

Our place or mine?

Exploration into Collectivism-Focused Persuasive Technology Design

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Abstract. Persuasive technologies are increasingly ubiquitous, but the strategies they utilise largely originate in America. Consumer behaviour research shows us that certain persuasion strategies will be more effective on some cultures than others. We claim that the existing strategies will be less effective on non-American audiences than they are on American audiences, and we use information from interviews to show that there exists much scope to develop persuasive technologies from a collectivism-focused perspective. To illustrate the development of such a tool, we describe the design of a collectivism-focused financial planning tool.

1 Introduction

Persuasive technologies, “interactive computing systems designed to change attitudes or behaviours” [1] are becoming increasingly ubiquitous: they are utilised in areas as diverse as marketing, health, safety, environmental conservation, politics, religion, gaming, self-efficacy, occupational effectiveness, and empathy, amongst a long list of others [2, 1]. At the same time however, the majority of these applications are developed in the United States of America, destined for an American audience. As countries around the world have taken steps towards a fuller adoption of information technology, international software sales have risen dramatically [3]. In the past, international users often made do with localised versions of software originally developed for the American market. Slowly, however, the trend is changing so that software developers are taking cultural norms and assumptions into account. Because persuasion is related to cultural norms, it is important that persuasive technology developers do the same in designing and developing software destined for non-American markets.

While America is typically characterised as *individualist* [4], much of the rest of the world is described as *collectivist* [4]. In this paper, we use empirical

information collected from interviews to show that there exists much scope to develop persuasive technologies from a collectivism-focused perspective. To illustrate how we may go about developing a collectivism-focused tool, we describe the design of a collectivism-focused financial planner tool.

The rest of this paper is structured as follows. Section 2 discusses culture, *individualism* and *collectivism* and their relationship to persuasion, as well as cultural biases in existing strategies. Section 3 summarises the findings of case studies conducted upon New Zealand persuasive technologies and services, highlighting limitations in the area of collectivist-focused appeals. Section 4 presents four design themes to consider when designing collectivism-focused tools, using the running example of a financial planner tool, and addresses some of the issues raised by the case studies. In section 5 we present our conclusions.

2 Background

2.1 Culture: software of the mind

Many definitions exist to explain the concept of culture. The definition proposed by Geert Hofstede, whose work has been highly influential in the cultural usability community, is the following:

Culture...is always a collective phenomenon, because it is at least partly shared with people who live or lived within the same social environment which is where it was learned. It is the collective programming of the mind which distinguishes the members of one group or category of people from another [5].

Hofstede and other academics, including Harry Triandis [4], have established *cultural dimensions* (and related concepts), which are aspects of culture that can be measured relative to other cultures. One such dimension or construct that numerous academics have discussed is that of *individualism/collectivism*. From researcher to researcher, the exact details of the construct can vary. That which is broadly agreed upon is that the construct serves to describe general attitudes of societies, and not situation-specific attitudes of individuals.

Individualist societies are ones in which the ties between individuals are loose: people are expected to look after themselves and their immediate family only. Individual interests outweigh group interests, and individualists tend to be self-motivated and goal-oriented, using guilt and loss of self-respect as motivators [5]. Individualists also exhibit more attitude-behaviour consistency than collectivists, perform their duties if it is advantageous in terms of benefit, and have a self-identity that is defined independently of specific collectives [4].

In contrast, *collectivist* societies are ones in which from birth onwards, people are integrated into strong, cohesive in-groups, which are groups of people about whose welfare a person is concerned and separation from whom leads to anxiety. These in-groups protect their members in exchange for unquestioning loyalty. Group interests outweigh individual interests, and individuals strive to maintain

social harmony, adapting skills and virtues necessary for being a good group member and maintaining tradition. Shame and loss of face are typical motivators [5]. Collectivists exhibit less attitude-behaviour consistency than individualists, enjoy doing “what is right” for their collective, and have self identities that are strongly linked to attributes of their group [4].

