coquitlam and Surrey, which are communities served by the Fraser Health Authority (FHA) in BC.

INTERVENTION: The FHA launched the campaign in 2014 and 2015 to bring down the prevalence of sexually transmitted infections (STIs) and HIV in the region. The campaign used the Cineplex TimePlay platform to engage moviegoers in answering STI/HIV-related questions, and to connect them to a clinic finder on the BC Centre for Disease Control Sex Smart Resource (SSR) website. TimePlay includes elements of gaming, is technology-based, and has been a successful advertisement platform for consumer products and services. However, this is the first time it has been used for sexual health promotion. The campaign was evaluated for 1) reach, based on theatre attendance and TimePlay participation, and 2) the effectiveness of connecting people to sexual health information using SSR web analytics.

OUTCOMES: In total, the campaign received 548 410 views and 77 149 plays. SSR web analytics showed a significant increase in unique page views of the Clinic Finder page between the first and the second campaign.

IMPLICATIONS: The campaign reached a large population at a low cost and was correlated with spikes in the unique page views for the Clinic Finder page.

KEY WORDS: Sexually transmitted infections; HIV; young adults; youth; public health; social marketing campaign; digital gaming; TimePlay

La traduction du résumé se trouve à la fin de l'article.

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had a positive association between greater progress through the game and the sexual health knowledge score among 11–14 year olds.6,11 Another virtual reality game, SOLVE, used positive framing on sexual health to reduce shame associated with sexual stigma among men who have sex with men (MSM).7

Since literature points to the potential effectiveness of gamification strategies, the Fraser Health Authority chose a novel gaming platform (TimePlay) to deliver the “Testing is Healthy” sexual health promotion campaign aimed at addressing the escalating rates of STI/HIV in BC. This study describes the implementation of the “Testing is Healthy” campaign and reports process evaluation indicators for the campaign.

PARTICIPANTS, SETTING AND INTERVENTION

Target population
The target population is primarily young adults (20–29 years) as they have the highest reported rates of chlamydia and gonorrhea in BC, and constitutes part of the high-risk group for HIV infections.

Settings
Fraser Health Authority (FHA) is the largest of the five regional health authorities by population in BC, providing health services to over 1.7 million people.12 The Fraser Health region covers a diverse area, from large communities directly surrounding Vancouver, BC’s largest city, to smaller communities over a two-hour drive away from Vancouver. The region is home to BC’s largest and fastest-growing population, including over 40% of the province’s immigrants and over 80% of government-assisted refugees.13

TimePlay ad space was purchased from four Cineplex Odeon movie theatres in the region (Langley, Burnaby, Coquitlam and Surrey). These four communities are predominantly urban or suburban but demographic profiles vary between them, as illustrated in Table 1.14–19

The campaign was conducted over four time periods in 2014 and 2015, appearing in all feature films rated 14A (i.e., for those 14 years and above). Data collected during three of the time periods are included here. Time periods were chosen strategically when possible: the first took place in late June and throughout July 2014, when most of the year’s blockbuster films were released and attendance of the target audience was expected to be high. The second took place throughout January 2015 due to availability of the ad space and expected high rates of movie attendance. The third campaign period (end of February to March 2015) was chosen based on availability and time constraints. The fourth campaign took place in the summer month of 2015, again due to the high rates of attendance and the return of the blockbuster movies; however, data from the fourth campaign were not yet available at the time of acceptance of this paper. Each time period was for four weeks, in order to gain enough audience exposure to the campaign.

Intervention
As previously mentioned, one of the objectives of this study was to describe the implementation of the “Testing is Healthy” campaign, which aimed to 1) reduce misperceptions around STIs, including HIV, 2) raise awareness of where and how to get tested, and 3) increase testing for STI/HIV. The campaign was part of Fraser Health’s larger strategic plan to decrease the spread, progression and transmission of STI/HIV, which also includes the STOP HIV (Seek and Treat for Optimal Prevention) initiative that is rolling out provincially.20

The campaign was delivered through TimePlay, an interactive game that airs before Cineplex feature films and is played via a mobile application. Cineplex theatres have a wide reach to young adults: in 2015, 69% of moviegoers in Canada were 18–34 years, with a nearly balanced split of males and females.21 The TimePlay application has been downloaded more than 1.7 million times by moviegoers in Toronto and Vancouver since 2012 and is increasingly popular among young adults.22 After downloading the TimePlay application, participants use their mobile devices as hand-held controllers that interact with the theatre screen.23 This platform has been successfully used as an advertising channel by various companies, but this was the first time it was used for a public health campaign.24 Following the “Testing is Healthy” campaign’s experience with TimePlay, Immunize BC used it for a “Flu” campaign the following winter in 2015.25

