A Cross-Cultural Analysis of Flickr Users from Peru, Israel, Iran, Taiwan and the United Kingdom

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Declaration

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ABSTRACT

This thesis investigates cultural differences on Flickr (www.flickr.com), a social photo-sharing site, by comparing a representative sample of users from Iran, Taiwan, Israel, Peru and the United Kingdom. The increased popularity of user content driven websites, as part of a trend often referred to as Web 2.0, has created new challenges with regard to cross-cultural system design and localisation. Data mining, content analysis and an open-ended questionnaire were employed in order to explore the extent to which national culture impacts usage and user preferences on Flickr. The study incorporated Geert Hofstede’s cultural model, which has been widely used by HCI researchers investigating cultural differences. The primary objective was to explore Flickr as a case study of a Web 2.0 site, while also considering Flickr-specific issues, to inform practitioners and academics interested in Web 2.0 cross-cultural design issues and Flickr as well. Findings show clear differences as well as similarities between the five cultures in terms of language used to annotate content, tagging patterns, motivation and preferences. Some could be generalised to similar sites, while others provide insight into the rich and visually stimulating world of Flickr.

Keywords: Flickr, cross-cultural design, social networks, web 2.0, localisation, photo sharing
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# TABLE OF CONTENTS

LIST OF FIGURES..................................................................................................................................... VI
LIST OF TABLES.......................................................................................................................................... VIII

1 INTRODUCTION....................................................................................................................................... 1
   1.1 BACKGROUND.................................................................................................................................. 1
   1.2 MOTIVATION................................................................................................................................. 2
   1.3 AIMS AND OBJECTIVES .............................................................................................................. 2
   1.4 REPORT STRUCTURE .................................................................................................................. 3

2 LITERATURE REVIEW .................................................................................................................. 5
   2.1 THEORIES OF CULTURAL DIFFERENCES ............................................................................. 5
      2.1.1 Geert Hofstede’s cultural model ......................................................................................... 6
   2.2 CULTURAL DIFFERENCES IN SYSTEM DESIGN .................................................................... 9
   2.3 WEB 2.0 .................................................................................................................................... 11
   2.4 SOCIAL NETWORKS .................................................................................................................. 12
   2.5 PREVIOUS RESEARCH ON FLICKR ...................................................................................... 13
      2.5.1 Social aspects ...................................................................................................................... 14
      2.5.2 Photo sharing ...................................................................................................................... 16
   2.6 TAGGING ................................................................................................................................... 19
   2.7 CONCLUSION ............................................................................................................................. 22

3 METHODOLOGY .......................................................................................................................... 23
   3.1 INTRODUCTION .......................................................................................................................... 23
   3.2 AN OVERVIEW OF FLICKR ....................................................................................................... 23
   3.3 RESEARCH APPROACH ............................................................................................................ 28
   3.4 DATA COLLECTION .................................................................................................................... 29
      3.4.1 Quantitative methods ........................................................................................................... 29
      3.4.2 Qualitative methods ............................................................................................................ 30
   3.5 PROCEDURE .............................................................................................................................. 31
      3.5.1 Identifying and choosing comparison parameters .............................................................. 33
      3.5.2 Data mining tool .................................................................................................................. 36
      3.5.3 Choice of cultures ................................................................................................................ 38
      3.5.4 User selection ...................................................................................................................... 40
      3.5.5 Data collection process ....................................................................................................... 41
   3.6 LANGUAGE ANALYSIS .......................................................................................................... 41
   3.7 OPEN-ENDED QUESTIONNAIRE .............................................................................................. 42
   3.8 FLICKR DISCUSSION GROUPS ................................................................................................. 44

4 RESULTS AND DISCUSSION .................................................................................................... 45
   4.1 INTRODUCTION .......................................................................................................................... 45
   4.2 USER DATA – FLICKR PARAMETERS ....................................................................................... 45
      4.2.1 Account type ........................................................................................................................ 46
      4.2.2 Public photos ........................................................................................................................ 48
      4.2.3 Contacts ............................................................................................................................... 50
      4.2.4 Public groups ....................................................................................................................... 53
      4.2.5 Tags ..................................................................................................................................... 58
      4.2.6 Sets ..................................................................................................................................... 60
      4.2.7 Favorites .............................................................................................................................. 63
      4.2.8 Testimonials ......................................................................................................................... 66
      4.2.9 Summary of Flickr parameters ............................................................................................. 69
   4.3 USER DATA - LANGUAGE ANALYSIS ....................................................................................... 71
LIST OF FIGURES

Figure 1 - Kindberg et al.'s taxonomy of image capture (2005) ..................................................17
Figure 2 - Ames and Naaman’s taxonomy for tagging motivation (2007) .................................21
Figure 3 – A Flickr user's main photo collection page.................................................................24
Figure 4 - Photo page ..................................................................................................................25
Figure 5 - Flickr user's profile....................................................................................................26
Figure 6 - A Flickr user's main control panel ............................................................................27
Figure 7 – Research procedure diagram....................................................................................32
Figure 8 - Flickr mindmap .........................................................................................................33
Figure 9 – Part of Flickr mindmap - Metadata parameters.......................................................34
Figure 10 - The sampling tool developed for the project ............................................................37
Figure 11 - The ‘Access Flickr!’ Firefox web browser extension allows users in Iran to bypass a national ban and use the site .......................................................................................39
Figure 12 - Users with a Pro account per culture.................................................................46
Figure 13 – Number of users with a Flickr Pro account / GDP per capita (Correlation: 0.91) ..........................................................47
Figure 14 – Number of users with a Flickr Pro account / Hofstede’s Masculinity index (Correlation: 0.65) ..................................................................................................................48
Figure 15 – Spread of number of public among users from Israel ..............................................49
Figure 16 - Spread of number of public photos among users from Iran ..................................49
Figure 17 - Spread of number of public photos among users from Peru ................................49
Figure 18 - Spread of number of public photos among users from Taiwan .............................49
Figure 19 - Spread of number of public photos among users from the UK ..............................49
Figure 20 - Number of users with a Flickr Pro account / Number of public photos (Correlation: 0.67) ..........................................................................................................................50
Figure 21 – Spread of number of contacts among users from Israel ......................................51
Figure 22 - Spread of number of contacts among users from Iran ........................................51
Figure 23 - Spread of number of contacts among users from Peru ........................................52
Figure 24 - Spread of number of contacts among users from Taiwan ..................................52
Figure 25 - Spread of number of contacts among users from the UK .....................................52
Figure 26 – Contacts / Public photos (Correlation: -0.77) .......................................................52
Figure 27 – Administrators of groups can use a predefined message to invite users to join a group ........................................................................................................................................54
Figure 28 – Spread of number of public groups among users from Israel ............................54
Figure 29 - Spread of number of public groups among users from Iran ................................54
Figure 30 - Spread of number of public groups among users from Peru .................................55
Figure 31 - Spread of number of public groups among users from Taiwan .........................55
Figure 32 - Spread of number of public groups among users from the UK ............................55
Figure 33 – Number of public groups / Uncertainty Avoidance (Correlation: -0.71) ...........56
Figure 34 – A large number of groups may contribute to higher level of uncertainty ..........57
Figure 35 - Number of public groups / Individualism (Correlation: 0.8) .......................................57
Figure 36 – Unique tags per user / Uncertainty Avoidance (Correlation: 0.89) ......................58
Figure 37 – Spread of number of unique tags among users from Israel .................................59
Figure 38 - Spread of number of unique tags among users from Iran ....................................59
Figure 39 - Spread of number of unique tags among users from Peru ..................................59
Figure 40 - Spread of number of unique tags among users from Taiwan .............................59
Figure 41 - Spread of number of unique tags among users from the UK ...............................59
Figure 42 –Number of users with a Flickr Pro account / Number of sets (Correlation: 0.949) ..61
Figure 43 – Spread of number of sets among users from Israel .........................62
Figure 44 – Spread of number of sets among users from Iran ..........................62
Figure 45 - Spread of number of sets among users from Peru .........................62
Figure 46 - Spread of number of sets among users from Taiwan .....................62
Figure 47 - Spread of number of sets among users from the UK .......................62
Figure 48- Public contacts / Favorites (Correlation: 0.83) ..................................63
Figure 49 – Spread of number of favorites among users from Israel ..................64
Figure 50 - Spread of number of favorites among users from Iran ....................64
Figure 51 - Spread of number of favorites among users from Peru ....................64
Figure 52 - Spread of number of favorites among users from Taiwan ..................64
Figure 53 - Spread of number of favorites among users from the UK ..................64
Figure 54 –Comments per photo / Number of favorites (Correlation: 0.91) ...........65
Figure 55 – Public photos / Favorites (Correlation: -0.85) ...................................66
Figure 56 – Spread of number of testimonials among users from Israel ..............67
Figure 57 - Spread of number of testimonials among users from Iran ..................67
Figure 58 - Spread of number of testimonials among users from Peru ..................67
Figure 59 - Spread of number of testimonials among users from Taiwan ............67
Figure 60 - Spread of number of testimonials among users from the UK ..............67
Figure 61 – Number of users that have a testimonial written about them ................68
Figure 62 – Number of users that have a testimonial written about them / Number of contacts (Correlation: 0.9) ...............................................................69
Figure 63 - Number of users that have a testimonial written about them / Number of public photos (Correlation: -0.8) .................................................................69
Figure 64 - Use of native language to annotate content ......................................72
Figure 65 - Use of English language to annotate content ....................................73
Figure 66 –Descriptions written in English / Individualism (Correlation: 0.9) ...........74
Figure 67 - Titles written in English / Individualism (Correlation: 0.89) .................74
Figure 68 – Photos tagged in English / Individualism (Correlation: 0.79) ...............74
Figure 69 - Use of bilingual annotation .............................................................76
Figure 70 – Use of self-portrait buddy icon / Individualism (Correlation: -0.74) ......77
Figure 71 - Use of self-portrait buddy icon / Power Distance (Correlation: 0.86) .......78
Figure 72 - Buddy icon of users from Israel .......................................................78
Figure 73 - Buddy icon of users from the United Kingdom ..................................79
Figure 74 - Buddy icon of users from Taiwan ...................................................79
Figure 75 - Buddy icon of users from Iran .........................................................80
Figure 76 - Buddy icon of users from Peru .......................................................80
Figure 77 - All time most popular tags on Flickr – December 25th 2007
(http://www.flickr.com/photos/tags) .................................................................81
Figure 78 – Number of common tags per culture .............................................83
Figure 79 – Tags in the user’s native language / Common tags (Correlation: -0.85) ....84
Figure 80 – Common tags / Individualism (Correlation: 0.81) ................................84
Figure 81 – Common tags / Power distance (Correlation: -0.65) ..........................85
Figure 82 –Frequency of capital city and county name in tags ............................86
Figure 83 – Frequency of capital city in tags / Power Distance (Correlation: 0.85) ....86
Figure 84 – Frequency of country name / Power Distance (Correlation: 0.77) ..........86
Figure 85 – Frequency of country name / Individualism (Correlation: -0.69) ..........87
Figure 86 – Frequency of colours in tags ..........................................................89
Figure 87 - Cultural layers of a Flickr user .......................................................115
### LIST OF TABLES

Table 1 – Hofstede’s scores for each chosen culture ......................................................... 38  
Table 2 – Number of public photos per user ..................................................................... 48  
Table 3 – Number of contacts per user ........................................................................... 51  
Table 4 – Number of public groups per user ................................................................... 53  
Table 5 – Number of unique tags per user ...................................................................... 58  
Table 6 – Number of tags per photo ................................................................................ 60  
Table 7 – Number of sets per user .................................................................................. 61  
Table 8 – Number of favorites per user .......................................................................... 63  
Table 9 – Number of testimonials per user ...................................................................... 66  
Table 10 – Summary of Flickr parameters correlations with Hofstede’s dimensions ...... 70  
Table 11 – Use of native language to annotate content .................................................... 72  
Table 12 – Use of English language to annotate content .................................................. 73  
Table 13 – Use of bilingual annotation ............................................................................ 75  
Table 14 – Type of buddy icon used ................................................................................. 77  
Table 15 – Common tags among users in each culture ...................................................... 82  
Table 16 – Top most common tags ................................................................................... 85  
Table 17 - Common tags across cultures ......................................................................... 89  
Table 18 - Common groups in each culture ................................................................. 91  
Table 19 - Flickr groups common among cultures .......................................................... 96  
Table 20 – Use of language to name sets ......................................................................... 97  
Table 21- Demographics of questionnaire respondents .................................................. 98
“My main reason [for using Flickr] is to share photos with people from all around the globe, I like to take pictures from my hometown and publish them on Flickr so people can see the beauty of my country. Another reason would be just to get some feedback from my photography. I love photography, but I'm no expert and I know there are a lot of professional photographers on this network so I appreciate every comment once in a while. I use it to share pictures with my friends as well. Every picture I upload to Flickr doesn't have to be, you know "the" picture, I just like to know there's somebody else enjoying what I upload.”