Presently, most cross-cultural and consumer research focuses on these dimensions, indicating that they are believed to be the most important dimensions. Studies have also shown that these dimensions account for most of the variance in global differences [5, 4]. While multiple factors affect people’s interactions with technology, these dimensions serve as a solid theoretical foundation for understanding persuasion-related behavioural patterns of global audiences.

2.2 Culture and consumer psychology research

There has been considerable research in the domain of cross-cultural consumer psychology, investigating the general question of whether products should be advertised the same way around the world. Numerous findings indicate that from one market to another, tactics and strategies will need to be modified and adapted [6, 7]. Furthermore, the way persuasive messages are perceived and received are highly correlated to culture [8, 9].

2.3 Culture and persuasive technology research

The understanding that culture affects persuasion has not yet received much attention from persuasive technology researchers. To date, most of this research has taken place from an individualist, American perspective: whether it be carried out by American researchers, or destined for an American audience.

This is problematic because America is reasonably *dissimilar* to the rest of the world: it has scored as the most individualist country in the world in various studies measuring worldwide individualist and collectivist tendencies [5, 10, 11]. Even when compared to other western countries, which also tend to be categorised as individualist, it seems distinct: competition and power hierarchies are more evident there [4], and values such as *ambition, daring, influential, successful, pleasure, exciting life*, and *varied life* are prioritised [12]. In contrast, most other individualist societies tend to be less competitive and hierarchical, and values such as *unity with nature, world at peace, protect environment, broad-mindedness, curiosity, freedom*, and *creativity* are given greater precedence [12].

Returning now to the more straightforward mismatch between individualism and collectivism, persuasive technology strategies originating from individualist cultures may not translate so effectively to cultures generally regarded as collectivist. Fortunately, it is reasonably easy for non-target audiences to identify *why* a persuasive appeal loses its “appeal” or *where* the persuasive message loses its relevance [13]. Unfortunately, unless designers are aware of their own cultural assumptions, beliefs, and behaviours, it is difficult for them to identify when they have unconsciously embedded these assumptions into their designs.

Our recent analysis of Fogg’s seven persuasive tool strategies [1] showed that five of them favour individualist motivations over collectivist ones, while only one favours collectivist motivations [14]. This is unsurprising, given that the strategies are presented as abstract summarisations of persuasive technology tactics currently in use in (predominantly) American tools. At the same time, it reveals the wide scope for research into the design of tools destined for collectivist audiences. In our earlier research, we focused on key findings in cross-cultural psychology literature about behavioural patterns of collectivists, and suggested a set of principled collectivism-focused persuasive technology strategies [15]. In order to obtain a more qualitative, empirical insight into persuasion tactics that would be successful in New Zealand (NZ), we carried out case studies on two prominent NZ social marketing organisations with online facilities.

3 Social marketing case studies

When Hofstede profiled NZ in the late 1970s, his results described it as fairly individualist, and egalitarian in terms of power hierarchies [5]. The face of the NZ population has changed since the 1970s however. The 2001 Census [16], which allowed respondents to provide up to 3 non-mutually exclusive ethnicities, revealed that 76.9% of the population identify themselves as NZ Europeans, 14.1% of the population identify as Māori (the indigenous people of NZ), 6.2% identify as Pacific Peoples (originating from the Pacific Islands), while 6.4% of the population identify as belonging to an Asian ethnic group. Although New Zealanders of European descent can roughly be classified as individualist, Māori, Pacific Peoples, and Asian ethnic groups are generally classified as collectivist. The purpose of our case studies was to establish whether or not current social marketing policy in NZ reflects the multicultural nature of its people. For each organisation we interviewed four members in policy design and evaluation roles, brand communication roles, or upper management roles. One of the organisations, which we refer to as “Future”, is primarily concerned with educating people about financial matters and retirement planning. The other organisation, “Support”, is part of a larger health body focused on encouraging people to lead smoke-free lifestyles, especially Māori, who currently have the highest smoking rates of any ethnic group in NZ.

