

Every Step Counts: Understanding the Success of Implementing The 10,000 Steps Project

Corneel VANDELANOTTE^{a,1}, Anetta VAN ITALLIE^a, Wendy BROWN^b,
W Kerry MUMMERY^c, and Mitch J DUNCAN^d

^aCentral Queensland University, Australia, ^bUniversity of Queensland, Australia

^cUniversity of Alberta, Canada, ^dUniversity of Newcastle, Australia

Abstract. The 10,000 Steps program originated from a landmark whole-of-community multi-strategy intervention to increase physical activity (PA) in Rockhampton, Australia in 2001-2003. It used a social ecological framework to promote physical activity at the individual, population, environmental and policy level. Two of the fundamental aspects of the original program were goal setting (10,000 steps per day) and self-monitoring (use of a pedometer for daily step counts). A project website (www.10000steps.org.au) allowed registered participants to record their physical activity. Over time the program morphed into an e- & mHealth intervention without face-to-face elements. The program is now delivered via website and smartphone apps and employs activity trackers (pedometers, Fitbit, Garmin).

To date the project has signed-up over 425,000 members who have logged 221 billion steps (~43 million a day) on the website or app. More than 14,000 workplaces and community organisations have been involved with the program. A central element of the program, the 'Workplace Challenge' has been used by ~65% of 10,000 Steps members, which on average increases physical activity by 159 min/week for those who participate in it. In 2011, the Queensland Government designated the 10,000 Steps program as their key physical activity workplace health promotion strategy.

Multiple factors underpin the success of the program. *The message is simple and clear:* the project name, with its distinctive logo and tagline ('Every Step Counts') provides a clear and prescriptive target for the physical activity 'dose'. *Using effective behaviour change techniques:* goal setting (the 10,000 Steps concept), self-monitoring (steps are tracked), social support (participants organise as 'teams' to reach certain step goals) and gamification (teams competing against each other creating 'friendly competition'). *Ongoing redevelopment:* since inception, there have been three complete redesigns of the website (including a branding redesign), and new smartphone apps. More recently, the website was modified to allow syncing of steps using popular activity trackers. *Resources to support implementation:* the program provides resources (e.g. 'Active Workplace Guide') and has dedicated staff to respond to queries from workplaces and individuals to help overcome implementation barriers. Project staff continuously promote the program via media interviews, attendance at events, social media and marketing, advertising, and networking and collaboration.

Ongoing evaluation has contributed to continuous funding: to ensure the program remains successful in a fast-changing technology environment, continuous evaluation has been necessary. These evaluation strategies, the success of the original project and the strong partnership with the program funder (Queensland Health) have all contributed to the long-term (19 years) support for the project.

Keywords. Physical Activity, Walking, Pedometer, Activity Tracking, Web, Internet, Online, Smartphone, App, Implementation, Dissemination, Real-world

¹ Corresponding Author, Corneel Vandelanotte, Central Queensland University, Queensland, 4701., Australia; E-mail: c.vandelanotte@cqu.edu.au

1. About the 10,000 Steps Program

Regular physical activity is an important contributor to good health, as it plays a role in both the prevention and management of CVD, diabetes, obesity, cancer and depression [1]. The national physical activity guidelines recommend a minimum of 150 minutes of moderate-intensity activity a week [2]. However, fewer than half of Australians meet this guideline [3], and physical inactivity is estimated to cause 6.6% of the total burden of disease (174,431 disability-adjusted life years) [4]. Given the scale of this public health problem, effective physical activity interventions that can reach large numbers of people need to be developed, evaluated and disseminated. Within this context the Queensland State Health Department (Queensland Health) called for tenders for health promotion projects in 2001, and funded the initiation and development of the 10,000 Steps program over 2 years from 2001 to 2003.

The original project was developed as a whole-of-community intervention project, guided by the social-ecological framework which emphasizes intervention at multiple levels to address the multi-level determinants of physical activity [5]. The project strategies intervened at the individual level (e.g., advice from health professionals), the population level (e.g., media strategies), and the policy/structural level (e.g., environmental support for PA) [6]. A central coordinating theme, “*10,000 Steps Rockhampton*” was used to synchronize the main intervention strategies, and to convey the specific recommended “dose” of physical activity. The original project has been described in depth elsewhere [7,8], however a brief overview of the original intervention strategies is provided below.