Questionnaire respondent
Female/Unknown age/Peru
1 INTRODUCTION

1.1 Background

The global spread of the Internet over the last decade has made it increasingly important to consider local cultures when developing international and localised interfaces in order to ensure acceptability and high level of usability. Historically, the Internet, which originated in the United States, reflected Western and primarily North American user preferences. This was most evident in the use of the English language, icons, metaphors, imagery and content that were not always understood by people in other parts of the world (Yunker, 2004). Growing appreciation of usability and culturally aware design prompted a considerable body of work into localisation and internationalisation of computerised systems and websites in particular (e.g. Barber & Badre, 1998; Evers & Day, 1997; Hermeking, 2005; Marcus & Gould, 2000; Syarief et al. 2003; Yunker, 2004). It includes design guidelines, methodologies and references to various cultural studies (e.g. Hofsetde, 1991) that offer insight to cultural differences.

In recent years widespread adoption and maturity of technologies such as RSS, AJAX, CSS and Web Services helped transform the Internet into a much more flexible and sociable environment, where individuals are able to easily create, share and annotate content while participating in different social networks that fulfil various needs. This paradigm shift, which has been dubbed Web 2.0, raises new challenges with regard to usability, user experience and culturally sensitive design as interfaces become richer, customisable and highly social.

Flickr (www.flickr.com) is a Yahoo! owned photo-sharing website, which enables people to upload and share their photos with others online. It began as a Flash-based multiplayer game called Game Neverendinga that supported real-time photo sharing and slowly morphed into a website (Fitzgerald, 2006). It was launched in February of 2004 and bought by Yahoo! in 2005 (Hu, 2005). At the time of writing, Flickr has over 20 million registered users and hosts more than 2 billion photos (Flickr Public Relations, personal correspondence, December 5th, 2007).
Like many other Web 2.0 sites, it is based on user generated content, social networking and user generated taxonomies i.e. tags, often referred to as *Folksonomies*. As such it was considered a representative example from which general conclusions could be drawn and considered.

### 1.2 Motivation

As popular sites like Flickr, del.icio.us (http://del.icio.us), YouTube (www.youtube.com) and Facebook (www.facebook.com) attract millions of people from all over the world, it becomes ever more important to explore emerging cultural considerations relating to tagging, public and private content sharing, motivation, social interactions, participation, interface customisation and other emerging topics. Existing cross-cultural design literature, as well as recent Web 2.0 centric studies (e.g. Mejías, 2004; Perkel, 2006; Pfeil et al., 2006), address some of these issues but there is still a great deal of scope for further research and insights.

Past research about tagging for example, which is a fundamental aspect of the Web 2.0 approach to user-generated content, highlighted interesting findings regarding user motivation and tagging patterns (e.g. Ames & Naaman, 2007; Rafferty & Hiderley, 2007). However, there is very little if any body of work that looks at cross-cultural aspects of tagging. Seeing as how sites like Flickr, YouTube and others that support tagging systems have localised versions, it is only appropriate that any cultural considerations are investigated. The same is true with regard to language preferences and proficiency when annotating content using titles, descriptions and tags as seen in many user content driven sites.

### 1.3 Aims and objectives

This study investigates the impact of national culture on the use of a user content driven website by focusing on Flickr, a photo sharing social network, as a case study. In the context of this project, a user content driven site is defined as a website based on user generated content such as images, text, and videos. The study focuses primarily on the utilisation of tags, use of language i.e. English versus one’s native language, social interactions as well as motivation for uploading and sharing content. It aims to extend
existing knowledge of cross-cultural design and contribute contemporary perspective that would benefit practitioners and researchers focusing on socially driven applications.

The main research question was: To what extent does cultural background impacts the use of a user content driven website?

The objectives of the project are as follows:

1. Compare and contrast parameters between users from five cultures in order to explore the impact cultural orientation has on the use of Flickr, and user content driven websites in general
2. Apply Geert Hofstede’s cultural model to those parameters and investigate the degree to which they can account for any differences and similarities found
3. Investigate user perceptions, preferences and motivation for using a user content driven website like Flickr
4. Identify both Flickr-specific and general cross-cultural considerations that could inform the development of future user content driven websites

The first two objectives were addressed by mining user data using a specially developed tool and correlating that data with Geert Hofstede’s cultural dimensions. The data was examined and correlated from a purely Flickr-specific perspective as well in order to learn about internal relationships and dependencies that could extend existing understanding regarding the site and the way it is used. The data gathered was both quantitative and qualitative as language, users’ avatars and themes across tags and groups were also examined. The third objective was confronted by an open-ended questionnaire used to gain insight as to how users from different cultural backgrounds perceive and utilise Flickr.

1.4 Report structure

The thesis report is divided into the following chapters:

Chapter 2 – Literature review
This chapter describes the secondary research that was conducted and covers relevant literature ranging from cross-cultural design, previous research on Flickr to photo sharing habits and motivation.

Chapter 3 – Methodology
In this chapter the underlying approach to the study is detailed and provides an overview of the procedure and various steps behind the study, as well as its limitations.

Chapter 4 – Results and discussion
The results are presented alongside an analysis and discussion. Each finding is accompanied by possible interpretations and links to other relevant data to provide a broader view of the results and the various ways in which they are sometimes connected and interrelated.

Chapter 5 – Conclusions
The last chapter concludes the study and reflects back on the study and its objectives. It also offers suggestions for future directions in terms of research and practical developments.
2 LITERATURE REVIEW

A literature review was conducted in order to place the research in context and learn what has been researched so far in the following areas: Cultural issues in interactive systems design, social networks, Web 2.0, Flickr, tagging as well as photo sharing habits. The first section addresses culture and Geert Hofstede’s work, which has been chosen as theoretical framework for this study is described in more detail. The second section focuses on the impact cultural orientation has on the use of websites. It is followed by a section providing a brief overview of Web 2.0, which leads to a summary of social networks. The last two sections describe previous research on Flickr and specifically tagging. Photo sharing behaviour, which is not necessarily related to Flickr and the Internet, is also presented to provide broader context and appreciate its function as a global mantelpiece.

2.1 Theories of cultural differences

Culture is an elusive term with multiple and sometimes different definitions. It defines the way individuals think, act and perceive the world and is learnt from a young age, when people are most receptive to learning (Hofstede, 1991). There are many definitions of culture. Beu et al. (2000) offer the following definition by Thomas (1996):

“Culture is an orientation system that is universal but highly typical of a society, organization or group. This orientation system comprises specific symbols that are handed down from generation to generation with in the society, organization or group. It influences the perception, thoughts and actions of all the members and therefore defines their affiliation. Culture as an orientation system provides a structure for the field of action of an individual belonging to the society, organization or group and therefore creates the requirements for the development of separate ways in which to deal with one’s surroundings” (Thomas, 1996, p.192 as cited in Beu et al., 2000, p.349).

As individuals are members of different groups and categories, they carry several layers of what sociologist Geert Hofstede refers to as mental programming that correspond to
different levels of culture (Hofstede, 1991, p.10). Such levels are for example national, regional, religious, gender and social class; all to some extent impact people’s orientation and perception of the world around them. There is considerable literature describing cultural differences and cultural orientation. Gould (2005) lists eight cultural theories that could inform interface design decisions, and notes that out of which the most applied one is probably Geert Hofstede’s work into national and organisational cultures.

2.1.1 Geert Hofstede’s cultural model

Geert Hofstede’s work on national and organisational cultures (Hofstede, 1991) is often cited by researchers exploring culturally informed design issues, as it offers a general theoretical basis for understanding cultural differences. After surveying 116,000 IBM employees worldwide between 1967 and 1973, Hofstede formulated four cultural dimensions he used to classify countries on a scale of 1 to 100 (A fifth dimension, Long vs. short-term orientation, was later added). These were:

1. Individualism versus Collectivism
2. Power Distance
3. Masculinity versus Femininity
4. Uncertainty Avoidance

Hofstede’s work focused on national cultures and described how these dimensions manifest at different levels: family, school, the workplace and the state. As noted by Gould (2005), Hofstede’s model is often criticised because the study focused on IBM employees which according to critics do not represent a national culture and the proposed dimensions are not stable as cultures, and IBM as well, change over time. Moreover, the study was biased since it was conducted in English and administered in Europe and the United States. These claims were mostly rejected by Hofstede who argued that IBM’s distinct workplace culture give employees many things in common so any differences would probably be the results of differences in national culture. However, he did acknowledge that the study was biased towards Western values.

Another main criticism is that nations are not the best way to study cultures since they often include a number of ethnic, linguistic and religious groups. Hofstede acknowledges
that nations are not the best units to study cultures but argues they are still the best option available (Hofstede, 2002).

Despite their limitations, Hofstede’s cultural dimensions have been adopted by the HCI community and are have been widely used in cross-cultural design research (e.g. Callahan, 2005; Marcus & Gould, 2000; Pfeil et al., 2006; Sheridan, 2001; Singh & Baack, 2004; Singh et al., 2005). They afford quantitative analysis, which for example highlights correlations between cultural values and frequency of certain web content features (e.g. Singh & Baack, 2004). The same approach was applied to a certain extent in this study.

Since Hofstede’s four dimensions were used to a great deal in the analysis process of this study it is only appropriate that their meaning is offered in some detail.

2.1.1.1 Power Distance

Power Distance is defined as: “The extent to which the less powerful members of institutions and organisations within a country expect and accept that power is distributed unequally” (Hofstede, 1991, p.27). Power Distance may be seen in a country’s class system, education and organisational culture. In countries with large Power Distance, less powerful members are seen as subordinates and there is a large emotional distance between different parts of a tall hierarchy.

Such emotional distance and respect towards authority (of any kind) is seen between employers and employees in the workplace and citizens and those who rule the state. Hofstede notes this attitude towards authority is rooted in the family where individuals develop their mental software. A large Power Distance implies a strong sense of obedience and respect towards those who are in power (e.g. parents, employer, ruler).

2.1.1.2 Individualism versus collectivism

Individualism refers to whether the interests of the individual in a culture prevail over those of the collective or vice versa. According to Hofstede, in countries with high Individualism value “the ties between individuals are loose: everyone is expected to look after himself or herself and his or her immediate family. Collectivism as it opposite pertains to societies in which people from birth onwards are integrated into strong,
cohesive ingroups, which throughout people’s lifetime continue to protect them in exchange for unquestioning loyalty” (Hofstede, 1991, p.51).

There is a negative correlation between Individualism and Power Distance scores, as most countries with large Power Distance have low Individualism value. People who are dependent on cohesive ingroups tend to also depend on power figures.

2.1.1.3 Uncertainty Avoidance
Uncertainty Avoidance is defined as “the extent to which the members of a culture feel threatened by uncertain or unknown situations” (Hofstede, 1991, p.113). Feeling of uncertainty is expressed by the need for predictability and sense of anxiety when encountering uncertainty in life. Hofstede distinguishes between risk and uncertainty avoidance noting that while risk avoidance is linked to probability, uncertainty is a state in which anything can happen and a person does not know what such thing might be.

People in cultures with strong Uncertainty Avoidance seek structure in life that makes them more predictable. They are more expressive and aggressive, as they need ventilation to deal with their level of stress. This also leads to feeling a need to work hard and keep busy.

2.1.1.4 Masculinity versus femininity
This last dimension refers to gender roles in society and the extent to which men and women are seen as equal. In masculine countries, gender roles are distinct as men are supposed to be assertive and tough and women are expected to be more modest and concerned with the quality of life (Hofstede, 1991, p.82). On the contrary, in societies that are more feminine, social gender roles overlap and men and women are meant to be modest and tender. Japan and Austria for example have a high masculinity value compared to Norway and Sweden.

Hofstede points out that as in most cases, cultural differences are statistical and not absolute. Some values can be found in both men and women, however in different frequency. As always, these differences are evident in the workplace, family, school and the state in terms of how individuals approach and handle conflict for example and their behaviour overall.
2.2 Cultural differences in system design

Cultural diversity has been studied extensively in the context of Human-Computer Interaction, propelled primarily by the global spread of the Internet since the mid 1990’s. As information and communication technologies (ICT) became accessible to a wide range of people from all over the world, researchers and practitioners became interested in ‘cultural usability’ in order to ensure product acceptance, use and satisfaction.