3.1 Beliefs about a universal message

Discussions with majority culture staff from Support and Future showed that while they were aware that context is important in grounding a persuasive appeal, there was a belief that the conveyed messages would be universally relevant:

...the messages we want to get across are the same for everybody but the mechanisms by which we want to get the messages across may differ... the content, the messages, everything’s the same, the same mathematical principles apply. (Executive Director of Future)

There was also some hesitancy towards the idea of developing culturally specific versions, the justification given being that within-culture variation was too great to begin with:

...we're not going to treat [people of one] culture as one single entity that all think and act the same way. Within any culture there's such a variety of views and behaviours that it would be quite wrong to say, "Right, that's how Māori think", because there is a variety of views and approaches to life in Māori culture as there is in any other culture. (Executive director of Future)

Adding to the argument about diversity, one majority culture staff member explained why she thought customised service was a good solution:

...we acknowledge that people are very different.. it is not about saying "you should be saving for retirement" or "you should be doing this" or "you should be doing that", it's about providing education and information so people can make their own decisions... you're the one provided you've got all the information that then chooses to save or not to save or to pay off more debt or pay off less debt depending on what's really important to you... (Marketing communications manager of Future)

The above quote emphasises that the current Future approach prioritises customisation and personal empowerment, but relies heavily on *personal* responsibility. While personal responsibility is nurtured and encouraged in members of individualist societies, it is generally less actively developed in members of collectivist societies [4].

3.2 Questioning the relevance of the messages

An interview with a minority culture staff member of Support revealed a different opinion on the effectiveness of universal messages. The quote below illustrates his belief that messages pitched to individuals can lose their resonance by not taking family and community into context:

...there's a real risk of coming in at a national level and focusing on individuals and not really thinking about what we're trying to do...you can think about a person's behaviour in terms of the individual behaviour but that's also often influenced by their family and peer environment and sometimes the community environment. (Senior researcher of Support)

A contractor conducting a cultural audit upon Future, to identify communication gaps in reaching Maori and Pacific audiences, gave the following opinion on the cultural relevance of Future's persuasive appeals:

...we found little evidence of inclusiveness of language, of concepts, of media preference or attempts to understand the Māori and Pacific mindsets in relation to [Future]...most of what [Future] communicates registers financial issues from an ethnocentric perspective...which in turn alienates some Māori and Pacific audiences. (Cultural auditor of Future)

He went on to explain how the communication gap may have arisen as a result of *not* designating communication to different cultures as an objective.

...[Future] does not define communication audiences by ethnicity...it doesn't have any objectives to reach Māori and Pacific key audiences...the creative material therefore wasn't created to engage with Māori or Pacific people per se but generally it attempts to assimilate Māori and Pacific people as part of mainstream NZ...when you take a mainstream idea and thought and try and force it, it's like putting a square peg into a round hole, it just doesn't work. (Cultural auditor of Future)

The Future cultural auditor did, however, believe that there was a way to develop more culturally-relevant persuasive appeals:

...tap into the cultural capital and those values and mindsets and you can be well on your way to connecting a lot stronger... (Cultural auditor of Future)

It is interesting to reflect on how the opinions of minority culture staff do not mesh with those of the majority culture staff. While the majority culture staff members were indeed *aware* that cultural context can affect the relevance of a message, it seems that they were unable to see just how much cultural context really does affect a message, or where cultural context ends and the message begins. Furthermore, majority culture staff believed that empowering individuals and improving means of customisation would be a solution to dealing with diversity, whereas minority culture staff argued that people of minority cultures expect minority culture values and social structures to be referenced.