The use of pedometers as individual self-monitoring and goal-setting instruments was central to the intervention. In addition to the overarching theme of “*10,000 steps a day*,” a secondary theme, “*Every Step Counts*” was used to stress the “accumulation” aspect of the physical activity guidelines. In the first two years specific intervention strategies were developed for workplaces (i.e., the Workplace Challenge), community health centres and shopping malls. Towards the end of the initial demonstration project, a website was developed, primarily to support the implementation of the team-based Workplace Challenge. An overarching social marketing campaign was conducted to promote the program and key messages. The media campaign targeted radio, TV and print media, with additional mailings by the local city council, newsletters and e-mails. General practitioners were engaged to promote the project through physical activity counselling, waiting room posters and brochures, and by loaning pedometers. Other health professionals (e.g., dietitians, pharmacists, psychologists and family planning practitioners) were also encouraged to promote the project. Environmental change was accomplished through working with local council by creating or repairing footpaths, placing ‘10,000 Steps’ signs, and developing maps with walking routes. A dog walking strategy and a local physical activity taskforce with key stakeholders was also developed [9].

The initial project resulted in high levels of project awareness, combined with modest increases in activity levels in women at the whole-of-community level (compared to an overall decline in physical activity levels in the comparison community of Mackay) [7]. Importantly, at the end of the 2-year intervention period, funding was provided by the State Government to encourage individuals, organisations and communities across Queensland to be active by adapting and implementing the ideas and materials developed for the original 10,000 Steps project. This is important because a limitation of many health promotion interventions is that, following the initial trial, they are rarely more

widely disseminated and adopted [10-12]. However, given the relatively distant location of the initial demonstration project in Rockhampton from other population centres in Queensland, and the relatively small budget, new strategies for disseminating the project had to be developed. The ensuing metamorphosis of the 10,000 Steps project has resulted in the development of the program as a predominantly e- & mHealth intervention that is able to reach large numbers of people at an affordable cost. The effective and efficient extension of the geographical reach of the 10,000 Steps program would not have been possible without the use of the Internet.

The 10,000 Steps website (www.10000steps.org.au) became the focal point of the intervention. It was, and still is, designed to provide information and support for two different audiences: 1. members of the general public (who can register as program participants for no cost), and 2. organisations seeking support and resources to promote physical activity (who can register as ‘Coordinators’ for no cost). The key feature of the website was, and still is, the ‘step-log’ which allows individuals to enter and track their steps, as measured by a step counter. Other moderate and vigorous physical activities not measured by a step counter can also be entered and converted to steps. Steps can be displayed as daily, weekly, monthly and yearly totals and allow participation in different competitive challenges. These include ‘individual challenges’ (e.g., to walk the entire length of the Great Wall of China in a set amount of time) or team-based ‘workplace challenges’ (now named ‘Tournaments’) that invoke a ‘friendly’ competition between ‘teams’ to either reach the highest number of steps within a certain time, or to complete a certain number of steps (e.g., 1,000,000) as quickly as possible. The primary goals of the challenges are to increase individual awareness of physical activity levels, to increase overall physical activity levels, and to create awareness of the health benefits that can occur as a result of increasing incidental or planned activity. The website also provides information and resources for implementing the program in community settings. A range of professionally developed and 10,000 Steps ‘branded’ print materials and templates (that can be adapted for local use) can be downloaded for free. The website also provides access to style guides, instructions and supporting materials for the development of a pedometer library loan scheme (no longer active), walkway signage and materials to support health professionals (e.g., Train-the-Professional-Guide, Workplace Challenge Guide). The website also has a library of educational pages that provide information about the benefits of physical activity, goal setting, self-monitoring, social support, links to other free health programs and more. Over time, and as technology evolved, the website was redeveloped (thrice) and rebranded (once), and new features were added (e.g., leader boards, virtual walking buddies, member stories, friends, badges). Additionally, smartphone apps that allow for a more convenient way to track and sync steps were developed for Apple (iOS) and Google (Android) app stores. Connection, automatic integration and syncing with advanced activity trackers (i.e., Fitbit, Garmin) was also established (see Figures 1 to 4, screenshots of the current 10,000 Steps website and app).

