

# Towards a Strategic Model of Design Support for Localisation

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## Abstract

Current localisation practices are substandard. Despite increased awareness of the need to localise products, businesses lack the strategy or the methodological knowledge. This paper offers one solution which prescribes the methods required at each stage of development in order to deliver the required levels of localisation.

## 1 Introduction

There is a growing acknowledgement among the design community that users from different cultures have different sets of ideas, experiences and expectations, all of which are brought to bear when interacting with computers. As a result, users from cultures other than the culture-of-origin may experience problems when interacting with a product.

To help avoid such problems within human-computer interface design, design is supported by a variety of methods including rules, standards and general advice (Bourges-Waldegg & Scrivener 1998). Also, a number of cultural models, such as that of Hofstede (1980) have been imported from the social sciences in order for designers to better understand target cultures. However, the complexity of the issues involved in understanding another culture are such that the application of these methods can in themselves be problematic. Most businesses lack a coherent strategy for the deployment of localisation tools and methods. Given the constraints of project deadlines and budgets, many practitioners will simply opt

for the method or toolbox with which they are most familiar, regardless of how appropriate it may be for the purposes of localisation.

A survey of localisation service providers (Gillham 2002) underlines this point. The survey asked what fields individuals were employed in, what degree of localisation they usually encountered in projects and what tools they employed. Practitioners were also asked for comments regarding the quality of localisation practices.

- No one tool was used throughout the industry. The most popular tool was standard usability measures (57%). A further 29% employed some form of guidelines, rules or standards, 29% utilised cultural models (such as that of Hofstede), 14% used interviews and/or focus groups.
- 43% of respondents stated that in their experience, localisation was only considered at the completion of the original product. Most added that it should be considered much earlier.
- Asked to rate the quality of the current practices of businesses localising their products, respondents were almost unanimous in their belief that they were 'Inadequate' (71%). No response rated practice above 'Adequate.'

These results paint a picture of an industry in which methods are applied haphazardly, often inappropriately and too late to have any positive effect on the final, localised product. There is clearly a need for strategic tools to allow project managers and localisation practitioners to predict the required degree of localisation for a product interface and apply appropriate methods accordingly. This paper outlines a solution to allow for this level of planning and thus mitigate the degree of risk inherent in localisation projects.

## **2 Tools For Localisation**

In order to prescribe appropriate tools and methods for various levels of localisation, it is necessary to look at those which currently exist and to examine their strengths and weaknesses.

### **2. 1 Guidelines**

Guidelines are useful in interface design, as they aid the translation of requirements into design specifications (Smith 1988). Guidelines for localisation cover the overt characteristics of a culture such as the correct use of language

formats (i.e. date, currency, time, etc). However, there are problems associated with the general application of guidelines:

- They do not guarantee well-designed systems and worse, can be used to legitimise poor design. (Lansdale and Ormerod, 1994)
- They are generalisations and can be insensitive to the context in which they are applied. Yeo (2001) also contends that for localisation projects, guidelines and standards tend to be too general, and not specific enough for target cultures.
- Their long-term utility is questionable as cultures and technologies both change over time (Bourges-Waldegg & Scrivener 1998).

In addition, guidelines for localisation suffer from dealing with overt characteristics at the expense of deeper, more fundamental cultural factors. While it is true that localisation projects should focus on translation, numbers, dates and ensuring icons are culturally appropriate, this alone fails to address the more subtle cultural issues involved. Culture affects interaction at levels significantly deeper than the superficial, and this also must be considered.

## 2. 2 Focus Groups

Focus groups are employed in general interaction design because they are well understood and have high validity. Usability practitioners utilise focus groups in their work and claim they show promise as a method which informs effective localisation. However, Beu, Honold and Yuan (2000) identify several problems with their use in an international context;

- The costs of carrying out focus group based evaluation abroad is often so high as to be unacceptable: discussion leaders must be native speakers who are also trained in the localisation issues.
- Finding suitable and representative natives of the target culture to participate is difficult.
- The quality of focus group discussion is highly dependent on the discussion leader and the setting. Yeo (2001) found that in Asia many focus group participants were reluctant to openly criticise software due to social norms regarding politeness and 'saving face'

## 2. 3 Semiotic Tools

One of the problem with localisation tools such as guidelines that only address overt factors is the assumption that once a product is tested in its base language the localised versions will be equally usable. Sukaviriya and Moran (1990) argue

that designers producing localised interfaces must acknowledge that language does not exist in isolation, but interacts with other aspects of human culture.