The campaign developer purchased the TimePlay ad time and developed the campaign materials, which included STI/HIV-related questions, short animated and live-action video clips, and other related digital content, including the “Testing is Healthy” campaign page and artwork. The 60-second campaign was done in animated format for the first two campaigns and live-action for the third. Each included five questions with four answer options, and two of these questions were randomly selected for each viewing. Figures 1 and 2 show the screening of the TimePlay messages on the movie screen. On the mobile application, the participant sees the four options for answer choices and is asked to select one. Points are awarded for correct answers, with bonus

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<tr>
<th>Table 1. Profiles of the four Fraser Health communities</th>
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<tr>
<td>Burnaby</td>
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<tr>
<td>Visible minority</td>
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<td>New immigrant</td>
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<td>Top non-official language spoken in home</td>
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<td>Low-income after tax</td>
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<td>Less than high-school education (25–64 year olds)</td>
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<td>Life expectancy at birth</td>
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<td>Population aged 20–29 (2015) (% total pop.)</td>
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Note: Source for this is BC community health profiles from the PHSA website.14 Data for Burnaby from “Community Health Profile Burnaby 2014”, for Coquitlam from “Community Health Profile Coquitlam 2014”, for Langley from “Community Health Profile Langley District 2014”, and for Surrey from “Community Health Profile Surrey 2014”.15–18 Data for the population aged 20–29 (% total pop.) are obtained from BC Stats.19
points for faster responses. Points can then be converted to prizes (e.g., food and drinks).  

The overall approach was to keep the questions light and to use humour and entertainment as much as possible, in keeping with a movie setting (for an example of one of the campaign messages, please see the video clip https://www.youtube.com/watch?v=ukPzY87Dcg4). We conducted key informant interviews with STI/HIV nurses in the province to elicit common myths and misperceptions among the target population, which informed the questions and answers for the campaign. We also conducted interviews and focus groups with university students at a local campus to pretest the framing and selection of the questions and to gain input on the creative concepts and storyboards. Topics covered in the questions include the common misperceptions that a Pap smear will test for STIs or HIV, or that HIV is spread on toilet seats or by mosquitoes. The campaign developer used the data of correct and incorrect answers to the initial rounds of the campaign to select the next set of questions. The majority of questions remained the same for the second round of the campaign.

At the end of the campaign message and questions, the ad directed viewers to the smartsexresource.com (SSR) website, where they could easily access the Clinic Finder page and further information on STIs. A web banner with artwork from the campaign was put up on the SSR homepage to connect visitors with the campaign (Figure 3). Similar artwork was also put on the Fraser Health website that led visitors to the “Testing is Healthy” campaign page with a highly visible hyperlink to the Clinic Finder page. The link to the SSR homepage was available through the TimePlay application (Mystuff/Rewards folder) up to one month past each campaign period. Social Media shares were available through the Mystuff folder.

**EVALUATION**

We conducted an evaluation of the campaign implementation focused on two outcomes:

1. Reach, as measured by theatre attendances and TimePlay participation.
2. The effectiveness of connecting people with STI/HIV information, as measured by the traffic to the BC Centre for Disease Control (BCCDC) Clinic Finder page.

Data were obtained from Cineplex TimePlay records, SSR web analytics, and Fraser Health web analytics.

**Cineplex TimePlay records**

TimePlay records included the number of viewers (i.e., the number of people in the movie auditorium when the campaign aired) and the number of people who participated in TimePlay when the campaign was aired.

**Web analytics**

BCCDC collected analytics for the SSR webpages from IP addresses in the Fraser Health region (see Table 3), including:
1. Unique page views – the number of unique IP addresses to a page during a session, reflecting the number of single visits to a page. In other words, multiple page views by an IP address during a session would be counted once. However, if the same visitor loads the page again after the session, he or she will be counted again.
2. Unique visitors – the number of unique IP addresses to a page, reflecting the number of people accessing the page.
3. Average time on page – average time in seconds spent per page.
4. Page views – the total number of times the page has been loaded.
5. Referral from the Fraser Health campaign page, search engines, other websites, and direct entry (i.e., typing the web link directly).