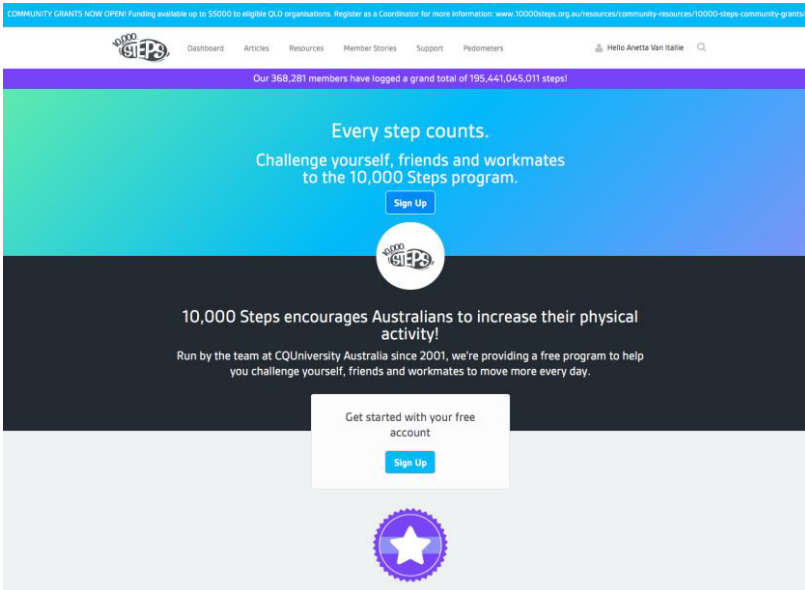


Figure 1. The current 10,000 Steps landing page



Figure 2. The 'Step log' on the current 10,000 Steps website

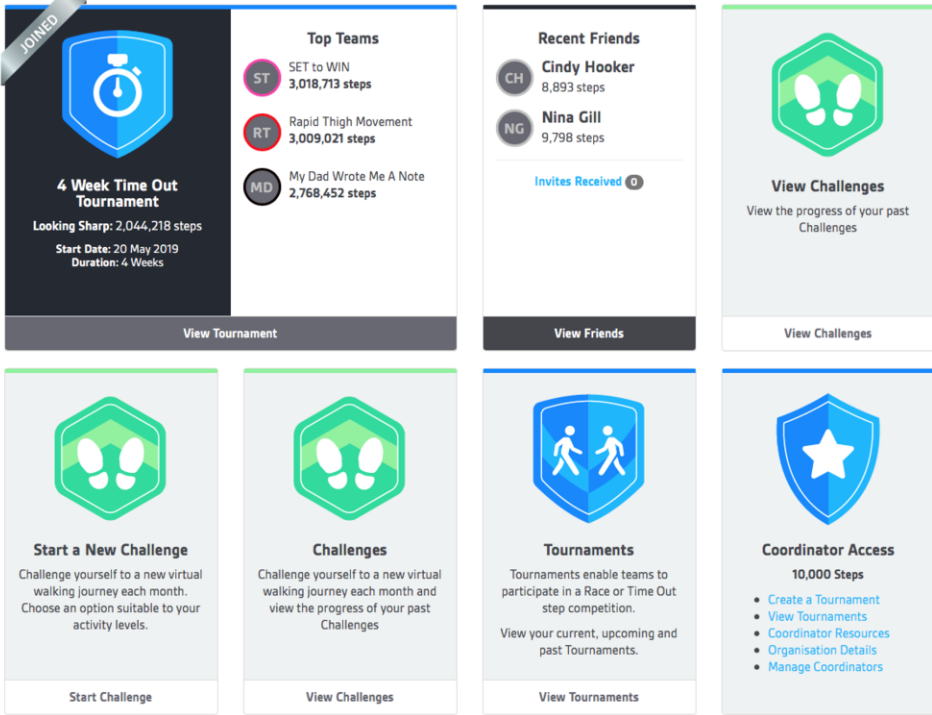


Figure 3. Part of the ‘Dashboard’ on the current 10,000 Steps homepage.