This has the implication that direct translation, or transformation of a culturally specific representation from one language to another may not in itself be adequate to convey meaning if the underlying concept is not well suited to the target language. Abdelnour Nocera (2002) identifies a group of methods which can be referred to as the ‘Semiotic Approach.’ These tools address this issue of the underlying meaning of interface artefacts via a semiotic-analytic approach to localisation. The earliest example of these is that of Bourges-Waldegg and Scrivener (1998), who identify that meaning can be only partially dependent on language, and provide a tool, Meaning in Mediated Action (MMA), to analyse the appropriateness of interface features. In MMA, a mixture of quantitative and qualitative techniques are used to identify what a representation may have a meaning in one context, but not another. For example, Beu, Honold and Yuan (2000) note that in a work context, a German software engineer may have more in common culturally with his, or her US counterpart, than with a German marketing expert. These approaches undoubtedly delve deeper into localisation issues than guidelines, but as Gustavsson (1999) argues, to reduce all localisation problems to issues surrounding meaning can be overly-simplistic – to do so is to disregard task-related behaviour on the part of the user, which can also be culturally-variable.

## 2.4 Cultural Models

It has been established that ‘covert’ cultural factors (such as social interaction rules) which govern behaviour do not map onto user interface requirements as clearly as the overt factors covered by guidelines (Mahemoff and Johnston 1998). Consequently, there have been many attempts to create sets of dimensions, or frameworks, across which culture can be mapped. These may be based on observable differences such as currency formats, etc, but are more likely to be based on subjective information, such as values, and behavioural and intellectual systems (Hoft 1996). The most famous of these frameworks is that of Geert Hofstede (1980). Hofstede proposed five dimensions that characterise a culture, including measures of responses to power and authority (*Power Distance*), and the extent to which people feel threatened by uncertain or unknown situations (*Uncertainty Avoidance*).

There have been several attempts to use the Hofstede framework for culturally appropriate interface development. Marcus (e.g. Marcus et al 2003, Marcus & Gould 2000), who has consistently advocated the use of these dimensions, found

that features of a website design such as the degree of flexibility allowed in completing a task will often reflect the country of origin's ranking on scales such as Uncertainty Avoidance. However, Marcus does not state, beyond some broad suggestions, how this may be used to drive localisation.

The empirical evidence for the predictive abilities of the Hofstede framework is not impressive: Hofvenschiold (2002) found that Hofstede's framework was not able to predict differences in mobile phone use between German and British students. In another example, Griffith (1998) studied implementation of US designed software systems in the US and Bulgaria and measured respective university students' responses to the technology. Bulgarians were expected to be less critical of the technology due to cultural responses to power and authority. This was based on Hofstede's (1980) measures of power distance. However, Griffith's results suggested that Bulgarian students may in fact be *more* likely to challenge authority than their US counterparts.

Gunter and Randall (2003) argue that the appeal of the Hofstede's model is not so much it's accuracy as a design tool, but rather that it lends itself to the sort of quantifiable solutions favoured by business. This is unsurprising, as Hofstede's model was intended as a model of business communication, and never one of design. Therefore as Hoft (1996) suggests, it's greatest strength may be as an indicator of the gulf between two cultures rather than as a structure onto which user requirements can be mapped.

## 2.5 Standard Usability Measures

Due to their expertise in the human-computer interface, usability practitioners are often entrusted with carrying out localisation fieldwork. As suggested by the survey, standard usability testing remains the most popular method of eliciting localisation requirements. The effectiveness of usability testing is well established in contexts where the user tasks are understood and can be measured and benchmarked. However, in less well-understood problem areas, it's effectiveness declines as the results tell us less about the user's overall comprehension of the system and it's usefulness in terms of their wider world (Dicks 2002). Both are surely concepts which are mediated by culture and are therefore of interest to the localisation practitioner.

Even the main proponent of usability testing, Jakob Nielsen (1996), has warned that traditional testing methods may be biased towards western cultures and less effective in others.

## 4 Towards a Strategic Model for Localisation

Ito and Nakakoji (1996) show how user perception of an interface, and their responses to it become steadily more culturally specific as the interaction develops. The more covert and culturally dependent a factor is, the more fundamental its potential influence on interaction. Sturm (2002) shows how the complexity of problems and the need for further investigation increases with cultural dependency. These factors must therefore be identified and addressed at points in the localisation lifecycle where their consideration can lead to the most culturally appropriate solutions.

Support for design for should be both *diagnostic* and *prescriptive* (Long 1996). The aim of any model for localisation planning then, should be to:

- 1) *Diagnose* the distance between target culture and culture of origin
- 2) *Prescribe* the level of localisation required and the methods and tools to achieve it effectively

### 4.1 Diagnosing the cultural gap

Whilst models such as Hofstede's (1980) dimensions of culture have been shown to be inappropriate to inform design, they may be of some use in profiling cultures and their members. This can provide a subjective measurement of the gulf between the culture of origin and the localisation target culture. Hoft (1996) proposes that cultural models can be used to address the following questions:

- Can the product be internationalised so that it is usable in many cultural contexts without modification of any kind?
- Does cultural bias exist in the product design?
- Is localisation required, and to what degree?

