COMMENTARY

Crowdsourcing designathon: a new model for multisectoral collaboration

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INTRODUCTION

Public health programmes are frequently developed by experts with limited feedback from communities.[1] Crowdsourcing, allowing a group to solve a problem and then sharing the solution with the public, may help to improve public health programmes. Crowdsourcing can often take the form of participatory contests.[2] Previous crowdsourcing contests have focused on producing individual components of communication programmes, such as videos,[3 4] images[5 6] or logos.[7] However, crowdsourcing contests have not focused on designing the final programme and plan for implementation. The purpose of this project was to crowdsource the development of an HIV testing programme using a designathon.

The concept of a crowdsourcing designathon is related to, but distinct from, a hackathon. Hackathons are intensive, approximately 72-hour contests that bring together young people to complete a task.[8 9] For example, hackathons organised by a university have brought together students and others interested in technology to create a mobile application.[10] Medical hackathons have challenged participants to create devices that help people with dementia, disability and other illnesses.[9 11 12] We propose the concept of a crowdsourcing designathon, drawing on the principles of crowdsourcing in order to design a public health programme with strong community input. The purpose of this article is to describe a crowdsourcing designathon, summarise designathon outputs and discuss designathon implications for public health.

DESIGNATHON APPROACH

The purpose of our crowdsourcing designathon was to develop a community-based HIV testing programme to be implemented in eight Chinese cities. This concept was influenced by theories of crowdsourcing[13] and community-based participatory research.[14] Our designathon was implemented in the following steps: forming a local steering committee; open call for participants; prepare for the event; 72-hour implementation; sustaining engagement and evaluation (table 1).

Our SESH (Social Entrepreneurship to Spur Health) group contacted local professionals in public health, communications, civil society and design to serve on the steering committee. Each committee member lived in the region, had unique relevant expertise and was willing to be physically present for the designathon. The function of this committee was to provide mentorship to participants during the designathon and evaluate HIV testing programme ideas that resulted from the designathon. All members received guidance on how to encourage participation and avoid providing examples to participants.

We first sent a call for participants to the eight local centres for disease control and prevention (CDCs) in the eight cities, and suggested them to recommend a CDC staff and a community-based organisation member as co-leaders of each team (16 participants). After that, an iterative process of community consultations in Guangzhou was used to develop the call for participants and related promotional materials. The open call for participants stated the purpose of the contest and encouraged nationwide participation from those with experience in public health, design, advocacy and communications. We evaluated each individual and selected the top individuals within

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Table 1 Stages of a designathon

Stage	Brief description	Advice for implementation
1	Form a local steering committee (including individuals with expertise in public health, civil society, communications, design)	The steering committee members can also be invited to be judges during the event
2	Widely disseminate a call for participation in order to identify participants	Using multiple platforms and networks will increase heterogeneity
3	Prepare for the 72-hour event by clearly establishing the rules, judging criteria and expectations	A coordinator staff is needed to ensure all of the logistics are arranged and expectations are aligned
4	Host the 72-hour event, often at a local university	Local universities often have sufficient space on weekends
5	Share the designs of the finalists through implementation and evaluation	Real-world implementation can also serve as an incentive to participate

each category (24 participants). Since the communications group only had two applicants, both were included. The open call was promoted through social media and in-person events. The SESH team posted messages calling for participants using major local men who have sex with men (MSM) websites (eg, GZTZ, SDTZ, Danlan), social media (eg, Weibo, WeChat) and a Chinese contest platform.

METHODS

The designathon was held over 72 hours at a university campus in Guangzhou, China. Our research team covered participants' transportation, accommodation, insurance and meals. The co-leaders pitched their ideas for an HIV testing campaign to other participants during a 5 min speech. All other participants were then allowed to choose which team they would join. Our SESH group provided each team the following: working space, computer, projector, printer, camera, HIV testing-related materials (ie, top-ranked concepts and images from a recent crowdsourcing contest in China) and technical support. Teams were allowed to consult individuals outside of the designathon. They were given the option of adapting concepts/images from the previous contest or generating completely new concepts/images. Warm-up activities helped teams from different disciplinary backgrounds to get to know each other and efficiently work together.