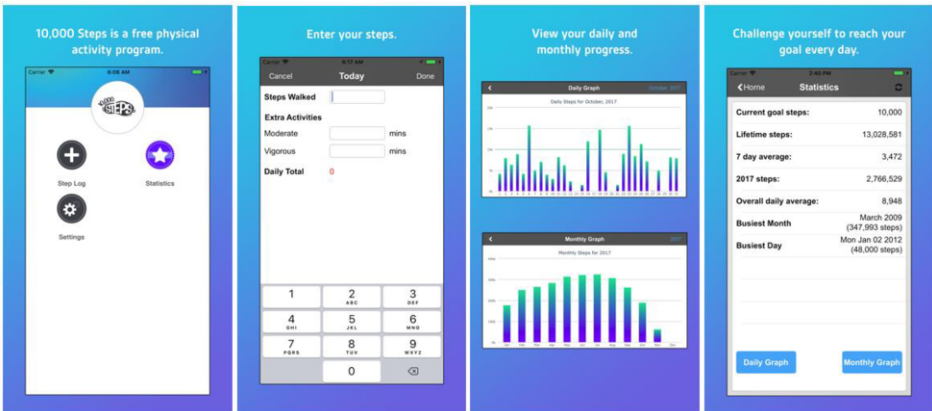


Figure 4. Screenshots of the current 10,000 Steps smartphone app.

2. Achievements of the 10,000 Steps program

To date, the program has more than 425,000 registered members (currently with an average of 2,600 new members every month, see Figure 5) and has been disseminated through 14,043 organisations (i.e., workplaces, health providers, community organisations, schools, local councils). Participants have logged more than 221 billion steps (~43 million/day, see Figure 6). Over 275,000 members have participated in the ‘Workplace Challenge’ which has been shown to increase participants’ activity levels by 159 min/week on average (thus meeting the Australian guidelines) [13]. Over 89% of employees reported enjoying taking part in the challenge, with the majority reporting being able to increase their physical activity at work. The 10,000 Steps app has been downloaded >65,000 times and the website records >60,000 monthly sessions and 400,000 page views. While members interact with the program for about 45 days on average [14], the program also has many ‘super-engaged-users’. For example, >26,000 participants have logged steps on 100 or more days, and >100 participants have logged steps on more than 3,650 days (10 years). This is exceptional engagement, as many other programs report much lower engagement [15,16]. Awareness of 10,000 Steps in the Australian population has consistently been found to be much higher than the awareness of other Australian health promotion programs. For example, in 2019 awareness of the 10,000 Steps program (73.1%) was much higher than awareness of the Quitline (tobacco use) program (61.5%), Heart Foundation Walking program (41.0%), the “Healthier. Happier.” campaign (9.4%) and *My health for life* (8.2%) [17].

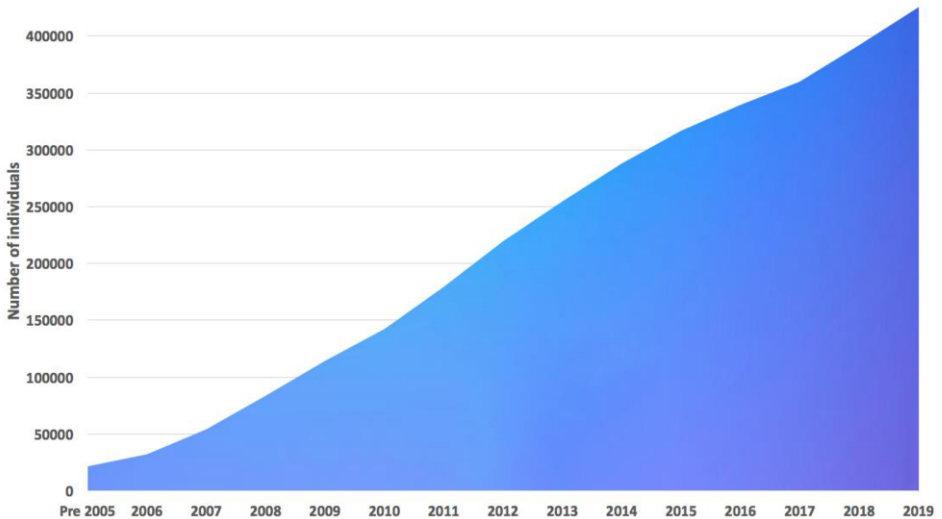


Figure 5. Cumulative number of individuals registering over the lifetime of the 10,000 Steps project as of November 2019.