Since one of the campaign objectives was to raise awareness of where and how to get tested, we analyzed whether there were noticeable increases in the unique page views to the SSR Clinic Finder page during the campaign periods. The number of unique page views over time was analyzed using SAS 9.4. A negative binomial model was used to generate the expected mean level and the normal range using a 95% confidence interval, with unique page view or unique visitor as the outcome dependent variable, and time point as the only independent variable. Residual-related indicators were assessed to choose the best model. Fraser Health analytics measure visits to the SSR site referred from the Fraser Health campaign page. Such metrics may be useful since TimePlay participants and moviegoers could have accessed the SSR website through alternative routes, such as from direct Google searches and the campaign page, which displayed familiar illustrations and a direct link to the SSR site.

Under Fraser Health policies, ethical approval was not required for this study as it only used aggregate, de-identified data.

**OUTCOMES**

**Cineplex TimePlay records**
In total, the campaign had 548,410 potential views and 77,149 game plays (Table 2). The number of potential views corresponds to the number of people with a ticket for the movie when the campaign aired. The first campaign had the highest number of viewers (239,629) and participation rate (20%).

**Web analytics**
**Unique page views to the Clinic Finder page**
The unique page views are defined as the number of unique visitors to the page by month. There was a significant trend ($p = 0.0001$) of increasing unique page views to the Clinic Finder page as the year progressed (January 2014 to March 2015) (Figure 4). Following the first campaign launched in 2014 June to July, the page views increased sharply to well above the expected normal range, even taking into account the underlying increasing trend. The page views also increased sharply to above the expected average level following the second campaign conducted in 2015 January to February, although still remaining within the expected normal range (i.e., mean ± 2 SD). There was no discernable change following the third campaign. The analyses based on unique individuals visiting the Clinic Finder page showed a similar result (data not shown).

Web analytics also showed more unique visitors and visits to the Smart Sex Resource referred from Fraser Health’s Webpage during the campaign periods. There were 587 page views to the campaign website during the first campaign. Unfortunately, we did not have these data for the following campaigns for comparison and for analyzing pre- and post-campaign changes.

**DISCUSSION**
Fraser Health chose TimePlay for a number of reasons. First, new media platforms, of which TimePlay is an example, have been gaining popularity among young adults. Such platforms have been considered potentially cost-effective compared with conventional methods such as face-to-face interventions, which often require facilitator training and material costs, or with traditional mass-media campaigns (e.g., television, radio and newspapers), which are generally passive and costly. Second, TimePlay exposes the movie audience to the campaign regardless of their participation in the application, maximizing the reach, which we aimed to quantify in this study.

Our results show that our campaign using the TimePlay application had a wide reach (77,149 TimePlay participations and 471,261 who viewed the campaign, but did not participate in the TimePlay application). There was a higher attendance and TimePlay participation in the first campaign (June-July) compared to that in the second (January) and the third campaign (February-March), likely coinciding with the blockbuster films released in the summer months. To maximize audience reach, future campaigns involving TimePlay should be targeted during the summer months (and have been).

During the first and the second periods, there was a spike in the unique page views to the SSR Clinic Finder page, which may be attributed to the campaign. Unlike the first two campaigns, the third campaign had no spike in the unique page views, possibly

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<th>Table 2. Cineplex TimePlay analytics</th>
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<td><strong>Items</strong></td>
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<tr>
<td>Attendance</td>
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<td>Plays</td>
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<td>Participation rate*</td>
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* Adjusted by assuming 85% of the audience were present in the theatre when the TimePlay aired.

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<th>Table 3. BC Centre for Disease Control (BCCDC) web analytics for the Smart Sex Resource Clinic Finder Page</th>
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<tr>
<td><strong>Items</strong></td>
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<tr>
<td>Number of unique visitors</td>
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<tr>
<td>Number of unique page views</td>
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<td>Average time on page (seconds)</td>
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due to lower theatre attendance and repeat moviegoers who have already visited the Clinic Finder page from the previous campaigns.

Strengths of this study included quantifying the campaign reach and providing data to suggest potential changes in campaign participants’ information-seeking behaviours. The evaluation occurred over three time points across the summer and winter months as opposed to a single time point, which allowed us to detect seasonal variation and trends in the audience’s participation and seeking behaviours.