Each team presented their HIV testing promotion plan (logo, tagline and mock-up images) to the judges (steering committee members also played the role of judges at this stage) at the end of the 72 hours. Judges and other participants were allowed to ask questions about each team's final programme. Judges evaluated each programme plan based on the following criteria: (1) able to encourage HIV testing, (2) able to generate enthusiasm and (3) community-based; (4) feasible in the local context. Each of the four criteria were given equal weight. Images from each team are presented as online supplemental figures 1–8. Both campaign concepts and images from the designathon will be implemented as part of an eight-city HIV

testing campaign. This programme will be evaluated using a stepped wedge randomised controlled trial.[15] We selected a stepped wedge randomised controlled trial because the intervention included both individual and community-level components within a real-life context. In addition, previous randomised controlled trial research on promoting HIV testing using crowdsourcing made withholding the intervention difficult.[3]

RESULTS

A total of 53 individuals applied to participate in the designathon and 40 were selected. Of the 40 selected participants, one participant dropped out of the designathon because of a health problem. The 39 final participants were from the following cities: Guangzhou (8), Qingdao (4), Jining (4), Jinan (3), Zhuhai (3), Yantai (3), Jiangmen (3), Shenzhen (2), Wuhan (2), Guiyang (2), Nanjing (2) and others (3). The median age was 25.5 years and the range was 19–52. Twenty-four participants were 19–28 years old; 11 participants were 29–37 years old; five participants were older than 38 years old. Twelve participants were women and 28 participants were men. Our participants had expertise in the following fields: public health (26), design (11), advocacy (12) and communications (2). They included students (15), public health officials (8), community-based organisation members (12) and other (4).

HIV test promotion themes developed by each team were compelling and feasible (table 1). Several programme themes emerged from the designathon. Four teams focused on HIV self-testing within their community and four were focused on facility-based HIV testing (table 1, online supplemental figures). In addition, four teams proposed to use social media platforms (gay mobile partner seeking applications, WeChat, QQ, etc), including two teams that integrated online and offline engagement. Three teams specifically targeted a subpopulation such as MSM or college students. We also evaluated the images produced by the designathon. Among the 23 images that came out of the designathon, 15 images were adapted from the earlier image contest and eight images were newly developed in the designathon (table 2).

Judges provided individualised feedback to each team. Overall, the judges noted that programmes were well-designed, inspiring, community-friendly and creative. One judge commented that "by allowing people from different backgrounds to work together, the outcomes broke the limitations of a single perspective and incorporated various social sectors to promote HIV testing.' Another judge also commented that 'the designathon method showed great potential for public health intervention development.'

DISCUSSION

Our designathon represents a new method to solicit community input into public health programmes.

Table 2 Themes developed by the eight designathon teams in Guangzhou, China, 2016