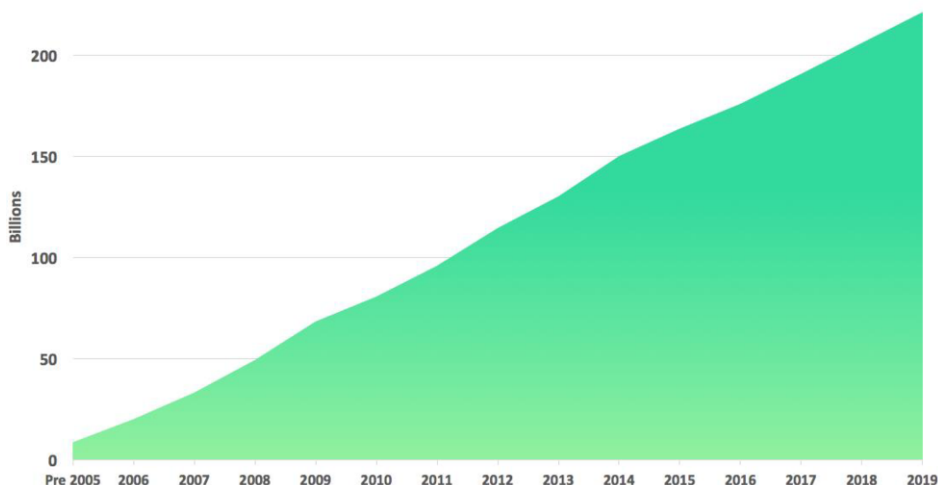


Figure 6. Cumulative number of steps logged on website over the lifetime of the 10,000 Steps program as of November 2019



Figure 7. Overview of 10,000 Steps achievements as of August 2019.

The 2018 report from the Queensland Chief Health Officer indicated that the prevalence of sufficient physical activity increased by 15% over the past 10 years and that walking duration increased from 120 to 220 minutes per week on average [18]. While it is unlikely that all this progress is due to the 10,000 Steps program, there was nevertheless a large increase in the reach and adoption of the 10,000 Steps program in Queensland

during this period, especially in workplaces through the implementation of the Workplace Challenge. Working adults made the greatest gain; on average, they increased walking time from 100 to 240 minutes per week [18]. This increase of 140 minutes/week equates with ~2,000 more steps per day. This is important because every 1000 step per day increase in walking is estimated to reduce mortality by 6%, and those reaching 10,000 steps/day have 46% lower mortality [19].

Testament to the effectiveness of the program in delivering positive health outcomes, the Queensland Government has invested a total of \$4.3M AUD in the program and has declared 10,000 Steps and its 'Workplace Challenge' as its key physical activity workplace health promotion strategy since 2011. Further, 10,000 Steps is included in the Australian Department of Health's Obesity Prevention Program's resource materials, and was put forward as a key strategy in the Queensland Government's response to the 2015 Inquiry into Personal Health Promotion Using Telephone and Web-based Technologies. It was also included in the Implementation Plan for the Healthy Workers' Initiative of the Australian Government's National Partnership Agreement on Preventive Health 2010-2013.

Recognizing the significant impact and community benefit of 10,000 Steps, in 2015 the Queensland Premier Anastacia Palaszczuk stated: "*The 10,000 Steps program is one of the largest and most successful health promotion programs in Australia since it began in 2002.*" Further, Health Minister Cameron Dick said: "*The innovative program has been hugely successful and copied all over the world...both as a community-based program and as a web-based program the project has been a leader in the field.*"

Over time, the continuous evaluation and innovation within the 10,000 Steps program has resulted in 37 high-quality peer-reviewed papers describing outcomes from 10,000 Steps-related research. These publications brought impact and recognition for the program both within and outside Australia. The dissemination of research outcomes and new knowledge through papers, conference presentations and media, has prompted other research groups from around the world to replicate the Australian 10,000 Steps concept and conduct their own research. We know of subsequent 10,000 Steps research in Belgium (10,000 Steps Flanders) [20], Canada (Uwalk) [21], UK [22], USA [23], Nigeria [24], Japan [25], South Korea [26], Germany [27], France [28], Ireland [29], Thailand [30] and Malaysia [31]. Collectively this research has resulted in development and implementation of adaptations of the 10,000 Steps program by governments, non-government and commercial entities around the world. One commercial variant is the 'Global Corporate Challenge' which was founded in 2003 and by 2015 had engaged over 1.5 million people across 3,400 organizations in 98 countries [32].