Since information and communication technologies originated primarily in North America, they reflected the values and perceptions of people from that part of the world and took into account their mental models (Sacher et al., 2001). Research conducted since the mid 1990’s has shown that HCI issues such as icon recognition, information architecture, communication styles, use of imagery, use of colours, user preferences and priorities are all to some extent culture specific (Marcus & Gould, 2000; Syarief et al., 2003; Yunker, 2003).

Barber and Badre (1998) coined the term ‘Culturability’ to emphasise the relationship between usability and culture in interface design. They investigated frequent interface elements that are used more extensively in one cultural group as oppose to others. Such reoccurring elements in the study were referred to as ‘Cultural Markers’. They analysed sites from different countries across various genres (e.g. government, news & media, business and travel) and compared the use of graphical elements, groupings, use of colours, icons etc. They reported emerging patterns, which according to them reflected cultural practices and preferences in websites.

Reseaching Chinese and Indonesian users, Evers and Day (1997) looked into interface acceptance and concluded that Indonesian users placed a higher value on ease of use than functionality as opposed to Chinese users. Syarief et al. (2003) found that there are significant differences between Indonesian and American users in the way they interpret different types of messages and the speed they interpret those messages. Yunker (2003) describes a wide range of localisation issues when developing a culturally aware site (e.g. rewriting text, translating text, modifying graphics, creating new graphics, changing colours, changing layout, modifying forms, data fields, databases etc.).
Singh et al. (2005), measured cultural content in websites from China, India, Japan and the United States using a sample of 93 sites. They found that local sites reflect cultural values and differ significantly on Hofstede’s cultural dimensions. This work followed Singh and Baack’s previous study, which compared American and Mexican websites (Singh & Baack, 2004) using the same methodology. In both cases, cultural-coding categories reflecting web content were used to establish the extent to which cultural values manifested in websites.

The categories included elements such as community features and newsletter, which were seen as indicative of a group-orientation i.e. Individualism versus Collectivism. Privacy and personalisation options reflected individualism while customer service and local terminology were inked with Uncertainty Avoidance. Pictures of management and hierarchy were associated with large Power Distance and games with masculinity. In China and Japan for example, there were reoccurring images of family, which is suggestive of a collectivist culture. However, the Uncertainty Avoidance dimension was not supported by the study according to the researchers.

Callahan (2005) used Hofstede’s model to explore potential cultural differences between university sites from eight countries. A coding scheme was derived based on existing literature in order to identify content features that could be observed and quantified. These were then correlated to Hofstede’s cultural dimensions, as is often done in these type of studies. The study concluded that the observed similarities and differences could be interpreted using Hofstede’s dimensions, however the correlations were much weaker than expected. This was attributed by Callahan to one of several reasons such as that Hofstede’s model wasn’t valid enough or that the cultural markers used in the study were based on faulty assumptions.

These examples, and many others, paint a clear picture of how cultural orientation impact the interaction between a user and an interactive system. In a global market, a culturally uninformed design is no longer an option as users may reject a product, which fails to meet local needs and expectations (Evers & Day, 2003). Hofstede’s model has been used with mixed results over the years and has been popular among HCI researchers as it offers
a relative straightforward framework to evaluate cultural differences and correlate them with quantitative data.

2.3 Web 2.0

The term *Web 2.0* has been widely cited and debated in recent years, since it was first popularised during a conference organised by O’reily Media in 2005 (e.g. O’reilly, 2005), which focused on emerging trends in Web development. It has since been widely adopted by the Internet industry, albeit with some scepticism at times, as it is often seen as a marketing buzzword reminiscent of the ‘dot com bubble’ days (e.g. Boutin, 2006; Shaw, 2005; Thompson; 2006).

The paradigm shift described by O’reilly (2005) was fuelled in part by maturing technologies such as RSS, AJAX and CSS, which enabled the development of flexible services users could combine and personalise in order to create a richer web experience. Web 2.0 emphasises the free flow of data between services and devices that allows users to manipulate and customise it, a concept referred to as ‘mashup’.

It has a strong social context as people and services are interconnected through different applications and websites like Flickr, YouTube and Facebook. These act as environments users inhabit and enrich through their constant interactions with each other. Part of the new approach to the Internet is that content is generated in part by users themselves as they upload and annotate various media.

Content sharing and distribution tools such as blogs, wikis and sites like del.icio.us and Flickr empower users to upload and share content. Giving users control over their data and making it portable is another strong Web 2.0 concept (Madden & Fox, 2006). Collective intelligence emerges as individuals contribute opinions and recommendation to rate products, sites and content (e.g. digg.com). Amazon’s customer reviews and eBay’s reputation management system can be seen as early and influential manifestations of this trend.

Tagging is an important feature of the Web 2.0 phenomena, which sees users empowered to create their own classification system by freely assigning keywords to annotate content.
The trend could be summarised by saying that Web users are given the opportunities to become active participators and contributors, rather than passive consumers of content. Web 2.0 tools provide the means to easily distribute dynamic content and cultivate social connections at various levels for different purposes.

2.4 Social networks

Social networking emerged as a key feature of the Web 2.0 trend, with sites like Myspace, Flickr and YouTube becoming extremely popular as they offer users easy tools to share content as well as interact with each other in ever-expanding social networks (Holahan, 2007; Olsen, 2006). These online CMC (Computer-Mediated Communication) systems, while conforming to traditional principles and concepts, also exhibit new and unique properties like tagging and content syndication using RSS.

Boyd and Ellison (2007) wrote an extensive overview of the history and literature concerning social network sites in which they define them as “web-based services that allow individuals to (1) construct a public or semi-public profile within a bounded system, (2) articulate a list of other users with whom they share a connection, and (3) view and traverse their list of connections and those made by others within the system”. They argue that what makes social network sites unique, as a form of CMC is the fact that a person’s social network is visible (this depends on the site itself as some hide a person’s network from people who are not designated contacts). This visibility is crucial to network sites since they allow users to browse each other’s “social graph” and encounter new or familiar people.

A user would usually complete profile details, which results in a profile page, listing various details and content the user has chosen to present. Privacy settings allow users to decide who can see their profile or whether or not their profile can appear in search results, as is the case with the professional networking site Linkedin.com.

Boyd and Ellison (2007) trace the origins of social network websites to SixDegrees.com, which was launched in 1997 and allowed users to set up a profile and compile a list of friends. In following years it was joined by the likes of LiveJournal, Cyworld, Friendster, Myspace, Orkut, LinkedIn, Flickr (launched in early 2004) to name but a few. Social
network websites hit the mainstream in 2003 and started gaining considerable media attention in 2005 when News Corporation purchased Myspace for 580 million dollars (BBC, 2005).

The majority of literature surrounding social networking sites has focused on impression management and friendship performance, networks and network structure, online/offline connections, and privacy issues (Boyd & Ellison, 2007). Other topics relating to usage, culture and practices are also emerging as research subjects.

2.5 Previous Research on Flickr

Literature concerning Flickr is found mostly online, in the form of news articles, editorials and interviews with the people who developed it (e.g. Fitzgerald, 2006; Garret, 2005; Koman, 2005). Its status as the de-facto social photo sharing site has raised considerable attention and interest by researchers in the past two years. At present, academic research focusing on the use of Flickr is scarce and still in its infancy. This is not at all surprising considering social networks exploded on the scene only a few years ago, although as mentioned earlier, their origins can be traced back to the mid-late 1990’s (Boyd & Ellison, 2007).

Despite its limited quantity, Flickr related literature addresses a diverse range of areas, which sometime overlap. These include social networking (e.g. Boyd & Ellison, 2007; Thelwall & Stuart, 2007), Web 2.0 and New Media (e.g. Burgess et al., 2006; Cox, 2007), tagging (e.g. Ames & Naaman, 2007; Marlow et al., 2006; Mathes, 2004; Raftery & Hiderley, 2007; Schmitz, 2006), browsing and search (e.g. Artilas et al., 2006; Hogan, 2006; Lerman & Jones, 2007; Lerman et al., 2007), amateur photography (e.g. Burgess, 2006; Cox, 2007) and photo sharing (e.g. Van-House, 2007).

There is also body of research where Flickr is used as mere data source for various purposes but is not the main focus of investigation (e.g. Kennedy et al., 2007; Van Kaick & Mori, 2006). Such work focuses for example on image recognition algorithms and is far less relevant to cross-cultural and HCI related studies.
2.5.1 Social aspects

Flickr is a highly social environment and its function and essence stretches far beyond photo sharing. As a Web 2.0 application, it converges social networking, online communities and user-generated content and could be more accurately defines as a ‘photo sharing community’ (Burgess et al. 2006) or ‘social photo sharing’ (Lerman & Jones, 2007). Photo content, which traditionally used to be regarded as personal, is shared with a global audience (Koman, 2005). People viewing the content may be intimates, acquaintances or strangers (Van-House, 2007). This sort of asynchronous interaction through which individuals stay close and informed about each other is referred to by Van-House as *Distant Closeness*.

As Van House (2007) notes, social mechanisms such as comments, groups and contacts are relationship-oriented. They enable users to interact with one another in different ways. Interviewees in her study reported that although they rarely commented on photos, they liked receiving them and that most are positive remarks. Image owners tend to respond and develop a dialogue with people who comment on their photos. Groups, wither public or private, allow clusters to form around shared interests.

Coates (2006) offers a good summary of Flickr as a social media:

> On Flickr many people upload photos from their camera as and mobile phones not just to put them on the internet, but as a form of presence that shows their friends what they’re up to and where in the world they are. Their content is a social glue. Meanwhile, other users are busy competing with each other, getting support and advice from other users, or are collecting photos, tagging ng photos or using them in new creative ways due to the benefits of Creative Commons licenses.

Stewart Butterfield, one of Flickr’s founders, said in an interview (Koman, 2005), that the majority of users make all their content public (82% out of 3.5 million photos at the time of the interview), while a minority was using the site primarily to privately share photos with friends and family members. This ratio is reinforced by Van-House (2007) who found that only a few of the Flickr users she studied restricted access to their photos. Privacy management was done on a higher level as different content was posted to different sites (e.g. myspace) or was emailed to others and not put on display for all to see.
Adams et al. (2007), who studied privacy and online personal photo collections using undergraduate students, noted that: “Showing—and sometimes showing off—our photos is an intrinsic part of photo-taking. While we enjoy privately perusing our own collections, we also like other people to view our efforts”. Although the study did not target Flickr users and also included physical photo collections, this statement seems broad enough to apply to photo collections in general to some extent, including Flickr. This notion is reinforced by the literature presented so far, suggesting that most Flickr users make their photos publicly available, albeit for a variety of reasons.

The ability to create a list of contacts stands at the heart of any social network and Flickr is no exception. Having a list of contacts allows users to be informed when a contact uploads new content. Van-House (2007) reported that many respondents in her study logged on daily or several times a day to view their contacts’ latest photos. Lerman and Jones (2007), describe this activity as social browsing. Through analysis of Flickr data, they concluded that viewing contacts’ content was the primary method by which users explored new content. The number of views, comments and times a image was set as a “favorite” was strongly correlated to the number of users who list the image owner as a contact.

This is an interesting finding considering the various ways users can come across new photos (e.g. exploring popular tags, searching groups directories, browsing the Explore page, or searching for a tag, text etc.). It could be that because of all these possibilities and considering the sheer volume of photos found on Flickr, users prefer to use their contacts as a social filter, which delivers new and interesting content (A special contacts interface displays the latest updates from people in the user’s contact list). Lerman and Jones’s study (2007) emphasises the role social networking plays in shaping the Flickr experience. Having a list of contacts allows a user to discover new content and routinely interact with other users and the photos they upload to the site.

When discussing the social aspects of Flickr it is worth noting that Flickr users around the world organise offline meetings used to take photos together or purely socialise (e.g. Breslin, 2005; Meban, 2007; Shiham, 2007). At the time of writing there were hundreds of group discussions regarding potential or confirmed gatherings in cities ranging from
Karachi, Melbourne and Tehran to San-Francisco (e.g. Andrews, 2006; Hamza, 2007; Kozlowski, 2006; Le Fevre, 2007; Thompson, 2007). In Iran for example, these gatherings are referred to as “Flickies gatherings” (Flickr, 2006). An updates list of such community events is found on the official Flickr Blog (http://blog.flickr.com/en).