3.3 Integrating collectivist beliefs into policy

The most recurring theme to emerge in discussions on how to develop more persuasive campaigns for minority cultures was *leveraging existing social networks*, for example, family, communities, and tribal groupings. Said one Support member about what he thought campaigns should include:

... a facilitation process where the whole community comes together and operates in a bigger way and identifies the issues that they see important and comes up with solutions and they engage in making changes. (Senior researcher of Support)

While this type of suggestion might feasibly be made by someone from an individualist society, the Future cultural auditor explained why group-centric motivations are likely to be *more* effective amongst collectivist society members than motivations based on personal improvement:

...they have a collective responsibility towards issues...their priorities are collective responsibilities rather than "I've gotta look after myself at all costs"...this means that service to others is more acceptable than looking after yourself first, service is thought of both as a burden and as an honour. (Cultural auditor of Future)

In fact, Triandis claims that the question of whether collective needs and responsibilities over-ride personal needs and responsibilities is one of the most fundamental identifiers of whether societies are individualist or collectivist [4].

Another significant theme that surfaced was the importance of getting minority culture target audiences to feel that they were in control of the messages themselves, or that they had *ownership* of the messages. The following is an extract of a discussion with the Future cultural auditor about a NZ transport safety social marketing campaign, which he believed was an example of successful communication with collectivist audiences:

...get the community to work with you...what's developed from it is that the community started to own the messages, started to take responsibility and started to enforce some drink drive issues, or road safety issues and that's an example of how the process can change, still doing the same thing, but just changing the process. (Cultural auditor of Future)

A Support affiliate talked about how her particular branch of Support, which focuses on Maori audiences, makes use of existing family and community links to deliver a strong, well supported and encouraging message:

When you think about Māori it's about whanau³, about family, it's about that greater family, it's about iwi⁴, it's about your hapu⁵, it's about all these people working together so that's how we we work to support each other for the greater good of the people...so we support the community which then supports the health worker in their relationship with that person in the community or that marae⁶, so it's not about "me" it's about that community base working, like a three way partnership. (Campaign manager of Support)

The components of the three-way partnership the Support staff member mentions above are the message *senders*, the message *recipients*, and the *community of the recipients*.

4 Designing collectivism-focused tools

So far, there has been little exploration into the idea of designing persuasive technologies with particular cultures in mind. The case study data discussed previously reveals that culture can act as a strong differentiator in how people perceive and react to persuasive appeals. Furthermore, it gives us insights into how we may develop persuasive technologies to form a better fit with collectivist mindsets. Here we discuss four of these insights.

³ *Whanau* as a concept loosely corresponds to "family", however it can be inclusive of distant relatives and friends.

⁴ *Iwi* roughly corresponds to "tribe", "clan", and sometimes "backbone".

⁵ *Hapu* refers to a social grouping smaller than iwi, so it may be conceptualised as a "sub-tribe".

⁶ *Marae* is the sacred area of land in front of a traditional meeting house.

A collectivism-focused financial planning tool

To ground our discussion of design themes, we use a running example of a hypothetical financial planning tool. Similar to the tool Future provides, our example tool aids people in recording and managing their expenditures, performs calculations surrounding paying off mortgages and debts, suggests realistic payment plans, and records and sends out reminders about financial goals. Unlike Future's tool, our financial planning application is designed for a collectivist audience.

4.1 Group customisation

Our interviews continuously highlighted the fact that collectivists tend to think of themselves primarily in the context of *other in-group members*. In some ways this runs at crosscurrents to the present marketing trend in the West of developing more personally customisable products. However customisation can be applied at a group level rather than a personal level, as from a collectivist perspective the *in-group* forms the basic social unit rather than the individual [4]. In the same way that individuals from individualist societies have a good understanding of their own personal needs and preferences, collectivists understand the needs of their in-groups. Group customisation will probably carry more resonance for many collectivists than personal customisation.

In turn, the customisation focus on group identity will help foster a sense of message ownership: by framing desired outcomes in terms of the group and group identity, the persuasive aims should feel less imposed and instead more in-line with the group's own ambitions. At the same time, users can feel like they are playing a part in upholding collective responsibility, as they will be working together with other in-group members to achieve group goals.