If these questions can be answered satisfactorily by such a profile, then this helps address the requirement for diagnosis of the cultural gap in localisation projects. For example, in the case of the US and the UK, the two countries score very similarly on most dimensions of culture. In many situations, similarities in the cultural profiles may suggest that customising the functionality or task structure of an US interface for use in the UK is unnecessary. In such a case, only superficial changes to spelling and formats will be required. A larger cultural 'gap' may raise questions about whether more fundamental user requirements are shared by the target culture and the culture of origin. This may suggest the

development of two different products who may not share the same features or functionality.

## 4.2 Prescribing Methods

Once high-level predictions can be made about the design problem, it is possible to assess the different cultural factors which contribute to localisation issues with a range of substantive tools such as guidelines, usability testing and semiotic methods. As shown in section 2, these tools have different strengths and weaknesses as they each address different aspects of localisation problems. The various cultural factors of which these problems are comprised must be considered at different stages in the design lifecycle.

In the initial stages of a project, design traditionally focuses around understanding the problem domain. Less well-understood problems in localisation involve deeper, covert cultural factors, and are unlikely to be documented (Mahemoff and Johnston 1998). As covert factors are more likely to have fundamental influences on the requirements of the system, they should be the focus of explorative methods towards the beginning of the system development effort.

In the later stages of design, designers generally utilise knowledge of similar problems and attempted solutions. For 'known' problems such as converting US spellings and formats for the UK, this means there may be well-defined heuristics such as guidelines, standards and rules.

## 4.3 Model Overview

In the proposed model, the reviewed methods are placed within the stages of the design lifecycle at which their outcomes can be optimised. The scope of the localisation can be determined by an evaluation of the cultural 'gap' will determine the required levels of localisation from the original. Broadly, these can be defined as:

- a) *Culturally specific product* – the gap between the two cultures is so marked that user requirements differ to the extent where a separate product for each might be considered
- b) *Localised from original* – the 'traditional' localisation approach; the interface is localised leaving the majority of the core functionality and task structure intact

- c) *Translate original* – the interface of the original is translated, with any superficial elements (e.g. dates, currency) localised

The level of localisation predicts the design processes at which the localisation effort must begin. Design lifecycles vary greatly between projects and organisations, therefore the design lifecycle presented here is deliberately abstract. It comprises three generic stages, *Specification* (technical specification, user requirements, etc), *Conceptual Design* (mapping requirements onto functionality, task structure, information architecture, etc) and *Detailed Design* (aesthetics, interface design, detailed content, etc). Each design process is prescribed the required methods and tools, to produce the desired localised products.

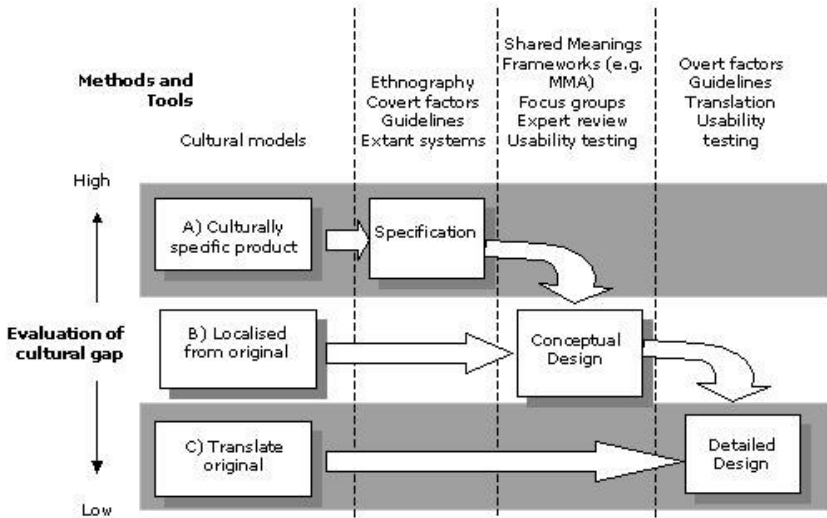


Figure 1 – a strategic model of design support for localisation

## **5 Discussion**

There is no doubt that any attempt to capture best practice within a generic model will not on its own guarantee quality of localisation. Within each stage, and each method, much depends on other factors, most notably the expertise of the localisation team.

However, there are two compelling arguments for the existence of such a model. Firstly, the arguments made in academic literature regarding the relative strengths and weaknesses of methods for localisation merit recognition within the design process. Secondly, as seen from the (Gillham 2002) survey, businesses seem to be conducting localisation in an *ad hoc* manner, applying those methods which are most familiar, readily available inhouse, or simply cheapest – regardless of how appropriate they may be. Whilst the business prerogative to keep down initial costs is understandable, localisation projects carry a degree of risk which can cause costs to spiral out of control if not planned, controlled and executed properly. Therefore, any tool which allows an industry largely ignorant of localisation issues to mitigate risk has some value simply by existing.

Current research is ongoing to validate the model, and further studies will present this work. In the meantime, the intended contribution of this paper is to have identified a need within industry, and to suggest one possible solution to stimulate ongoing debate.

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