2.5.2 Photo sharing

Van-House (2007) investigated the social aspects of photo sharing and focused on Flickr following earlier work on cameraphones. The empirical work consisted of interviews and photo elicitation. The aim was to gain an understanding about users motivations, usage patterns, content and social practices on Flickr. The results, albeit preliminary, describe different ways in which users perceive and use Flickr in order to fulfil various needs, social and otherwise. The findings highlight the fact that people use Flickr with different intentions in mind and while some may view it as an online archive for disposable and random material; others place more value on the content they upload to a sort of a portfolio.

The research identified the following social uses of personal photography: 1) Memory, narrative and identity 2) Creating and sustaining relationships 3) Self-representation 4) Self-expression. All of which are of significant relevance to cross-cultural research on Flickr as they offer clear criteria by which cultures could be assessed and compared.

Memory, narrative and identity refer to the role photos play in shaping one’s sense of identity over time, while offering a visual way to chronicle one’s life. People use photos to document things they did, people they have met and places they have been to. While some users view Flickr as more of a personal archive, most of the respondents in the study referred to it as a social and community-driven environment.

Photos are often used in a strong social context as a way of sustaining relationships and ties with other people. This could be through photos of social events or photos that are posted specifically for others to view. The majority of the participants in Van-House’s study reported that their main audience were people they knew, especially the people in the photo.
Rouse (1991, as cited in Lange, 2007) referred to similar use of media as “media circuit” i.e. media used by members of a social group in order to stay connected and interact with others in the group. According to Lange (2007), who analysed public and private video sharing on YouTube.com: “A media circuit is not a social network itself, but rather it supports social networks by facilitating and technically mediating social interactions among people within a network. By examining a media circuit, it is possible to understand important social dynamics among the people who use the media.” This is highly relevant to Flickr’s privacy settings as users are able to share photos with contacts, which have been designated as a friend, a family member or both.

Finally, self-representation according to Van-House (2007) refers to the image users project through the photos they chose to post to Flickr and make publicly available for all to see. According to the study, respondents were very much aware of using Flickr to manage an image of themselves through photos of events, their friends and their lives in general. Finally, self-expression refers to the public aspect of Flickr and the ability to display, what was traditionally a personal collection, to a mass unfamiliar audience.

Kindberg et al. (2005) developed a 6-part taxonomy describing the way images are used both for sharing and personal use. The study was based on interviews and discussion with 34 participants about random photos they had taken using their phone. The interviews focused on the content of the photos, the context in which they were taken and the motivation for taking them. Although their study focused on camera phones, the results are nevertheless relevant as they refer to photo capturing.

<table>
<thead>
<tr>
<th></th>
<th>Social</th>
<th>Individual</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Affective</strong></td>
<td><strong>Mutual Experience.</strong> Images intended to enrich a shared, co-present experience (either in the moment or later as a memento).</td>
<td><strong>Absent Friends or Family.</strong> Images intended for communication with absent friends or family (either in the moment or later).</td>
</tr>
<tr>
<td></td>
<td>103 (35%)</td>
<td>63 (21%)</td>
</tr>
<tr>
<td><strong>Functional</strong></td>
<td><strong>Mutual Task.</strong> Images intended to share with people co-present in support of a task (either in the moment or after the event).</td>
<td><strong>Remote Task.</strong> Images intended to support a task by sharing with remote family, friends or colleagues (either in the moment or later).</td>
</tr>
<tr>
<td></td>
<td>11 (4%)</td>
<td>23 (9%)</td>
</tr>
</tbody>
</table>

Figure 1 - Kindberg et al.’s taxonomy of image capture (2005)
According to the study, photos were taken either for affective or functional purposes. Affective images are images, which are captured for an emotional or sentimental reason while ‘functional’ images are taken to support a task. The second dimension refers to whether the image was mainly taken for individual reasons or in order to be shared with others. This results in six categories describing the intention behind the taking the photo.

Sharing a photo with others who were present at the time it was captured was the most common social reason for capturing an image. Such images were primarily of social events like parties and gatherings. In other instances, images were used to share an experience with remote people, such as family members and visually communicate the experience to them. Kindberg et al.’s study highlights the high social context of photos and different incentives for taking them.

Cox (2007), who studied Flickr in the context of traditional amateur photography, analysed 50 Flickr users and generally distinguished between domestic and non-domestic photographers using the site. Domestic photos refer to photos of family members, friends, pets and travel. Some non-domestic themes observed in the study were: pictorialist (pictures of landscapes), commercial, (e.g. crafts work for sale), hobby (e.g. doll collection), computing related, celebrity and street photography. Flickr is referred to as a place where people can develop their hobby and showcase their efforts in a highly sociable environment.

The analysis focused on content as well as various parameters such as frequency of use, number of photos, membership in groups etc. Cox noted that amateur photographers exhibited different pattern of behaviour and were significantly more active. They had more contacts and their photos received more comments and were viewed by more people. The research highlights the diversity that can be seen on Flickr and the extremely heterogeneous nature of its user base, which makes it difficult to classify a user as either an amateur, professional or a “serious amateur” photographer as is often the case with traditional photography. Interviews conducted as part of the research reinforced the notion that Flickr caters to a wide range of users that use photography for many different reasons.
Van House et al. (2004) studied photo-taking patterns as part of a research into the social uses of personal photography, mostly non-digital. They examined 20 photo collections and conducted additional empirical work in the form of focus groups and interviews in order to learn about how participants take, share, annotate, retrieve and use photos. The study identified the following photo taking patterns: family, friends, vacation, special events and pets. It also distinguished between artistic photos, taken for their aesthetic value, and “fun” photos, which are perceived as being funny and entertaining.

This distinction could be linked to Cox’s (2007) high-level classification between domestic and non-domestic hobbyists photographers. It could be suggested that domestic photographers, who express very little if any professional considerations, are far more likely to focus on “fun” photos (family and friends), while pseudo professional “serious-amateurs” pay more attention to aesthetics and may focus on particular themes (e.g. close ups).

2.6 Tagging

Tags are user-generated metadata used to annotate content in order to organise it and also to allow others to come across it, either intentionally or accidentally. Indexing content is nothing new, however Web 2.0 application such as Del.icio.us and Flickr popularised the notion of ‘social tagging’ as tags facilitate the formation of ad-hoc communities and photo pools when users annotate using identical tags (Ames & Naaman, 2007; Mathes, 2004). Sometimes, tags are used as private codes among a group of users to facilitate semi-private communication (Rafferty & Hidderley, 2007).

Traditionally, indexing has been an expensive and time-consuming expert-led activity, whereby professionals would use controlled classification schemes (Rafferty & Hidderley, 2007). This model does not scale to accommodate the vast amount of content found on the Web (Mathes, 2004), which is why in the age of user-generated content, the masses not only share and publish content, but also freely annotate it.

This model of grassroots community classification became known as “Folksonomies”; a term, usually attributed to Thomas Vander Wal (2004). As Mathes (2004) points out, while sites like Del.icio.us allow users to tag other people content i.e. web pages, within
Flickr tags are used to enable users to organise their own content. Users can also permit others users to add tags to their photos as well (friends, family, contacts or everyone).

Mathes (2004) describes ambiguity, as one of the main weaknesses of Folksonomies:

As an uncontrolled vocabulary that is shared across an entire system, the terms in a folksonomy have inherent ambiguity as different users apply terms to documents in different ways. There are no explicit systematic guidelines and no scope notes.

He also outlines strengths such as serendipitous discovery of new content and the fact that the resulting classification reflects the vocabulary of users. The latter means that the entry level is extremely low as people utilise their natural language and do not have to learn any classification scheme and hierarchy.

Rafferty and Hidderley (2007) list a number of problems and difficulties associated with Flickr’s unmediated tagging system and offer the following examples: 1) Too broad (e.g. Wedding) 2) Too specific (e.g. IJsselmeer) 3) “False” use (e.g. using ‘Wedding’ to describe a animal that could have photographed at a wedding) 4) Code/Private language (e.g. XX1) 4) Multiply words (e.g. Technologyshowcaseday) 5) Ambiguity (e.g. goes) 6) Homonyms, synonyms and misspellings.

Ames and Naaman (2007) investigated tagging patterns and motivations using Flickr and an application called ZoneTag, which allows users to upload photos to the site from their mobile phone. They conducted interviews with 13 participants in addition to quantitative data analysis of tags usage, and reported a variety of reasons for tagging such as self-retrieval and conveying contextual information and opinion about the photo. Ames and Naaman developed the following taxonomy of tagging motivations.
The ‘Sociality’ dimension refers to whether the tag is intended for the user who assigned it or others such as friends, family and strangers. The ‘Function’ dimension refers to the tag’s usage. This could be either later organisation or retrieval or to communicate information to people viewing the photo (e.g. names of the people featured in the photo). A tag could fulfil a number of roles. Social incentives were found to be the most common among participants (self-promotion, photo pools, search).

Social organisation represents motivations to make photos findable by others, which is also tied to the motivation for taking the photo in the first place according to the research. A user may wish to make a photo findable by friends and family or simply allow strangers to discover it when they search for a tag. This motivation is also fuelled by statistical data provided by Flickr, showing users how many times a photo was viewed and set as a ‘favorite’ by others. It was also reported that two participants attempted to ‘play the system’ by using certain tags to draw more views. Consistently with other research, it was also reported that some users would coordinate their tags in order to form ad-hoc photo pools.

Users are seen as motivated by personal needs and sociable interests. Many users start tagging for themselves and may appreciate their sociable aspects over time, while others demonstrate no interest in any such aspects (Marlow et al., 2006). Similar to Ames and Naaman (2007), this study also argues that the motivation for tagging can be categorised as either ‘organisational’ (e.g. future retrieval) or ‘social’ (e.g. attract attention, share and contribute).
Marlow et al. (2006) chose Flickr as a case study and analysed tag usage within the system, by exploring 58 million tags and also looking at the number of photos a user uploaded, the number of distinct tags they used and the number of contacts they had. They reported that tagging patterns are substantially varied and that most users have very few distinct tags. The study also found a strong correlation between number of photos and number of distinct tags as well as a relationship between social affiliation (contacts) and tag vocabulary formation.

2.7 Conclusion

The literature review highlighted the diversity and richness found on Flickr in terms of motivations and preferences to use the site and share photos with others. Such multiplicity makes it ever more challenging and difficult to compare users purely based on their cultural background in an attempt to explore collective patterns. The second important conclusion is the deep social context of Flickr and similar user content driven websites. Whether users view others as peers or as an audience, the environment offers them an opportunity to interact and connect with other people at various levels for different purposes.

Finally, despite its limitations Geert Hofstede’s cultural differences model has been widely used with mixed conclusions by researchers investigating cultural aspects of interface design. While some reported meaningful correlation between Hofstede’s scores and quantitative data collected from analysing interface elements, others encountered very weak ones. This is something, which has been considered during the data analysis and final conclusions of the study.
3 METHODOLOGY

3.1 Introduction
This section describes the approach and methods used to explore the research objectives and answer the research question. First, a brief overview of the Flickr interface is presented in order to put the following sections in context. Second, the overall research is presented followed by an overview of the data collection methods used. The underlying procedure is outlined next as each step of the study is described in the context of the objectives. The last sections address the data mining tool that was developed for the project and the methods used in greater detail.

3.2 An overview of Flickr
As the methodology (and the entire study) is based on Flickr and its interface, it is important to first appreciate the website and some of basic functions it offers users. The following screenshots are used to briefly familiarise readers with Flickr’s core functionality. This is by far not an exhaustive overview as Flickr, despite its apparent simplicity is a rich system with numerous sections and browsing options.

The first screenshot shows a user’s main page, which allows others to browse his or her public photo collection in various ways. Viewers can scroll down and navigate between pages, or use the Sets and Tags options to limit the number of photos based on user created collections i.e. sets, or user created keywords i.e. tags.
Upon registering, a user is given the opportunity to publicly display up to 200 photos and create up to 3 sets (any photos above 200 will be not be displayed). By upgrading to a Pro Account for $24.95 a year, a user can store and display an unlimited number of photos and also create an unlimited number of sets.

When selecting a photo a viewer (as seen below) is able to see the photo in larger size as well as any comments and notes left by other users. On the right side of the page one can see the groups (pools) the photo is a part of as well as its associated tags. Users can restrict access to photos by setting them as private, in which case only contacts specified as ‘friend’ or ‘family’ can view them, or no one at all.
Users can specify in their account settings if they wish to allow others to add tags, notes and comments to their photos. By default, contacts can add both tags and notes and any Flickr user can comment on a photo.