In terms of the financial planning tool, instead of having profiles that exist for individuals, there could be a group profile, which may describe an in-group or family/extended family. We believe maintaining group profiles seems like a feasible concept since the case study information showed that Māori and Pacific Peoples think of money in a more communal manner than do New Zealanders of European origin, in the sense that there is a cultural expectation that one's money will help support extended family. Individual members may still be described, but they will be affiliated to larger group profiles. Each group profile may contain details such as combined incomes, investments, debts, along with the group's financial goals, goal priorities, links to other group profiles, other profiles the group forms a part of, and so on.

4.2 Opinion sharing

Since collectivists are motivated by a sense of collective responsibility, it is important that they have a sense of where that responsibility lies, and what the beliefs of the in-group are. Often software applications will require users to make decisions resulting in various outcomes, and without access to opinions of in-group members about what course of action to take, the decision making process for

collectivists may be time-consuming, and potentially stressful. For example, one study showed that Chinese online shoppers felt more comfortable making online transactions if they felt they had the support of relevant social groups, whereas societal support had less of an impact on American buying intentions [17]. We propose adding facilities to the tool which would allow users to find out about what the other in-group members' opinions are with regards to various topics. These facilities may encompass opinion databases, notes, logged chat sessions with other online group members, trends in group preferences identified from linked individual and group data, graph and chart displays, etc.

Giving users the option to view the opinions of other group members will enable them to feel more connected with the rest of the group. This sense of group connection is important, as collectivists place significant trust and respect in the opinions of in-group members [8, 5, 4]. Furthermore, being reminded of the existence of the group in a setting where the user is not physically nearby other group members may add to feelings of security and support. Also, social comparison theory shows that people of *any* culture tend to be naturally interested in the opinions and progress of others, as they are constantly benchmarking their own behaviours against those of others [18]. Nardi also discusses this in-built inquisitiveness in her writings about why people blog [19].

In the financial planning tool, prior to making any significant changes to goal setting plans, for example, users might be asked if they want to review recent discussion in their group's own chat room about goal setting. They might also be shown a pie chart of the opinions of other in-group members about what course of action to take. They will also be asked to record their own opinion on what to do, and upon making the decision, why they took the course of action that they did. The next time someone else in the group makes a decision regarding goal setting, these recently recorded opinions will be useful.

4.3 Monitoring/mentoring

Fogg's *self monitoring* strategy describes tools that allow people to monitor themselves to inform them about how they might modify their attitudes or behaviours to achieve a related goal or outcome [1]. Another of his strategies, *surveillance*, describes allowing one party to monitor the behaviour of another party through observation, as when people know they are being watched they tend to behave differently [1]. While self monitoring hardly ever raises any objections, surveillance is often perceived as sinister. From a collectivist perspective however, people constantly measure their own performance via the impressions and assessments of other in-group members [5, 4]. Merging the concepts of self-monitoring and surveillance approximates the effects of a collectivist being "monitored" by her in-group. Although she is being monitored by other people, since she identifies so closely with her in-group, the group identity strongly shapes her own identity, and *group* monitoring equates more closely to the much less sinister *self* monitoring.

One of the ethical questions surrounding surveillance concerns allowing an individual or a group to obtain information about another individual or group.

The issue is mitigated, however, if the individual under surveillance is happy for this information to be shared, which is more likely to be the case for collectivists with regards to their in-group members. Additionally, our interviews showed that collectivists are accustomed to relying on community support mechanisms to maintain life changes. This is akin to mentoring programmes, except with the in-group substituting for a single mentor. Group rewards systems could also be integrated into tools, whereby everyone who collectively worked towards a goal would be rewarded, thus harnessing elements of positive reinforcement learning.

