



Fishing with the 'net: A case for an electronic intervention to increase seafood consumption

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BRIEF REPORT

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Abstract

There is good evidence that regular fish consumption can lead to a range of health benefits, and that there is high public awareness of this fact. In spite of this, Australians do not, on average, consume fish to recommended levels. An intervention is proposed, leveraging social media and mobile technology. This approach is justified on the basis of a precedence of similar initiatives and the calculation of a potential target group size of 2.8 million adult Australians.

Key Words

Brief health interventions; chronic disease; fish; seafood; social media; mobile technology

The case for an intervention

Consumption of fish is well-documented as being protective against a number of chronic diseases, and as having specific health benefits for many key groups, such as children, pregnant or lactating mothers, and seniors.¹ Yet people do not generally eat the 2–3 serves per week recommended by Food Standards Australia New Zealand.²⁻³ This disparity shows that there are clear grounds for interventions designed to assist more Australians to regularly consume fish.

However, the proposition of health benefits does not in itself create an environment in which an intervention is likely to succeed. There are good reasons for encouraging people to remove sugar and fat from their diets, yet interventions in this area face an uphill battle due to the simple fact that most people do not actively want to do so. Health interventions stand the best chance of success when they engage people who are already positively disposed to the behaviour being recommended, or have expressed an intention to change their behaviour. Of course, this could be seen as something of a rare luxury for medical researchers.

In the case of fish, this positive disposition is very much in evidence. The literature, both in Australia and further afield, is unambiguous – people know that fish is good for them, they feel good when they eat it, and many would like to eat it more regularly. For example, one Australian study⁴ reported that 56% of respondents intended to eat more fish than they currently did, that 50% felt morally obliged to serve it to their families, and that 95% eat fish because it is healthy.

Given the clear health benefits of seafood consumption, and the fact that in most countries people do not consume enough seafood to fully realise these benefits, there has been a great deal of study into the factors limiting seafood consumption. The literature consistently identifies a number of factors: it is expensive; I do not know how to cook it; I (or my family) do not like the taste.⁵⁻⁷ It seems clear that addressing these concerns, equipping people to be more confident in selecting and preparing seafood, and debunking some of the common myths surrounding seafood consumption would be key to increasing seafood consumption and seeing more people achieve its full health benefits over time.

The case for leveraging social media

Although there are grounds to believe that many people would be receptive to assistance in consuming more fish, the desire to change is unlikely to be very strong for most



people (perhaps with the exception of those who suffer from a condition for which there is a strong and proven health benefit, such as rheumatoid arthritis). The health belief model⁸ tells us that this is not an optimal environment for a health intervention. If individuals are not highly motivated to change (for example, due to a perception of the potentially serious consequences of inaction, or the belief that potential advantages will outweigh their investment), they are usually unlikely to engage.

This is a good reason to eschew traditional heavy-handed approaches, in favour of a more undemanding, agile intervention, with as few barriers to participation as possible. In short, to allow people to participate to whatever level they are comfortable, and to provide them with a set of tools which they can use to make modest changes to their lifestyle over time. As is so often the case, the key is in finding the right balance. To ask too much of a participant is to risk attrition; to ask too little is to dally with pointlessness.

Interactive communication applications have for some time been identified as being of high value in reaching large groups with a health message.⁹ In more recent times, social media has provided an ideal context in which to undertake such interventions – a fact attested to be the rapid increase in projects which operate in this medium.¹⁰ The virtual communities created by social networking services are a fertile ground for the dissemination of all manner of messages, including health messages. So what can be said about these virtual communities, and what must health promoters understand in order to effectively leverage them? Compared with traditional communities (local, or interest-based), virtual communities are;

Easy to join

People can join virtual communities freely and with no commitment of time, or indeed participation of any kind. People can participate in multiple virtual communities without undertaking any activities outside of their normal routines. Although in one sense, a person is automatically a member of the local community in which they live, active participation in that community requires both a conscious decision and the expenditure of time and effort. Furthermore, traditional communities of interest may require financial contributions and attendance at events or meetings. This ability of the individual to govern their own level of commitment is both an opportunity – making it possible to grow large communities in relatively small periods of time – and a challenge for those wanting to target such a group with a health message. At least one study has found that testing virtual community participants for psychological sense of community yields

results not dissimilar to participants in traditional communities.¹¹ Notably, it was found that health-oriented virtual communities showed the highest levels of ownership and sense of community.