Finally, the *British Journal of Sports Medicine* recently recognised 10,000 Steps as one of the longest running and most successful health promotion programs worldwide, and featured it as one of only 10 health promotion 'Bright Sports' from around the world that really work [33]. The 10,000 Steps program was also at the basis of a National Health and Medical Research Council (NHMRC) Project Grant, which aimed to better understand tech-based health promotion in real life conditions [12, 34-36]. More recently, the Australian Research Council (ARC) recognised the 10,000 Steps project as a 'high impact' project in the 2018 Engagement and Impact Assessment.

3. Explaining the success of implementing the 10,000 Steps program

This section does not focus on the efficacy of the 10,000 Steps program (other papers have addressed this [7, 12, 35]), rather it focuses on the authors' perceptions of why the implementation of program has been successful. It should be noted that these are the views of those who developed and implemented the program (i.e., the authors); they are not based on controlled trials.

The project name (*10,000 Steps*) and catchy tagline (*'Every Step Counts'*) provide a simple and clear message that exploits behaviour change techniques with demonstrated effectiveness. The project name and tagline not only describe the project itself, but provide a clear and prescriptive goal that encourages the accumulation of physical activity in terms of steps per day [8]. Using a step goal is more parsimonious than striving for more complex public health activity goals (i.e., minutes or counts, vigorous or moderate), and there is strong evidence for the effectiveness of pedometer-based interventions [37]. This is because a 'step' is a simple unit of activity that can easily be measured and used to assess progress. As such, the 10,000 steps concept aligns well with the principles behind setting S.M.A.R.T. (Specific, Measurable, Achievable, Relevant and Time-based) goals. There is strong support for the use of goal setting within physical activity interventions [38]. Participants in the 10,000 Steps program use a pedometer or activity tracker to assess whether they are on track to reach their daily goal. The ease with which steps are measured invites the use of self-monitoring, another behaviour change technique for which there is overwhelming evidence in physical activity interventions [39]. The program also leverages social support (another behaviour change technique supported by ample evidence) through its Individual and Workplace Challenges, as it evokes 'friendly competition' that encourages members to engage with the project and increase physical activity. We have shown that participation in the Individual Challenge was significantly associated with increased website engagement [40]. Members can also opt in to use the program's 'leader board' to compare their activity levels (steps) with those of other members. Finally, the 10,000 Steps target is very marketable: it is a little-known fact that the original project funded by the Queensland Government was named *'the 7,000 Steps project'*, however marketing experts who were involved with setting up the social marketing campaign strongly suggested that the name be changed. The ongoing popularity for the program almost 20 years later suggests this was good advice. Marketing experts were also involved with the development of the 10,000 Steps logo, style guide and branding. The 10,000 Steps brand has only been refreshed once in 2017, to modernise the look and feel, but changes to the logo itself were minimal (see Figure 8 for images of the old and new logo). Workplaces and community organisations have had unrestricted access to 10,000 Steps branded materials and are able to use them without charge; the only condition is that they do not alter the logo and adhered to the style guide unless otherwise approved. This proliferation and consistent use of 10,000 Steps materials has undoubtedly contributed to high program recognition and awareness and is in line with general marketing theory [41].