Incorporating the monitoring/mentoring approach into the design of the financial planning tool, users could be given the facility to track all major expenditures, and perform forecast calculations etc., to see how they are progressing towards helping achieve group goals. Everyone in the group might have access to everyone else's expenditure records, and can leave encouraging notes and messages, calling into effect normative influence and social comparison, which have long been acknowledged as powerful motivators [20, 18]. Furthermore, knowing that everyone has access to everyone else's records might make people pay closer attention to their spending habits, as people tend to act differently when they believe they are being watched [21]. While it is true that collectivists are generally *always* motivated to behave in a manner that best suits their group [4], being aware of the existence of records detailing spending habits may highlight the urge to act in accordance with the group.

4.4 Polychronic time

Hall claims that time systems are *monochronic* in individualist societies and *polychronic* in collectivist societies [13]. So while individualists tend to see time as linear, do things sequentially, and value time-based schedules, collectivists perceive time to be less tangible and prioritise the involvement of people and completion of transactions above adhering to preset schedules [13]. In terms of goal setting and tools developed to facilitate the completion of goals, this means that linear timelines may not be so useful for collectivists since goal completion may be contingent on the occurrence of various other events. Instead of a straightforward linear timeline, we suggest using multiple linked, parallel timelines with flexible concepts of time, ordered in terms of transactions, events and goals, and their relative priorities.

Framing transactions, goals and events in terms of linked, parallel timelines relates to how collectivists achieve progress in group settings: one person may feel uncomfortable proceeding with an action before another event has occurred [13]. Constant negotiation is often needed to maintain ongoing progress [5, 4, 13]. Explicitly recording these linkages, contingencies, and priorities facilitates negotiation and provides everyone in the group with an accurate view of progress.

Applying this to the design of the financial planning tool, we could provide a facility for storing and modifying financial goals that would save information about goals, goal priorities, rough completion time frames, necessary negotiation between group members, and linkages between various goals. The tool would

have various display options for viewing the goals (text based display, flow-chart style graph, etc.) and would also save the goal information for other calculations.

Discussion

Given that these themes rely on the existence of a cohesive group, it is important that group members themselves feel comfortable sharing personal information with other group members. A participatory design approach involving end-user discussions about information sharing could be used in developing applications of this type, to establish what types of information end-users are willing to share. We also suggest that actual users always be notified of what types of information will be shared *prior* to any sign-up processes.

Also, like other persuasive technology strategies, the design themes we have discussed could equally be used in tools viewed as *unethical*. For example, they could be used in a collectivism-focused online gambling savings account, offered to users as a helpful and easy way to put money aside for online gambling. To this end, we urge designers to follow Berdichevsky and Neuenschwander's "golden rule": *creators of a persuasive technology should never seek to persuade anyone of something they themselves would not consent to be persuaded of* [22].

5 Conclusion

Public awareness of persuasive technology is increasing, but to date it has been developed to cater towards individualist audiences. Cross-cultural and consumer psychology research shows that from culture to culture, and more broadly from individualism to collectivism, people react differently to the same appeals. Case studies on social marketing organisations and persuasive technology designers in NZ reveal that while some minority culture members believe a communication gap exists, majority culture members often do not perceive the gap.

As a solution, we proposed designing persuasive technology from a collectivist perspective, looking to dominant themes in our case study data and cross-cultural psychology for guidance. Using a financial planning tool as an example, we suggested four themes for collectivism-focused persuasive technology design: *group customisation*: customisation at a group rather than individual level; *opinion sharing*: incorporating facilities to store and display opinions of group members; *monitoring/mentoring*: where the group acts together to monitor relevant behaviours; and *polychronic time*: using multiple linked, parallel transaction-based timelines in place of more standard linear timelines. Our future plans for this research involve developing an "individualist" and "collectivist" version of a persuasive application, which we will trial on individualist and collectivist audiences. Using attitude change measures, we will establish which version of the application each audience perceives as more persuasive.

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