Easy to participate in

Although members of traditional communities are usually able to choose their level of participation, there are many factors bearing on this decision. Once joining, a person may feel compelled to participate to a certain degree, and having established a pattern of participation, may feel pressure (both real and imagined) to continue, particularly if they feel that others are relying on them. This concern may be a factor in their decision to join a traditional community in the first place. In a virtual community, people may have the option of participating anonymously, and even where this option is not available or not taken, a participant is unlikely to feel any compulsion to contribute beyond a level with which they are comfortable. It is also often possible to participate passively in a virtual community – for example to observe discussions and examine resources – both anonymously and invisibly, before deciding to become an active participant. This raises the question of whether such a passive participant is in fact a participant at all, but it certainly makes an easy and non-threatening path from non-engagement to full participation in a community possible.

Easy to leave

As easily as people can join virtual communities, they can leave them. Although this of course presents a challenge, it is equally true that people can and do establish regular and long-term patterns of participation in virtual communities that interest, engage or are of use to them. Being interesting, engaging and, most of all, useful is critical in the creation and maintenance of a virtual community. Another factor at play is the passive nature of participation in some virtual communities. In many cases, once a person has made a connection (for example, by 'liking' a page, or adding the content of a site to their RSS newsfeed), they will continue to be exposed to the content of that site until they elect to deliberately disconnect. Thus, a connection may be maintained over time even with no conscious effort on the part of the user, and the opportunity exists for dormant users to convert back to active participants at a later time.

Precedence

At first glance, fish consumption does not appear to be a



likely candidate for a successful social media campaign. However, there have been a number of projects that have used this approach with some success, to promote a particular seafood product or seafood consumption in general. None of these projects have been carried out in a research context, so they lack empirical evaluation of their impact. Electronic interventions have the advantage of being very easy to track and monitor – there is an immediate, and in many cases fully automatic, record of participants' online behaviour. It is possible to know which resources and forums a user has accessed, how long they have used them for, how often they have been shown an advertisement, how often they have clicked on one. But in this case the final desired behaviour is an *offline* one – going out to a store or restaurant and purchasing fish. This cannot be measured and assessed for effect size without a more rigorous evaluation process. However simple usage data, as well as the anecdotal record provided by such social objects as blog posts and comment streams, make it clear that it is possible to build a viable virtual community of fish consumers – including both confident consumers, and those who would like support in increasing their consumption.

Fish is the dish

This UK initiative¹² focuses on showing mothers that fish is a healthy option for their families, which can be easier to prepare and less expensive than they might have thought. They recruited ambassadors ('fish fanatics') to cook fish for their families and write blog posts about their experiences. In November 2011 the project had 14 active bloggers, with an average of 3,492 Twitter followers each (a total of 48,891 followers in all). In the same month, the Tots100 website (which provides a monthly ranking of UK blogs based on their impact on British parents) ranked *Fish is the Dish* 15th. To put this in context, this was higher than Nintendo Wii (21st), Barbie (37th), Gap (42nd) and Toys R Us (50th). A clear indication that in the social media space, the quality of the execution is at least as important, if not more so, than the intrinsic appeal of what is being presented.

Queensland prawns

Seeking to establish Queensland Week as a third occasion for prawn consumption (alongside the established traditions of Easter and Christmas), this Australian project¹³ has been successful in building a large and active community of people who are enthusiastic about the product. In December 2011, the two Facebook pages associated with this project (one for Queensland prawns in general, and one specifically for banana prawns) had a total of 22,428 fans. Both pages are very active, with regular well-commented posts about recipes, tips and

special deals. The generic site in particular has seen a considerable amount of user-generated content, particularly during Queensland Week itself.

How much fish?

This is a US project¹⁴ which seeks to counter the perception that fish is unsafe due to contaminants such as mercury. It allows users to enter their weight and a variety of fish, either on a website or a mobile application (app) and tells them how much can be safely consumed based on the latest evidence. For all common species, this is well above a realistic level of consumption. For example, it is claimed that an 80kg person may safely eat 5.8kg of cod per week. In addition to this 'seafood calculator', the project maintains a Facebook page on which it highlights seafood recipes and tips. This page is very active and well-subscribed. Its 28,000 fans (as of December 2011) respond enthusiastically to regular posts. In the month ending 14 December 2011, the page's administrators had placed 12 posts, receiving an average of 3.3 comments and 14.8 'likes' per post. They had also conducted two polls, receiving an average of 131.5 responses. This level of activity has been consistent over more than two years.

