Software Developers in India and Norway:
Professional or National Cultures?

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ABSTRACT

In this paper, the authors investigate the professional practices of software developers from two different cultures—Norway and India. The authors examine if systematic differences exist between Norwegian and Indian software developers in their professional practice. Using Hofstede's cultural dimensions, the authors expected to find cultural differences between the two groups of professionals. Building on a survey among software developers in the two countries, the authors have the following conclusions. Firstly, the main finding is that there are surprisingly few differences between the two groups, giving support to the view of a common professional culture. Secondly, the few differences that are observed cannot easily be explained by Hofstede's cultural dimensions.

Keywords: Culture, Professional Practice, Software Development Methods, Survey, Usability

INTRODUCTION

The discipline of software development is now over 40 years old, and practitioners (and researchers) are working in almost every country in the world. An interesting question is whether a common professional culture has emerged among software practitioners, or whether national cultures are still dominant. This issue has mainly been investigated in the context of distributed software E development projects, with participants from several countries (Olson & Olson, 2003; Gibbs, 2009). Usually, building on Hofstede's (2001) dimensions, the findings have emphasized the need to understand and address national cultural differences (Dafoulas & Macaulay, 2001; Walsham, 2001).

However, some researchers also suggest that professional culture tends to override national differences in many respects (Castells, 1996; Friedman, 2005). Professional culture rests on a common education, a shared skill and problem solving repository, and often also a shared value system. Thus, belonging to a profession does not only provide the individual with tools and techniques, but it also constitutes

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a significant part of the person's identity, as most clients of doctors and lawyers may testify.

Does the same apply to software professionals? Constantine (1995) proposed that software professionals belong to a global computer subculture that is stronger than other professional cultures. In some ways, this view is contradicted by the many studies that emphasize the national culture aspect. For example, in a large study of Norwegian and Japanese computer professionals, it was found that the cultural differences between the two groups were significant, both in their general cultural orientations and their professional attitudes (Andersen, 2002). It is probably hard to produce conclusive evidence on this issue, but in the context of an increasingly global IT industry it is important to shed some more light on this question, which is the objective of this paper.

Our approach differs from most other studies, in that we do not investigate attitudes, but practices. We do this by comparing the practices of software professionals in two very different national cultures, namely India and Norway. Our research question is:

- Are there systematic differences between Norwegian and Indian software developers in their professional practice?

The two aspects of professional practice that we have chosen to investigate are system development methods and usability, and the relationship between them. They were selected because they are key issues for software developers, and they are also issues where cultural differences are potentially very influential.

We proceed by reviewing relevant literature on culture and software development practices. In the following section, we present our method, which was a web based survey. We then present our findings, and discuss them, before we offer conclusions and point to further research in the last section.

REVIEW

With the advent of globalization, software development is being undertaken by teams hailing from different contexts, in terms of both geography and culture. It therefore comes as no surprise that there is an increasing amount of research exploring the impact of these two contextual dimensions on Software Development Methods (SDMs). The need for cross-cultural sensitivity, good communication strategies, semantic loss, coordination, differences in work-style and power distribution, are all issues that have been highlighted in these respects (Barthelmess, 2003; Kersten, Kersten, & Rakowski, 2002; Layman, Williams, Damian, & Bures, 2006; MacGregor, Hsieh, & Kruchten, 2005; Mishra & Mishra, 2011; Niazi, Babar, & Verner, 2010; Taxen, 2006; Walsham, 2001).

Culture is a multi-dimensional construct, which is hard to measure. Although Hofstede's categories have been criticized, they remain the most accepted dimensions of national culture. The five dimensions are (Hofstede, 2001):

- *Low vs. high power distance* - This dimension measures how much the less powerful members of institutions and organizations expect and accept that power is distributed unequally.
- *Individualism vs. collectivism* - This dimension measures how much members of the culture define themselves apart from their group memberships
- *Masculinity vs. femininity* - This dimension measures the value placed on traditionally male or female values (as understood in most Western cultures).
- *Low vs. high uncertainty avoidance* - This dimension measures how much members of a society attempt to cope with anxiety by minimizing uncertainty.
- *Long vs. short term orientation* - This dimension describes a society's "time horizon," or the importance attached to the future versus the past and present.