No	Team	Theme of campaign			Mean score*	Rank
		Tagline	**Concept description**	**Image and message description**		
1	Qingdao (SD)	Easy safe-testing	Explaining the meaning of lines in commonly seen shoulder badge as a result of HIV testing, showing HIV testing is not far away from daily life	Advertising and promoting HIV self-tests among young people, emphasising confidentiality, few pain and quick result; providing counselling services through GIS-based apps, and conducting exhibition contest to promote HIV testing	35.2	1†
2	Guangzhou (GD)	Self-testing at home	The destination of one's life voyage, giving any person a warm feeling	Promoting HIV self-tests through new media outlets and in-person events, emphasising the concept of 'home' that represents a feeling of warmness, free style and being accompanied, and providing gay-friendly counselling and linkage to care services	34.6	1†
3	Jinan (SD)	A Chinese character of '艾'	This is the first Chinese character of AIDS, perceived as a symbol of AIDS among Chinese MSM	Promoting HIV tests through online (eg, WeChat) and offline (eg, bars) games and gamification, using a Chinese character symbolising that testing is the right and safe way to go when facing AIDS	32.2	3
4	Shenzhen (GD)	Breaking the bondage	HIV/AIDS is a huge restraint for looking for love. Testing provides a breakthrough	Social marketing and promotion of HIV self-tests through WeChat, Blued and Taobao platforms, and breaking the bondage of HIV for love through testing	31.7	4
5	Zhuhai (GD)	A healthy lifestyle	Constructing regular HIV self-test as a new healthy lifestyle	HIV self-test campaigns for MSM in VCT clinics (by providing HIV self-testing kits to VCT participants for partner and self-testing in the future), using a picture of two handsome young men to emphasise nurturing regular HIV self-testing as a healthy lifestyle	31.2	5
6	Jining (SD)	Testing saves lives	Early HIV testing can provide people an early diagnosis, early treatments and therefore save lives	Promotion of HIV tests through published serial cartoons and using a real story to demonstrate the dangerous of late HIV testing	30	6
7	Yantai (SD)	Say no to HIV	HIV testing is able to empower MSM to say no to HIV	Promotion of HIV tests online (eg, WeChat, Internet and mobile apps) and offline (eg, posters), using a picture of two masculine men to go for HIV testing as companions, and demonstrating testing can empower people say no to HIV	28.1	7
8	Jiangmen (GD)	Enthusiasm for life, enthusiasm for testing	Adopting from revolution enthusiasm, constructing HIV testing as an active way of life	University scavenger hunt for HIV test promotion, inviting students to provide HIV testing service to students, adapting a picture used in the cultural revolution to demonstrate HIV testing as an interesting, enthusiastic and active way of life	26.5	8

*Scoring was based on evaluating each of the criteria: (1) able to encourage HIV testing, (2) able to generate enthusiasm and (3) community-based (4); feasible in the local context. Each judge then came up with an overall score for each campaign (maximum score 10). The overall mean score from the four judges for each campaign was calculated and is listed in the table (maximum score 40).
†The top two programmes had such close scores that judges discussed and decided to declare both teams as winners.
GD, Guangdong Province; GIS, geographic information systems; SD, Shandong Province; VCT, voluntary counseling and testing.

The designathon created a set of strong HIV testing programmes and several elements of these programmes were adapted or directly used in subsequent pilots. We expand the literature by describing a new method, including images and videos from campaigns, and discussing implications for public health. Our case suggests that public health designathons have several advantages that are important to consider.

Compared with conventional, expert-driven approaches, designathons have comparatively greater community engagement, potential for innovation and multisectoral collaboration. Bringing community members from different sectors together as part of the event created a strong sense of community ownership. Community engagement has been championed as a key component of HIV campaigns.[16] In addition, our data suggest that this type of approach can generate novel and efficient solutions. Nine themes and 23 images were developed during the 72 hours of the designathon. Finally, this approach leveraged knowledge, expertise and wisdom from a diverse group of local individuals. Given the extensive involvement of non-experts in the process of campaign development, this is consistent with the notion of crowd wisdom.[13]

This designathon has implications for research and policy. From a research perspective, further

implementation science research is needed to clarify optimal settings for designathon contests. For example, this format may be particularly well suited to public health programmes focused on youth and students who are already familiar with hackathons. In addition, while there is a more extensive entrepreneurship literature on innovation challenges,[12][17] the public health literature is sparse. In terms of policy, designathons may be an effective way to develop local public health programmes. The multisectoral and strong community orientation suggests that designathons may be helpful for the development of local public health policies. Several government agencies have already organised crowdsourced design contests to improve public health.[2]

This approach also has limitations that should be noted. First, the designathon is not a panacea for community-based health campaigns and should not replace evidence-based public health communication methods. Second, our designathon was implemented in the context of a larger crowdsourcing trial, providing a unique opportunity for final programmes to be implemented. Third, we only received 53 applicants for 40 slots. Increasing the visibility of the call for participants could expand our pool of participants.

CONCLUSION

Crowdsourcing designathons may be useful for creating more engaging and effective public health programmes. This format draws on crowd wisdom, local community engagement and multisectoral feedback to enrich public health services. Designathons represent a participatory approach that may create more locally responsive messages and could also engage local communities earlier and more deeply in the process of developing health programmes. Further implementation experience is needed to better understand the potential advantages and disadvantages of this new approach.

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