The following screenshot shows a user’s profile, which is accessible by clicking on a user’s name. It displays a description and personal details users can fill as well as their contacts, groups and any testimonials written about them by other Flickr users. Users can send each other internal messages using FlickrMail and add others as contacts. By adding someone as contact, a user can see when that individual uploads new content. However, the user that has been designated as contact does not see the photos of the person who added him unless he designated him as a contact as well.
The last screenshot shows the screen users see upon login to Flickr. The most relevant feature to this study is the ‘Photo from your contacts’ photostream, which can be seen on the right. It shows photos uploaded by Flickr users designated as a ‘contact’ and acts a social discovery mechanism as users are able to follow the activity of friends, family members and random Flickr users, whose photos they appreciate.

The ‘Recent activity’ option allows users to follow others users’ activity associated with their collection such as when someone comments or set one of their photos as a ‘favorite’, which is the equivalent of ‘bookmarks’ on Flickr.
Overall, it is clear that Flickr is enriched with a verity of social mechanism that enable users to do much more than simply upload and store photos on line. The interface provides a number of options to stumble upon new content, either by familiar people i.e. contacts or complete strangers. Its clean and simple design is highly functional and sociable.
3.3 Research approach

The project was both data-driven and theory-driven. Despite the limitations noted in the literature review, Geert Hofstede's model was adopted as comparative framework and considered the most appropriate for the project, given the different quantitative components detailed in this chapter. Therefore, the cultures chosen for the study are national and referred to in the study as either ‘cultures’ or ‘national cultures’.

Hofstede's model has been widely used in cross-cultural analysis research (e.g. Callahan, 2005; Marcus & Gould, 2000; Pfeil et al., 2006; Sheridan, 2001; Singh & Baack, 2004; Singh et al., 2005), and as was the case in past studies, Hofstede's score values were correlated with various data to see if they could account for differences and similarities between the five user groups in question.

As with similar cross-cultural studies, the need to collect and process large amount of data meant the project would have a certain quantitative bias. The fact the project compared five national cultures with five different languages was the main consideration behind the implementation of an overall quantitative approach. However, unlike most previous studies qualitative methods were also used to balance and complement the data.

It would have been easier to aggregate user data from Flickr and correlate it following a statistical analysis. Though relatively feasible, it was felt that in order to meet the project’s objectives, qualitative data would have to be considered as well. This was especially true given the rich nature of the project and the fact it focused on five different cultures with different languages. Visual content analysis exploring the content of photos users uploaded to Flickr was considered but was found to be unfeasible due to the project’s scope and limitations. Such visual analysis could be a complete study in itself.

Relying solely on that model to compare user behaviour and usage patterns on Flickr was seen as too limiting. It was assumed that the model could not account for different aspects of Flickr usage that are too contextual and would only be interpretable from a more data-driven approach.
The underlying approach behind the project was to collect data and observe any patterns, differences and similarities between the five cultures. The aim was to explore statistical patterns between groups and the likelihood that users from a certain culture would use Flickr in a certain way (e.g. have considerable number of public photos).

Hofstede’s model was used to explore possible explanations that may account for any patterns, but was not seen as a way to determine if culturally related differences do actually exist given its limitations and deep contextual nature of the project. As one of the project’s objectives was to investigate the model’s relevance to this sort of study, the various scores from the four dimensions were correlated with quantitative data to see the extent to which they could or could not provide reasons for any differences found.

3.4 Data collection

The data collection was carried out in two ways: 1) Data mining used to generate both quantitative and qualitative data and 2) An open-ended questionnaire and ad-hoc online discussions used to provide qualitative data. The data mining was an iterative process that consisted of sampling representative users from the five cultures chosen for the study until saturation was reached and it was observed that increasing the number of users in the sample does not lead to significant shifts and changes in the results.

The two main considerations during the data collection process were: 1) Sample a representative group of users from each culture and 2) Strive to achieve results validity through an iterative process. The aim was to primarily explore statistical differences between the five cultures. As such, the results do not presume to describe individual users but each group as a whole.

Eventually, the entire sample used in the research was 250 users (50 from each culture). It was decided that a random sample of 40 public photos per user would be statistically sufficient.

3.4.1 Quantitative methods

Flickr offers a wealth of quantitative data, which could be cross-referenced and analysed in many ways. Choosing which data to focus on was governed by two factors: 1) Its
relevance to the project and 2) Whether it was obtainable taking into account project and privacy constraints. A sampling tool was developed using Flickr’s API (Flickr, 2007) to manually review the sample in order to capture use of language to annotate content. It automatically generated statistical data such as the number of unique tags used by the user and the average number of comments per photo in the sample.

Quantitative data was analysed on two levels:

1. User data was calculated to produce a ‘cultural average’ used to compare the five user groups (e.g. the average number of public photos a user had).
2. Group data was produced by looking at commonalities between users in each culture with regard to tags, sets and groups they are members of in order to examine in-group trends and patterns.

Language analysis was limited to the type of language a user used to annotate photos i.e. native language, English language or combining the two i.e. bilingual content annotation. The metadata associated with each photo in a user’s sample had to be reviewed manually to determine the number of photos with titles exclusively written in English and so on. This seemed the only feasible approach given the multilingual nature and scope of the project. The aim was not to understand the content of annotations but rather to examine language preferences.

3.4.2 Qualitative methods
The qualitative part of the project was based on four aspects:

1. Analysing the content of tags, sets and groups obtained from each individual user and calculated on a group-level (e.g. how many users in from culture A used the tag ‘Cat’). This also led to more quantitative analysis exploring the frequencies of different content especially the occurrence of country and capital city name in tags as well as the total number of tags and Flickr groups users from each culture had in common.
2. Analysing the content of users’ avatar referred to on Flickr as a ‘buddy icon’ to explore self-representation on the site.
3. An open-ended questionnaire administered via Flickr’s internal messaging system to learn about users’ preferences, motivations and perceptions.
4. Online group discussion used on ad-hoc basis to further investigate issues that were observed during the questionnaire and other activates.

3.5 Procedure

This section outlines the stages and procedures that led to the analysis part of the study. It provides an overview of the rationale and considerations behind the various activities. The process was broken into 10 key stages, out of which compiling the initial sample of users from each culture and reviewing the sample were the most challenging and time consuming.

At the time of writing, Flickr does not support a ‘search member by location’ option so each user had to be hand picked and reviewed manually as detailed below. Each individual sample containing 40 photos and associated metadata had to be reviewed manually as well in order to carry out the language analysis and check the number of testimonials a user had. The final number of users sampled in the study was 250 i.e. 10,000 photos.

As the following diagram shows, the process was systematic and iterative when needed to ensure the validity of the results with regard to the size of the sample used. The main challenge was to balance constraints forcing manual selection and data collection, with the need reach a user sample that is as representative as possible of the target cultures.
Figure 7 – Research procedure diagram

1. Review Flickr / Literature
2. Identify potential comparison parameters
3. Choose parameters and qualitative measures
4. Choose five cultures
5. Compile user sample for each culture
6. Collect data for each user
7. Check for data saturation
8. Administer questionnaire
9. Ad-hoc group discussions
10. Data analysis

Develop sampling tool using Flickr’s API
3.5.1 Identifying and choosing comparison parameters

Flickr offers researchers interested in the site numerous parameters, primarily quantitative, that could be used to compare users. The interface was studied and reviewed in order to capture all observable options. The following two figures show the result of the interface review and the various parameters that were identified.

Figure 8 - Flickr mindmap
Once the parameters were identified the task at hand was to identify the ones relevant to the study. The selection process was governed by two main considerations:

1. **Cultural relevance** – The extent to which the parameter could be associated with any of Hofstede’s dimensions. The use of language to annotate content for example was seen as more relevant to Individualism and Power Distance cultural dimensions than the time the photo was taken or the type of camera used to capture it.

2. **Technical/Privacy constraints** – Not all the data could be accessed, as some parameters like privacy settings were private and could not be accessed externally.
without each user’s login details. For that reason, data such as number of contacts specified as ‘friend’ or ‘family’ could not be incorporated although highly relevant to the study and its objectives.

After considering these factors, the following 9 parameters were chosen for the user data analysis:

1. Type of account (Pro or regular) – By paying an annual fee, users can upgrade their basic account to a ‘Pro’ status and have unlimited storage and number of sets.
2. Number of testimonials written about the user – A statement, usually a recommendation, written about a user by others that appears in that user’s profile.
3. Number of contacts – A user can designate another use as a ‘contact’ and view that user’s new uploads in his contacts’ photostream. A contact could be specified as ‘friend’ or ‘family’ to allow restricted access to content set as visible only to friends, family or both.
4. Number of public photos – By default a Flickr user can display up to 200 photos (though more can be uploaded). A user with a Pro account can display unlimited number of photos.
5. Number of photos set as ‘favorite’ – Users can bookmark other users’ photos by setting them as a ‘favorite’ for later retrieval. (The American spelling is referred to in study to correspond with Flickr’s interface).
6. Number of unique tags across all photos -
7. Average number of tags per photo
8. Number of public groups – These are discussion groups that also act as photo pools users can send their photos to. A single photo can be sent and appear in a number of groups.
9. Number of sets – These are photo groupings user can create to organise their collection into meaningful albums. By default a user can create up to three sets, however users with a Pro account can create unlimited number of sets.

The language analysis was also carried out on a user level and is described separately since it did not originate directly from Flickr data as the parameters listed above. It included additional 9 parameters, which are described in the ‘language analysis’ section of this chapter.
For the group data part of the analysis it was decided to capture the following:

1. The most common tags among users in each group starting with 30% of users as the minimum threshold i.e. tags that 30% of users in the group have in common
2. The 15 most common Flickr groups among users from each culture
3. The image users chose to use as their ‘buddy icon’ on the site

Apart from the number of testimonials written about a user, all parameters were accessed programmatically using Flickr’s API. Mean values and standard deviations were generated using a sampling tool developed especially for the project.

3.5.2 Data mining tool

Once it was decided which parameters were going to be used in the study, a special sampling tool was developed using Flickr’s API (Application Programming Interface), which offers limited access to Flickr's database. The tool was semi-automatic in the sense that it presented and calculated some data automatically, but also supported manual data entries that were necessary for the language analysis, as a script could not determine the language a title was written in.

The sampling tool displays a random sample of 40 photos based on a given user name, and provides the option to save the collection details onto a database to be reviewed later. Each photo is presented along with its associated metadata (e.g. title, description, tags, groups and sets). The bottom part of the interface included text fields used to for manual data entries.
Despite its effectiveness, the tool had two main limitations:

1. **Access to private data** - Due to API privacy restrictions, the sampling tool could only access publicly available data. In order to gain access to private information such as number of photos a user has set as 'private' for example, each user would have to log in to the sampling tool. This was not seen as feasible as most people would most probably refuse to provide their Flickr login details and grant the researcher access to their private data.

2. **Limited access to public photos** - Another limitation imposed by the API, was that only the first 500 public photos could be displayed. Users with more than 500 photos accounted for 30% of the entire sample used, while 13% of the sampled users had more than 1100 photos. Considering these figures, it was decided that a substantial sample of users and an iterative approach would compensate this limitation. Moreover, the number of public photos a user had was seen as a crucial
comparative figure. Restricting the sample to a maximum of 500 photos would have been more damaging to the study.

3.5.3 Choice of cultures

The cultures used in the study was selected primarily based on Hofstede’s Individualism index as it was seen to be the most relevant to the use of Flickr considering its user content driven nature. The initial hypothesis was that users from a culture with high Individualism index would be more likely to use Flickr to express and expose themselves as opposed to users from a culture that is more group-oriented.

Furthermore, it was also hypothesised that users from a culture with low Individualism index would be more likely to use Flickr to share content with a close social circle, most probably family members and close friends. During the analysis stage, all four original cultural dimensions were evaluated in order to explore potential correlations.

The aim was to choose cultures with high, low and medium Individualism value in order to explore to what extent this difference could be observed on Flickr by correlating that value with Flickr data such as the average number of groups a user belongs to. Uncertainty Avoidance was another dimension that was referred to in relation to the use of tags, groups and sets to organise content.

The cultures that were chosen were Taiwan and Peru (low Individualism value), Iran and Israel (medium Individualism value) and the United Kingdom (high Individualism value). The following table shows the score of each culture on Hofstede’s scale.