There were several strengths of the TimePlay campaign. First, the evaluation suggested that TimePlay reached a large audience at a relatively low cost with direct reach to the target audience. The total cost of $80 000 includes the costs of securing the TimePlay ad space and of staff time to conduct research and develop the questions, to write and design the campaign webpage, and to produce the videos. With 548 410 views, that means each view cost the health authority $0.16. Another strength is the use of interactive elements, such as the question-and-answer format that encourages audience participation. In addition, the campaign materials can be reused on other platforms (e.g., Fraser Health website, digital signage, etc.), as well as in other venues (e.g., health clinics, casinos) across the province and nationally, promoting scalability. The TimePlay platform may also be adapted for increasing awareness and motivating behaviour change for other health issues, such as smoking cessation and alcohol consumption—especially those issues affecting the youth population.

Limitations

This study had some limitations. First, the “Testing is Healthy” campaign is part of a larger STOP HIV campaign that is rolling out provincially. Concurrent initiatives create a complex environment to measure the independent effects of our campaign. In the future, we need better coordination between the initiatives to be able to account for the contributions from complementary activities. The second limitation is that the intervention lacks a control group and randomization. Future studies might explore the effect of playing the game versus passively observing it in the theatre, to determine the incremental impact of the interactive modality over and above viewing an ad. Third, the Cineplex record does not contain information on audience demographics and the unique number of views and TimePlay participation. In future studies, we recommend additional evaluation that captures the demographic profile of the audience to assess generalizability of the study. Fourth, the study is limited by its ability to draw causal inferences on the campaign’s impact on subsequent HIV/STI testing at the individual and population levels. Further research such as longitudinal study designs and pragmatic trials will be needed to determine the campaign’s influence on testing behaviours.

One of the challenges of this campaign was the use of an external vendor to coordinate the display and analytics of the campaign. In the first campaign, Cineplex had problems collecting the TimePlay quiz results; therefore we repeated the same campaign in January 2015 to collect missing information. Cineplex also stopped reporting the number of social media shares and URL clicks in the Mystuff folder, which affected available results.

CONCLUSION

The “Testing is Healthy” Cineplex TimePlay campaign combines gaming and mass media strategies to raise awareness and promote testing for HIV and sexually transmitted infections. To our knowledge, this is the first time the TimePlay application has been used to promote sexual health. In summary, the results of the evaluation suggest that the campaign was able to reach a wide audience and may help connect people to STI testing information and services. The campaign illustrates the potential advantages and challenges of using digital gaming as a medium for preventing STIs and promoting sexual health.

REFERENCES

2. BC Centre for Disease Control. British Columbia Annual Summary of Reportable Disease, 2013. Available at: http://www.bccdc.ca/NR/rdonlyres/D8C85F70-
RÉSUMÉ


PARTICIPANTS : De jeunes adultes de 20 à 29 ans, le groupe d’âge ayant les plus forts taux déclarés de chlamydiae et de gonorrhée en Colombie-Britannique.

LIEUX : Des cinémas situés à Langley, Burnaby, Coquitlam et Surrey, quatre communautés servies par la Fraser Health Authority (FHA) dans la province.

INTERVENTION : La FHA a mené cette campagne en 2014 et en 2015 afin de réduire la prévalence des infections transmissibles sexuellement (ITS) et du VIH dans la région. La campagne a utilisé la plateforme TimePlay des cinémas Cineplex pour inviter les spectateurs à répondre à des questions liées aux ITS et au VIH et pour leur donner accès à un outil de recherche de cliniques sur le site Web Sex Smart Resource (SSR) du BC Centre for Disease Control. TimePlay est une plateforme technologique qui inclut des éléments de jeu et qui diffuse avec succès des annonces publicitaires aux consommateurs de produits et de services. C’est cependant la première fois qu’elle était utilisée pour promouvoir la santé sexuelle. Nous avons évalué : 1) la portée de la campagne, d’après la fréquentation des cinémas et la participation à TimePlay, et 2) l’efficacité avec laquelle elle a donné accès aux renseignements de santé sexuelle, d’après l’audience du site Web SSR.

RÉSULTATS : En tout, la campagne a été vue 548 410 fois, et 77 149 personnes ont joué au jeu. Selon l’audience du site Web SSR, il y a eu une hausse importante du nombre de vues uniques de la page de l’outil de recherche de cliniques entre la première et la seconde campagne.

CONSEQUENCES : La campagne a joint une grande population à un prix abordable et a été corrélée avec des pics du nombre de vues uniques de la page de l’outil de recherche de cliniques.

MOTS CLÉS : infections sexuellement transmissibles; VIH; jeune adulte; jeunes; santé publique; campagne de marketing social; jeux numériques; TimePlay