Figure 8: Old (left) and new (right) 10,000 Steps logo

When the first 10,000 Steps website was developed in 2003, mainstream usage of the Internet was still in its infancy. At the time there were about 600 million users (~9% of the world population) compared with about 4 billion today (~50% of the world population). It was also the time when researchers first started experimenting with using the Internet as a strategy for increasing physical activity, which was not very successful [42,43]. The first physical activity websites were very static in nature, and researchers soon discovered that websites needed to be interactive to be effective [44]. As such, it may be argued that the 10,000 Steps website was ahead of its time, with many interactive components (i.e., steplog, individual workplace, workplace challenge) targeted to different audiences (i.e., individuals and professionals). However, the online world changes rapidly, and the look and feel of websites are quickly outdated. As such, the original website was redesigned on three occasions (2006, 2009 and 2017), with rebranding in 2017 (see Figure 9 for screenshots of the old websites). The ways that people navigate websites has also changed over time, which is why the original 'homepage' was changed to a 'dashboard' (also see Figure 3). Additional gamification features were also introduced (the program can also be considered as an early adopter of gamifications through using challenges and team competitions), such as the use of leader boards, badges and trophies. Gamification has been demonstrated to be effective for improving engagement and health behaviour change [45]. Following the introduction of Smartphones in 2007, 10,000 Steps was one of the first health promotion projects to have its own dedicated app (for iOS) in 2009. This app has since been replaced with a new app (in 2017, also see Figure 4) that works across multiple platforms (iOS [iPhone, iPad], Android). The importance of providing additional methods for people to access our program was demonstrated in a study that showed 10,000 Steps app-only users (43 days) engaged with the platform for slightly longer than web-only users (41 days). However, those who used both the web and app engaged the longest (56 days) [14]. While mechanical low-cost pedometers remain popular (and affordable for workplaces implementing the program), the 10,000 Steps platform now also allows syncing of steps using popular, and ever more prevalent, advanced activity trackers such as Fitbit and Garmin (with intention to sync with more devices further in the future). This ongoing redevelopment has ensured the program remains relevant, up-to-date, user-friendly and continues to meet users' expectations.



Figure 9: Screenshots of older versions of the website (2003 version on top, 2006 version in middle, 2009 version on bottom).

While there is no longer any direct face-to-face contact with 10,000 Steps participants during implementation, the program has always been more than ‘just another website and app’. There are dedicated resources that go beyond the e- & mHealth interface that facilitate implementation of the program. Most important are the dedicated 10,000 Steps staff (usually 3 staff, making up ~1.5 full time equivalents) who continuously promote the program through regular media, social media (Facebook: @10000Steps.1; Twitter: @10000Steps ; Instagram: @10000Steps_), interviews, attendance at events, organising marketing campaigns, distributing free resources (e.g., 10,000 Steps posters, brochures, merchandise), advertising, and through networking and collaboration with health oriented NGOs, likeminded health promotion programs and government departments. Staff also offer technical support to 10,000 Steps Coordinators (i.e., those who take a leading role in implementing a Tournament or other strategies at their workplace or community) and can respond to queries from users to help them overcome implementation barriers. The project staff are also essential for keeping the website and app functional and up-to-date, as well as for the development and maintenance of specific tools to support implementation. For example, the ‘*Active Workplace Guide*’ and ‘*10,000 Steps Tournament Guide*’ are essential in guiding workplaces on the use of 10,000 Steps as a key physical activity strategy whether it is stand-alone or incorporated into an overall health and wellbeing plan (for larger organisations). The Guides detail how to gain organisation-level support and approval, develop promotional strategies for internal use, how to use the 10,000 Steps platform to create a tailored workplace challenge, and how to evaluate success.

The project staff have also been essential in conducting ongoing project evaluation, which is interwoven with the implementation of the program. Previous research has demonstrated the importance of continuous and cyclical program evaluation [46]. Understanding which features of the program work well and which ones need improvement has ensured the program remains successful and relevant in a fast-changing technology environment. Moreover, strong evidence of the implementation success of the program through constant evaluation practices has contributed to the long-term (19 years) continuous government support for the program. In comparison with the relatively short-term funding periods associated with many other Australian health promotion initiatives, the longevity of this type of funding is remarkable. The partnership with the State Government program funder (Queensland Health) has always been carefully managed, to ensure satisfaction with the delivery of the program and to ensure the program aligns with the strategic planning of the Department. Some luck was also involved in this politicised environment: a previous government, who was very focused on cost-cutting in the preventive health sector, made it clear they would cease funding for the program when the contract expired, but they did not win the election and the new government continued funding for the program.

In sum, the success of the 10,000 Steps program reflects a range of factors, including the simple and clear message, the use of proven behaviour change techniques, good use of marketing strategies, an effective (interactive) and continuously redeveloped IT-platform, dedicated staff to support and promote the program beyond the web and app interface, ongoing project evaluation, continuing good relationships with the project funder and a bit of luck.

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