<table>
<thead>
<tr>
<th>Culture</th>
<th>Individualism</th>
<th>Power distance</th>
<th>Masculinity</th>
<th>Uncertainty avoidance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peru</td>
<td>16</td>
<td>64</td>
<td>42</td>
<td>87</td>
</tr>
<tr>
<td>Taiwan</td>
<td>17</td>
<td>58</td>
<td>45</td>
<td>69</td>
</tr>
<tr>
<td>Israel</td>
<td>54</td>
<td>13</td>
<td>47</td>
<td>81</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>89</td>
<td>35</td>
<td>66</td>
<td>35</td>
</tr>
<tr>
<td>Iran</td>
<td>41</td>
<td>58</td>
<td>43</td>
<td>59</td>
</tr>
</tbody>
</table>
The fact that Flickr is censored and banned in Iran (Garbia, 2007) was discovered once work had already commenced and it was not possible to replace it with another culture. This was a crucial contextual consideration, which was considered during the analysis stage. Such form of government-imposed censorship could be seen as manifestation of Iran’s large Power Distance and as such, was deemed relevant to the study. From a methodological and cross-cultural perspective, there was no justification to expect all the users to have the same level of access to Flickr. Technological or political related restrictions are major issues that shape people’s abilities, perceptions and experiences.

Figure 11 - The 'Access Flickr!' Firefox web browser extension allows users in Iran to bypass a national ban and use the site

In terms of language proficiency, the languages that were fully understood by the researcher were English and Hebrew, the latter being the official language of Israel. This was but a minor limitation as the project hardly involved linguistic content analysis beyond language recognition and handful of words, which were easily translated.

Apart from Spanish, all other languages (e.g. Persian, Hebrew and Chinese) were not written using Latin characters and were easily identifiable. Recognising Spanish text required more effort and reading the word in order to determine the language it was written in. This was achieved by process of elimination and consulting an English dictionary when in doubt, though it hardly proved necessary.

This issue highlight an inherent challenge when conducting a cross-cultural study involving a number of sample groups. On one hand, the variety adds richness and allows for more solid correlations to be explored, but on the other hand it confronts the
researcher with possible translation challenges and additional layers of complexity, ambiguity and context.

### 3.5.4 User selection

Users from each culture were selected manually based on the location and description specified in their Flickr profile and had to have a minimum of 100 public photos. This was necessary since it was decided to sample 40 random photos from each user and a total of 100 photos overall appeared to be statistically sufficient. A written description sometimes added by users in their profile was reviewed to determine context and whether the user was a native of the country specified under *Location* and thus could be considered member of its culture in the context of this study. This was important in order to exclude from the sample users residing in one of the countries in question but could not be considered members of its culture. This included mostly foreign students and people who worked or lived abroad and mentioned it in their profile description.

By default it was assumed that a user was a member of a national culture, unless anything was written to suggest otherwise. The language used in the profile was also considered as reasonable indication. It is acknowledged this was not a perfect filtering mechanism, but it was seen as being the most reliable one given the circumstances and constraints. No preference was given to any other parameter expect the user’s specific location and number of public photos.

Some users were very active on Flickr and had an extensive list of contacts, while others had very few and perhaps rarely visited the site in order to store photos. Some were members of many Flickr groups and had mostly artistic non-domestic photos in their collection, while others were not members of any group and had domestic photos i.e. family and friends. It was important to capture this diversity and not target a specific type of users such as amateur photographers so that sample is representative as possible. As will be described in the results chapter, this resulted in considerable standard deviations across all parameters.

Users were sampled randomly from high-level Flickr groups such as *UK* and *Taiwan*, and from other users’ contact lists. This was seen as the most effective and reliable sampling strategy given the project’s constraints. It was important to sample users from a general
group as possible and avoid special interest groups to prevent bias and ensure users did not have anything obvious in common apart from their country of origin. This approach meant that the sample did not include users who had no contacts and were not members of any group. Such scenario was considered statistically insignificant.

3.5.5 Data collection process

Once the user sample was selected the data collection was iterative as each cycle included five users; one from each culture. A special monitoring interface displayed the results in real time showing the mean average and standard deviation across all the parameters. This was a crucial and necessary feedback in order to assess the impact of new users on the emerging results.

The results were monitored constantly after each round to note how consistent they were and determine when saturated has been reached. Data saturation was defined as a state whereby adding additional users had little if any significant affect on the results. Initial patterns emerged after the 30th round as 150 users were sampled. The process continued in order to confirm and verify the results and stopped at 50 users per culture and a total sample of 250 users overall.

3.6 Language analysis

Flickr users use language to annotate their photos by assigning them title, description, tags and notes. Such metadata can be highly useful for various purposes as covered in the literature review. From a cultural perspective, the use of native language versus English language was seen as an interesting comparative parameter. The aim was to explore language preferences and see how users annotate their photos in terms of using their native language, English or combining the two thus creating bilingual annotation. This was only relevant to Iran, Peru, Israel and Taiwan as English was regarded as the native language of the United Kingdom.

The linguistic analysis was quantitative and covered titles, descriptions and tags in the sample. For each sample of 40 photos the following data was captured manually:

1. Number of photos with a title written in the user’s native language
2. Number of photos with a description written in the user’s native language
3. Number of photos tagged exclusively in the user’s native language
4. Number of photos with a title written in English
5. Number of photos with a description written in English
6. Number of photos tagged exclusively in English
7. Number of photos with a title that is a combination of English and user’s native language
8. Number of photos with a description that is a combination of English and user’s native language
9. Number of photos tagged in English and user’s native language

One initial hypothesis was that users from collectivist cultures might prefer to use their native language rather than English, as they may mostly target friends and family to view their photos and not a global audience. Language proficiency was also a major consideration that could offer relevant context. Since the analysis was quantitative and did not address content, an open-ended questionnaire was used in part to investigate the motivations behind using one’s native language and English.

### 3.7 Open-ended questionnaire

An open-ended questionnaire was used to enrich the study with qualitative data needed to put some of the quantitative results in context. This was ever more important given the multicultural nature of the project. Under such circumstances it was essential to learn from users about their experiences, motivations, perceptions and preferences. Lead by the research question, the emphasis was on tagging patterns, use of language to annotate content, use of groups and reasons for using Flickr.

When designing the questionnaire the main challenge was whether or not to address privacy issues such as restricted access to photos and probe to what extent users make use of the privacy settings offered by Flickr. The use of private and restricted content was seen an important comparative factor, however after careful consideration it was decided not to include it in the questionnaire. Asking people about their private content, even if only on a quantitative level (e.g. "How many of your photos are set to private?"), could
have been perceived as too intrusive and perhaps even rude; resulting in very low response rate.

An interview setting would have been more appropriate to ask such questions, targeting more personal aspects. However, due to the multicultural nature of the project it was deemed unfeasible to recruit representatives from each culture. For all these reasons, the questionnaire focused solely on the public aspects of Flickr and included the following questions:

1. What are the main reasons you use Flickr?
2. What is the thing you like most about Flickr?
3. Do you sometime use English to describe your photos (title, description, tags)? If so, why do you use English and not your native language?
4. When would you use your own language to describe a photo (title, description, tags)?
5. Do you tag some of your photos? If so, for what reasons?
6. Are you a member of any Flickr group? If so, for what reasons?
7. Have you made any new friends through Flickr?

The questions were designed to elicit preferences and reasons for using Flickr and its various components. The last two questions aimed to explore social aspects more explicitly. Such qualitative data was crucial to interpret the range of quantitative data gathered via the sampling tool and the language analysis.

Users from the United Kingdom were not asked questions 3 and 4 as they related to the use of native language and English. As was explained before, although other languages such as Welsh are spoken in the United Kingdom they were not considered native languages in the context of this project. Furthermore, upon completing the data collection, it was noticed that none of the users from the United Kingdom used any other language other than English to annotate their photos.

The questionnaire was administered via Flickr’s messaging system primarily in English and was translated to Hebrew for users from Israel. Given the project’s constraints, it was not feasible to translate the questionnaire to all the languages and then translate the
responses back to English. It is acknowledged that administering the questionnaire in the user’s native language could have contributed to a higher response rate and more in-depth responses. Moreover, the fact that the questionnaire was not anonymous should also be taken into account when assessing evaluating the responses. Overall, the responses were satisfactory and highly insightful.

3.8 Flickr discussion groups
Some of the discussion groups found on Flickr, mostly a group called Iranian, were used on ad-hoc basis to explore various issues that emerged during the questionnaire and other stages of the study. This method proved very useful and especially helped to appreciate the role of Persian poetry on Flickr, the use of Latin characters to write Persian on the Internet as well as the fact that Flickr is censored in Iran.

Engaging with users and confronting them with questions was a valuable tool that allowed to present follow-up questions in a focus group-like setting, where different individuals could express their views and offer input.
4 RESULTS AND DISCUSSION

4.1 Introduction

This chapter describes and discusses the results of the study. It is divided into four sections. First, quantitative user data focusing on Flickr parameters is presented based on each individual parameter described in the methodology (e.g. number of public photos per user). The data is presented so that for each parameter the five cultures are ranked based on their mean average value (Standard deviation is referred to as SD in each table). Strong correlations (between 0.6 and -0.6) are represented using charts to help illustrate patterns. Secondly, the language analysis is discussed which shows the average use of English and the user’s native language to annotate content. Thirdly, the group data is presented which addresses photos used as ‘buddy icon’, sets and common tags and Flickr groups in each culture. Finally, the questionnaire results are presented and discussed.

The research covered a wide range of quantifiable parameters as well as qualitative data. Interesting patterns, correlations, similarities and differences emerged which strongly suggest that cultural background has an observable impact on the use of Flickr and potentially similar user content driven websites.

4.2 User data – Flickr parameters

Most of the comparison parameters used in the study focused on Flickr specific data. All were collected using the sampling tool described in the methodology chapter. The user data from each culture was calculated to produce a ‘cultural average’ used to compare the five cultures based on a random sample of 40 photos per user.

Standard deviations were considerable across most parameters; however this was anticipated due to the heterogeneous nature of each sample group. Still, the patterns that have been observed and described in this chapter are consistent; suggesting that despite in-group diversity there is basis to conclude that noticeable culturally related differences exist on Flickr.
4.2.1 Account type

The account type analysis revealed that among the five cultures, the UK has the highest number of users with a Pro account, followed by Taiwan. By its very definition, a Pro (professional) account could be seen to target frequent users who wish to enjoy unlimited storage capacity as well as the freedom to create an unlimited number of sets.

Initially, the findings could be seen to indicate that overall, users from the UK and Taiwan use Flickr to greater extent than users in the other groups and are willing to pay for extended options (at the time of writing a Pro account costs $24.95 a year). It should be pointed out that having a Pro Flickr account does not automatically suggest that the user is a professional or hobbyist photographer. Such hypothesise, albeit interesting, goes beyond the scope of this research.

![Figure 12 - Users with a Pro account per culture](image)

From a cultural perspective there are various possible reasons as to why users in one culture are less likely to have a Pro Flickr account. One is financial as there is a strong positive correlation (0.91) between the percentage of users that have a Pro account and the country’s gross domestic product (GDP) at purchasing power parity (PPP) per capita. It indicates that in some countries like Iran, purchasing a Flickr Pro account may be seen as a considerable investment that is unaffordable by most people. Furthermore, people’s attitude in different cultures towards online transactions could also prove to be a relevant contributing factor.
Since Iran had the lowest number of users that had a Pro account, the issue was raised and discussed in one of the Iranian Flickr groups. Users commented that purchasing a Pro account was regarded as relatively expensive and that due to payment restrictions, people in Iran who managed to bypass the state sanctioned ban on Flickr, experience considerable difficulties purchasing a Pro account.

Flickr uses Yahoo!-Pay and Paypal online payment services to allow people to buy a Pro account, however both do not accept payments from Iran (this was confirmed by Paypal). Users also commented that international banks which provide credit cards such as MasterCard and VisaCard do not support Iranian banks making it difficult to use them instead of Paypal and Yahoo!-Pay. At the time of writing, such claim could not be verified.

Masculinity was the only cultural dimension, which had a strong correlation with the number of users that had a Pro account. There is a 0.65 correlation between a culture’s GDP per capita and its masculinity value in this study, which suggests that the link between Masculinity and having a Pro account has probably more to do with financial abilities than a Flickr-related perception of the option to upgrade one’s account. It is worth pointing out that according to Hofstede (1991, p.84) masculinity is unrelated to a county’s degree of economical growth.
4.2.2 Public photos

The public photos analysis revealed that users from Taiwan have on average the largest number of publicly available photos. Users from Iran show a significantly small amount, while users from Peru, Israel and the United Kingdom are located in the middle with relatively similar values. These findings could be linked to the number of users with a Pro account in each group, as users with a regular account are limited to 200 public photos. Iran has the lowest number of users with a pro account (30%), which explains the low number of public photos.