The case for leveraging mobile technology

The first iPhone was released in 2007, kick-starting a dramatic increase in the market penetration of smartphones – internet-connected mobile devices capable of advanced computing functions – and bringing the term "app" fully into public consciousness. An app is a small piece of software, tailored to the specifications of one or more mobile devices (such as smartphones or tablet computers), with a specific and limited function set. They can exist as standalone services, or can add value to a promotion or campaign through making it very quick and easy for a user to access information or services without having to search for them at each use, and without having to navigate through complex websites to find the exact information required. They also provide a quality user experience through a high level of device optimisation – for example, by accommodating the smaller screens that are a feature of mobile devices. Finally, apps may deploy some or all of their functions in such a way that they function without an internet connection, making them suitable for use on devices which may not always be connected.

In the first few years of app development on the two major platforms (the Apple App Store and the Android



Marketplace) apps tended to perform discrete and isolated tasks. The major social networking platforms released apps to allow users to access their services and, although some other developers tapped into these services in some way, it was by no means a common feature of general purpose apps. In more recent times, there has been nothing short of an explosion in social connectivity in virtually every app category. Users no longer play a game in isolation; they play against friends in their social circle, and share their scores and achievements. When they use an app to augment their exercise session, they post their results and times. With a single button tap, they share their location, check into an event, post a photo, share their weight (!), or simply tell others about the app they are using.

This makes something of a symbiotic circle. Increasingly an app – any app – must be socially connected, and a social media initiative must have a mobile app interface. In 2012 and beyond, any endeavour in the social space which lacks a dedicated mobile app will look increasingly like a puzzle missing a piece.

Returning to the issue of fish promotion, it is important to consider the potential size of the target group which could be reached by this kind of intervention. Furthermore, it is important to do this by way of quantifiable statistics, in order to challenge possible preconceptions about demographics trends. For example, it may be tempting to think that smartphone and social media users are predominately young, and an initiative in this space would be unlikely to have an impact beyond the young, trendy technophile set. So what can we learn from the literature?

The most comprehensive study of global smartphone usage was conducted by Google in association with Ipsos and the MMA (Mobile Marketing Association) between March and July 2011.¹⁵ It surveyed 30,000 people globally, aged 18 years and over, including 2000 in Australia (1000 via online survey and 1000 via offline interview). Australia exhibited the highest level of smartphone penetration of all countries surveyed, with the exception of Singapore; 37% of those surveyed owned a smartphone. This was evenly split by gender. Although there was certainly higher representation in the youngest age group (18-29 = 48%), there was still significant uptake of this technology in older groups (30-49 = 36%; over 50 = 16%). Australia-wide, this equates to some 6.3 million users.

Australian users had, on average, 25 apps installed on their device. Again, this was among the higher results for all countries surveyed – higher, for example, than both the UK and US. A total of 56% reported either high or medium social

networking engagement. Notably, 21% said that they would rather give up their television than their smartphone.

Certainly not all these users can be considered potential participants in the initiative being proposed. To close in on a potential target group, it is necessary to examine the Australian fish consumption literature. In a large study (n=2643) conducted by the University of South Australia and the Australian Seafood Cooperative Research Centre¹⁶ approximately 9% of respondents had not eaten any fish in the past seven days. Although these individuals need not be considered lost to the fish message, for the sake of reaching a conservative estimate, this figure will be discounted from calculations.

In a second study (n=897) conducted by the University of the Sunshine Coast⁴, 49% of respondents said that they would eat more fish if they were more confident in buying good quality fish. Promoting confidence in the selection, purchase and preparation of fish is a central component in the proposed intervention, so this question is a reasonable gauge of potential users. Once again, it is a conservative one – it would be equally valid to look at users who reported being ‘interested in trying new products, ranges and species of fish’, answered in the affirmative by 85% of respondents.

So the calculation becomes this:

6.3 million smartphone users x 0.91 (to exclude non-eaters based on USA study) x 0.49 (people who would eat more fish if they were more confident, based on USC study) = 2.8 million potential users.

This calculation is shown diagrammatically in Figure 1.

Conclusion

An intervention which could potentially reach a tenth of the Australian population with expected benefits chronic disease certainly merits further investigation. It will be important to play close attention to other successful social media projects, both seafood-related and beyond, and to adopt best practice in building the community of users. It will be even more important to remember that merely ‘liking’ a page or downloading an app will not in itself lead to health benefits – it will be essential to develop a valid methodology for evaluating the impact of such an intervention on *actual fish consumption*.

While there is good potential for health benefit in the initiative being proposed, there is even greater potential



for a successful intervention to be adapted to other health conditions and behaviours. If an impact can be shown in *this* field (where the subject matter could not exactly be described as electrifying, and where individuals do not necessarily feel a strong motivation to change), then how much more so for a subject where conditions are perfect for change?

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CONFLICTS OF INTEREST

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Figure 1: A calculation of potential target group.