<table>
<thead>
<tr>
<th>Culture</th>
<th>Public photos per user</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
</tr>
<tr>
<td>Taiwan</td>
<td>961</td>
</tr>
<tr>
<td>UK</td>
<td>529</td>
</tr>
<tr>
<td>Peru</td>
<td>513</td>
</tr>
<tr>
<td>Israel</td>
<td>485</td>
</tr>
<tr>
<td>Iran</td>
<td>198</td>
</tr>
</tbody>
</table>

The large standard deviation throughout the following sections is not surprising given the highly heterogeneous nature of each group, which is made of individuals with different goals, motivations, expectations and usage patterns. The following charts show the spread of values in each group.
Figure 15 – Spread of number of public among users from Israel

Figure 16 - Spread of number of public photos among users from Iran

Figure 17 - Spread of number of public photos among users from Peru

Figure 18 - Spread of number of public photos among users from Taiwan

Figure 19 - Spread of number of public photos among users from the UK
Compared to Israel, Iran and Peru Taiwan and the UK exhibit a wider spread with a considerable amount of users from Taiwan having more than 1500 public photos. The majority of users from Iran have between 100 and 200 public photos, which is expected given the low number of users that have a Pro account.

When analysing these results it is worth pointing out that the analysis only considers publicly available photos and omits any photos, which are set to private. Hypothetically, users from Iran could have the largest photo collection per user, however only a small set of that collection is made public.

There is noticeable and expected correlation between the number of public photos and the percentage of users that have a Pro account. Correlations with any of Hofstede’s four dimensions are very weak (Individualism: -0.32, Power distance: 0.1, Masculinity: 0.04, Uncertainty avoidance: 0.11). This was not unexpected, as the number of public photos did not seem to relate directly to any of the cultural dimensions.

![Figure 20 - Number of users with a Flickr Pro account / Number of public photos (Correlation: 0.67)](image)

4.2.3 Contacts

The contacts analysis shows that users from Iran have a considerable number of contacts compared to the other four groups. This finding, along with others explored in following sections (e.g. testimonials, groups, number of comments per photo) could suggests that users from Iran are more socially active on Flickr, however such assumption is highly speculative in this context since as the literature review highlighted, Flickr contacts are different than usual ‘friends’ and ‘buddies’ list found on other social networks. Users may
add another user as a contact simply because they want to be notified that user uploads new content.

<table>
<thead>
<tr>
<th>Culture</th>
<th>Contacts per user</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
</tr>
<tr>
<td>Iran</td>
<td>326</td>
</tr>
<tr>
<td>Israel</td>
<td>157</td>
</tr>
<tr>
<td>Peru</td>
<td>126</td>
</tr>
<tr>
<td>Taiwan</td>
<td>81</td>
</tr>
<tr>
<td>UK</td>
<td>68</td>
</tr>
</tbody>
</table>

It is impossible to know, given the project’s constraints, how many contacts have been specified by the designating user as ‘friend’ or ‘family’. Moreover, it would have been also very interesting to note how many of the contacts a user has are ‘mutual contacts’ i.e. the designating user is also a contact of the designated user. That could also serve as possible indication of contacts that have stronger social context.

Figure 21 – Spread of number of contacts among users from Israel

Figure 22 - Spread of number of contacts among users from Iran
There is an interesting negative correlation (-0.77) between the number of public photos and contacts suggesting that users with a large collection have fewer contacts than those with a smaller collection. One possibility is that users that have a large collection may use Flickr primarily as online archive and are less interested to follow the activity of others and explore their photos.
No significant correlations were found with any of Hofstede’s dimensions (Individualism: -0.12, Power distance: 0.17, Masculinity: -0.49, Uncertainty avoidance: 0.08). In this case Individualism would have been considered the most relevant, however more to the type of contact i.e. friend and family given the various roles contacts play on Flickr.

### 4.2.4 Public groups

The public groups analysis shows that users from the United Kingdom and Iran are members of more Flickr groups compared to the other cultures. As was covered in the literature review and reinforced by the questionnaire, groups on Flickr serve various purposes, not all of which are social. Like contacts, they serve both social and functional purposes. They offer users a place where they can discuss issues with others on specific topics but at the same time serve as promotional mechanism used to potentially expose content to a wider audience. In that sense, being a member of a large amount of groups may actually suggest less social and more self-promotion driven motives.

<table>
<thead>
<tr>
<th>Culture</th>
<th>Public groups per user</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
</tr>
<tr>
<td>UK</td>
<td>94</td>
</tr>
<tr>
<td>Iran</td>
<td>89</td>
</tr>
<tr>
<td>Israel</td>
<td>71</td>
</tr>
<tr>
<td>Peru</td>
<td>63</td>
</tr>
<tr>
<td>Taiwan</td>
<td>50</td>
</tr>
</tbody>
</table>

During the initial review of Flickr it was observed that users are often invited by group administrators to join a group. Flickr’s commenting mechanism includes a built-in option to post a predefined message inviting a user to a group moderated by the posting user.
Add your comment

Hi, I'm an admin for a group called <a href='http://www.flickr.com/groups/80044214@N00/'>Flashoo</a> and we'd love to have your photo added to the group.

(Some HTML is OK.)

Select a group:

Flashoo

Rickenbacker

PREVIEW OR PREVIEW

Figure 27 – Administrators of groups can use a predefined message to invite users to join a group

It is not known to what extent users accept such invitations to join groups, and it raises an important issue that need to be taken into account when analysing the number of groups a user is a member of. The groups a user has been invited to by an administrator may have very little meaning to the user beyond the possible compliment associated with the invitation itself.

Figure 28 – Spread of number of public groups among users from Israel

Figure 29 - Spread of number of public groups among users from Iran
The fact that users from the United Kingdom and Iran are associated with a larger number of groups could suggest that users from those cultures are more likely to use Flickr to showcase their work, using groups to attract views and comments. It also could mean they are more interested in other users’ work.

It is also worth pointing out that the results reflect only the number of public groups and do not capture private ones. Such data would have been extremely relevant to a cross-cultural study and the issue of public and private content is addressed in greater details in the conclusions chapter when suggesting future research directions.

Two correlations were observed between the average number of public groups per user and the Individualism and Uncertainty Avoidance index.
One speculation might be that users from a culture with high Uncertainty Avoidance prefer to focus on a manageable amount of Flickr groups. This would make it easier to decide to which groups to send a photo, as the list of possible options would be smaller (a photo can be sent to more than one group).

As mentioned before, it is difficult and quite unreasonable at times to consider these results from a ‘Hofstedian’ theory-driven approach that is completely detached of any contextual considerations. In the case of public groups, it very well be that on average most users from the UK and Iran are hobbyists and wish to expose their work to a wider audience, whereas users from Peru, Taiwan and Israel upload mostly domestic photos and don’t feel the need to spread them around many groups. Should that be the case then the negative correlation is most probably meaningless unless a link between Uncertainty Avoidance and type of photography (domestic versus non-domestic) could be somehow established.
The second correlation indicates that users from a collectivist culture (Peru and Taiwan) belong to fewer groups than users from cultures that are less group-oriented. Again, this finding needs to take into account the factors mentioned above. It is possible that users from a collectivist culture would prefer to belong to a limited number of groups where their membership is perhaps more meaningful. These two examples highlight some of the problems using Hofstede’s model when dealing with a rich environment such as Flickr that caters to a wide range of objectives and needs. There is great deal of contextual circumstances that need to be considered when attempting to interpret correlations such as the one presented in this study.

Figure 35 - Number of public groups / Individualism (Correlation: 0.8)
4.2.5 Tags

The tags analysis, much like the data described so far, shows large standard deviation, especially with regard to Taiwan. The most interesting finding is a strong correlation (0.89) between the average number of unique tags per user and a culture’s Uncertainty Avoidance value.

<table>
<thead>
<tr>
<th>Culture</th>
<th>Unique tags per user Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peru</td>
<td>385</td>
<td>227</td>
</tr>
<tr>
<td>Israel</td>
<td>368</td>
<td>515</td>
</tr>
<tr>
<td>Taiwan</td>
<td>258</td>
<td>685</td>
</tr>
<tr>
<td>Iran</td>
<td>217</td>
<td>192</td>
</tr>
<tr>
<td>UK</td>
<td>206</td>
<td>333</td>
</tr>
</tbody>
</table>

As described in the literature review, tagging offers users a way to organise their content by creating their own personal classification scheme. Doing so makes content retrieval easier and more efficient, thus alleviating uncertainty. Such strong correlation may suggest that users from cultures where individuals prefer to avoid uncertainty appreciate tagging systems and make use of them more than users from cultures with a lower Uncertainty Avoidance value. On Flickr, tags are useful for more than just retrieving content and are also strategically used to attract views by assigning common and generic words, which other users are likely to search for (e.g. *sky*, *city*).
The questionnaire indicated that users from Peru tag for the same reasons as respondents from other cultures i.e. to make retrieval easier and allow others to find their photos. There was no apparent collective tendency to use tag primarily to organise content.

**Figure 37 – Spread of number of unique tags among users from Israel**

**Figure 38 - Spread of number of unique tags among users from Iran**

**Figure 39 - Spread of number of unique tags among users from Peru**

**Figure 40 - Spread of number of unique tags among users from Taiwan**

**Figure 41 - Spread of number of unique tags among users from the UK**
Additional data that was generated regarding tag usage was the average number of tags used per photo. The results show that users from the UK assign the highest number of tags per photo followed by Peru and Iran, Taiwan and Israel.

<table>
<thead>
<tr>
<th>Culture</th>
<th>Average tags per photo</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
</tr>
<tr>
<td>UK</td>
<td>5.5</td>
</tr>
<tr>
<td>Peru</td>
<td>4.7</td>
</tr>
<tr>
<td>Iran</td>
<td>4</td>
</tr>
<tr>
<td>Taiwan</td>
<td>4</td>
</tr>
<tr>
<td>Israel</td>
<td>3.6</td>
</tr>
</tbody>
</table>

There is a weak negative correlation (-0.33) between this data and the total number of unique tags per user. However, this is not entirely unexpected as an average user from the UK may have a smaller amount of tags overall compared to a user from Peru for example, but he or she may assign more tags per photo.

People exhibit different tagging patterns and motivations and one person may maintain a small collection of tags that is spread across many photos while another would have many tags but only few are used at the same time. This is further evidence of the complexities and diversity associated with tagging, as they support great flexibility and to do not limit people to particular usage.

4.2.6 Sets
The average number of sets users have in each culture is directly influenced by the number of users that have a Pro account as a regular account limits users to three sets. A strong positive correlation (0.93) expresses the link between sets and type of account.
The relationship between sets and type of account is important since the number of sets a user has is technically constrained and does not fully represent the utilisation of the feature to organise one’s photo collection.

![Figure 42 – Number of users with a Flickr Pro account / Number of sets (Correlation: 0.949)](image)

No strong correlations were found with any of Hofstede’s dimensions. The only one, which was seen as possibly related was Uncertainty Avoidance as users from a culture with high uncertainty value may prefer to use more sets and organise their collection to avoid confusion. However, since the number of sets depends on the user having a Pro account, such link could not be fully explored.

One interesting finding from the following charts is that the majority of users from Iran who probably do not have a Pro account maximise the number of sets provided with a regular account and use all three.
Figure 43 – Spread of number of sets among users from Israel

Figure 44 – Spread of number of sets among users from Iran

Figure 45 - Spread of number of sets among users from Peru

Figure 46 - Spread of number of sets among users from Taiwan

Figure 47 - Spread of number of sets among users from the UK
4.2.7 Favorites

The favorites analysis shows that on average users from Iran bookmark the highest number of photos. This finding is more meaningful when correlated with other data concerning Flickr usage. There is strong correlation (0.83) between the average number of favorites and average number of public contacts a user has. One explanation could be that users that follow postings by many people are more likely to find photos they wish to bookmark.

<table>
<thead>
<tr>
<th>Culture</th>
<th>Favorites per user</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
</tr>
<tr>
<td>Iran</td>
<td>379</td>
</tr>
<tr>
<td>Israel</td>
<td>349</td>
</tr>
<tr>
<td>Peru</td>
<td>221</td>
</tr>
<tr>
<td>UK</td>
<td>208</td>
</tr>
<tr>
<td>Taiwan</td>
<td>139</td>
</tr>
</tbody>
</table>

Contacts serve in part as a browsing and discovery mechanism allowing users to know when designated users upload photos.

Figure 48- Public contacts / Favorites (Correlation: 0.83)
Figure 49 – Spread of number of favorites among users from Israel

Figure 50 - Spread of number of favorites among users from Iran

Figure 51 - Spread of number of favorites among users from Peru

Figure 52 - Spread of number of favorites among users from Taiwan

Figure 53 - Spread of number of favorites among users from the UK
There is also a strong correlation (0.91) between the average number of favorites a user has and the average number of comments per photo. This could suggest that favorites play an important social role as they allow users to attract and engage with others. At this level of quantitative analysis is it impossible to interpret the nature and quality of the comments. For example, a high volume of comments may be generated by a relative small group of users who regularly comment on each other’s photos.

![Figure 54 – Comments per photo / Number of favorites (Correlation: 0.91)](image)

There is a strong negative correlation (-0.85) between the average number of favorites and public photos a user has. One hypothesis might be that users that have a large collection are less interested in other users’ collections as they view Flickr as being more functional for archiving photos than a social environment. Such hypothesis would be consistent with the results of the contacts analysis, which showed that users that have a large collection have fewer contacts than those with a smaller collection. As always, the data presented is also affected by a variety of other factors that should be acknowledged. The relative small number of public photos users from Iran have is directly influenced by the number of users that have a Pro account as a regular account is limited to 200 photos.
4.2.8 Testimonials

The testimonials analysis shows that users from the UK have fewer testimonials written about them compared to users from the other cultures. However, the UK comes second with 22% after Iran (with 46%) when examining how many users have at least one testimonial written about them. A testimonial could be written for various purposes and most of the testimonials observed during the research that were understood included recommendation and very positive feedback (e.g. “I have known Hamed for several months on Flickr. He has a special gift for art, truth and friendship. I am blessed to know him. He has helped me to expand my view of the world and develop real friendship and connections within our human family. Thank you, Hamed.”).

<table>
<thead>
<tr>
<th>Culture</th>
<th>Testimonials per user</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
</tr>
<tr>
<td>Israel</td>
<td>3</td>
</tr>
<tr>
<td>Taiwan</td>
<td>3</td>
</tr>
<tr>
<td>Iran</td>
<td>3</td>
</tr>
<tr>
<td>Peru</td>
<td>2</td>
</tr>
<tr>
<td>UK</td>
<td>1</td>
</tr>
</tbody>
</table>
Figure 56 – Spread of number of testimonials among users from Israel

Figure 57 - Spread of number of testimonials among users from Iran

Figure 58 - Spread of number of testimonials among users from Peru

Figure 59 - Spread of number of testimonials among users from Taiwan

Figure 60 - Spread of number of testimonials among users from the UK
From a qualitative standpoint there is a lot of scope to explore content and reciprocity among users who write testimonials, however such analysis was beyond the scope of this study. Almost half the users from Iran had at least one testimonial written about them. This, along with other data presented in this study, could indicate strong social activity.

The strong correlation (0.9) between the percentage of users that have at least one testimonial and average number of public contacts reinforces such notion. It seems that users who engage in social activity on Flickr as opposed to utilising the site to primarily showcase or archive content, make use of all the different social mechanisms available to users.

It is interesting to see that although users from Iran have on average the smallest number of photo per user (m=198, SD=128), they exhibit high values across other parameters such as number of public contacts, favorites, average comments per photo and total number of users that have a testimonial written about them. Iran has a relatively low Individualism index (41), which could be considered in the context of these findings.
Correlations with Hofstede’s dimensions were very weak (Individualism: 0.14, Power distance 0.23, Masculinity: -0.14, Uncertainty avoidance: -0.32).

4.2.9 Summary of Flickr parameters
The parameters analysis focused on Flickr data and explored potential correlations with Hofstede’s dimensions as well as with other Flickr parameters (see Appendix A for all correlations between Flickr parameters and use of language to annotate content). Almost all the correlations with Hofstede’s dimensions were very weak as seen in the table below.

These results are not all that surprising given contextual considerations and seeing how data such as number of contacts and groups was too general. It raises the question whether focusing on private and public data would have been more appropriate in this case.
Table 10 – Summary of Flickr parameters correlations with Hofstede’s dimensions

<table>
<thead>
<tr>
<th></th>
<th>Uncertainty avoidance</th>
<th>Power distance</th>
<th>Individualism</th>
<th>Masculinity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pro account</td>
<td>-0.58</td>
<td>-0.27</td>
<td>0.45</td>
<td><strong>0.74</strong></td>
</tr>
<tr>
<td>Public photos</td>
<td>0.11</td>
<td>0.10</td>
<td>-0.32</td>
<td>0.04</td>
</tr>
<tr>
<td>Public contacts</td>
<td>0.08</td>
<td>0.17</td>
<td>-0.12</td>
<td>-0.49</td>
</tr>
<tr>
<td>Public groups</td>
<td><strong>-0.71</strong></td>
<td>-0.27</td>
<td>0.8</td>
<td>0.59</td>
</tr>
<tr>
<td>Tags</td>
<td><strong>0.89</strong></td>
<td>-0.16</td>
<td>-0.45</td>
<td>-0.5</td>
</tr>
<tr>
<td>Sets</td>
<td>-0.34</td>
<td>-0.15</td>
<td>-0.16</td>
<td>0.5</td>
</tr>
<tr>
<td>Users with a testimonial</td>
<td>-0.32</td>
<td>0.23</td>
<td>0.14</td>
<td>-0.14</td>
</tr>
<tr>
<td>Favorites</td>
<td>0.11</td>
<td>-0.35</td>
<td>0.20</td>
<td>-0.25</td>
</tr>
</tbody>
</table>

More substantial correlations were found between various Flickr parameters like the number of public photos and number of contacts and favorites. Such dependencies lend themselves to easier interpretation, which is data and context driven. For example, a strong positive correlation between the percentage of users that have a Pro account and number of public photos was predictable given that having a Pro account allows users to upload more than 200, which is otherwise the limit.

Despite the weak correlations with Hofsetde’s dimensions, there are clear differences, as well as similarities between the five cultures. Most could be attributed to the number of users that have a Pro account, since it affects the number of photos and sets a user has. The data so far suggests that users from the UK are mostly users with a Pro account that use a considerable amount of tags and belong to many Flickr groups. As such, one assumption might be that on average most UK users are hobbyists interested in exhibiting their content and viewing that of others.

Although users from Iran are limited in the number of photo can share with others since most of them don’t have (or cannot purchase) a Pro account, they appear highly active and engaged with others in various ways. They have the highest number of contacts and favorites and almost half have at least one testimonial written about them.

Users from Taiwan appear to view Flickr as primarily a functional place used to store hundreds and thousands of photos. 76% of the users in the sample have a Pro account and on average they have a relative low number of contacts and favorites. This links to the majority of questionnaire responses to be presented later where users from Taiwan mostly
commented on Flickr’s simple and usable interface when asked why they used Flickr and what they liked most about the site.

Users from Israel and Peru exhibit fairly similar values across most of the parameters. They use a lot of tags and have a relative high number of contacts. A third of the users have at least one testimonial written about them. Half of the users from Israel have a Pro account compared to a third of users from Peru. It is more difficult to spot a clear pattern, and the use of Flickr could be summarised as fairly average.

4.3 User data - Language analysis

The language analysis focused on the language users use to annotate their photos with regard to title, description and tags. The results show consistent patterns in using native language and English. Noticeable differences and similarities were observed and the results indicate that users from Israel and Iran use mostly English compared to users from Peru who exhibit the opposite pattern and use mostly Spanish. Users from Taiwan are located in the middle, as they tend to combine English and Chinese.

The use of native language and English to annotate content is extremely relevant when considering users' motivations, objectives and social networking on Flickr. Language preference is also influenced by English proficiency and technical constraints i.e. how well the system supports the user’s native language. As Hebrew and Persian are written from right to left, some users may prefer to use English so that their entries are not automatically aligned to the left, thus making them less readable. Overall, there are various factors that influence the choice of language that need to be acknowledged.

As the questionnaire will show, most users chose to use English rather than their own native language as they considered their global contacts and the entire Flickr community at large. Native language was used on ad-hoc basis when the content had strong cultural context that was either impossible or impractical to translate to English. Moreover, choosing to use one's native language may suggest that the content is aimed to be viewed by friends, family members and people from the same country, assuming it is meant to be viewed at all by others.
4.3.1 Native language

Out of the four cultures, which English is not the native language; Peru consistently has the highest values regarding the use of native language for annotating content. In contrast, users from Israel and Iran rarely use Hebrew and Persian respectively. The motivation for using one’s native language has been addressed in the questionnaire and uncovered interesting results. A considerable number of Iranian respondents for example answered that they would use Persian when quoting a poem in a description or comment.

<table>
<thead>
<tr>
<th>Culture</th>
<th>Tags Mean</th>
<th>Tags SD</th>
<th>Title Mean</th>
<th>Title SD</th>
<th>Description Mean</th>
<th>Description SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iran</td>
<td>0.6</td>
<td>2.2</td>
<td>3.1</td>
<td>9</td>
<td>3.3</td>
<td>7.4</td>
</tr>
<tr>
<td>Israel</td>
<td>2.1</td>
<td>7.6</td>
<td>3.9</td>
<td>7.7</td>
<td>2.5</td>
<td>5.5</td>
</tr>
<tr>
<td>Peru</td>
<td>12.3</td>
<td>13.4</td>
<td>22.5</td>
<td>13.6</td>
<td>12.4</td>
<td>11.9</td>
</tr>
<tr>
<td>UK</td>
<td>31.7</td>
<td>12.5</td>
<td>32.9</td>
<td>11.9</td>
<td>19.9</td>
<td>13.5</td>
</tr>
<tr>
<td>Taiwan</td>
<td>5.2</td>
<td>10.4</td>
<td>7</td>
<td>10.6</td>
<td>3.6</td>
<td>5.5</td>
</tr>
</tbody>
</table>

Another interesting observation was that some users from Iran wrote Persian phonetically using Latin characters. Upon further investigation in the discussion board it was discovered that, such form of writing is quite common online among Iranians and is known as *Penglish* or *Pinglish*. Some users resort to using it due to computer and keyboard configuration issues that prevent them from using Persian characters.
4.3.2 English language

The questionnaire indicated that users from all five groups tend to perceive English as a universal language that is very effective in order to communicate with a global audience. The majority of respondents commented they enjoy receiving feedback and comments from others users from around the world. Annotating content using one’s native language would significantly affect other’s ability to appreciate context and meaning, which in turn may reduce the amount of feedback provided by others.

**Table 12 – Use of English language to annotate content**

<table>
<thead>
<tr>
<th>Culture</th>
<th>Tags Mean</th>
<th>SD</th>
<th>Title Mean</th>
<th>SD</th>
<th>Description Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iran</td>
<td>22</td>
<td>13.4</td>
<td>25.2</td>
<td>15</td>
<td>12.6</td>
<td>11.3</td>
</tr>
<tr>
<td>Israel</td>
<td>22</td>
<td>14.2</td>
<td>24.6</td>
<td>13.4</td>
<td>11.5</td>
<td>9.7</td>
</tr>
<tr>
<td>Peru</td>
<td>2.9</td>
<td>6.8</td>
<td>7.4</td>
<td>9.3</td>
<td>3.9</td>
<td>6.7</td>
</tr>
<tr>
<td>UK</td>
<td>33.2</td>
<td>10.7</td>
<td>31</td>
<td>13.4</td>
<td>20.2</td>
<td>13.8</td>
</tr>
<tr>
<td>Taiwan</td>
<td>15.8</td>
<td>14.1</td>
<td>12.5</td>
<td>14.2</td>
<td>6.1</td>
<td>10.4</td>
</tr>
</tbody>
</table>

![Figure 65 - Use of English language to annotate content](image)

There is strong correlation between the percentage of descriptions, tags and titles written in English and a culture’s Individualism value. This could suggest that users from collectivist cultures prefer to communicate in their native language and target primarily other members of their culture. In that sense, the use of native language implies stronger group orientation. Again, it is also highly possible that English is more prominent in Western cultures, which tend to exhibit high Individualism value. This is especially relevant from a localisation perspective as language preference and proficiency could...
have a significant impact on the design of a web application if it is to be accepted by local audience. Flickr offers a localised version in Spanish and Chinese and it would have been interesting to learn to what extent users in Peru and Taiwan used such versions. This issue was considered after the questionnaire was sent and could not have been addressed.

Figure 66 – Descriptions written in English / Individualism (Correlation: 0.9)

Figure 67 - Titles written in English / Individualism (Correlation: 0.89)

Figure 68 – Photos tagged in English / Individualism (Correlation: 0.79)
4.3.3 Bilingual annotation

It was not uncommon for all users to combine English and their native language when writing a title, description and assigning tags. English was often used to translate something written in the user’s native language. Among users from Iran in particular it was observed that descriptions would contain a paragraph in Persian followed by a paragraph in English (most probably a translation). This would seem to be an acceptable compromise that allows users to convey culturally specific information while not excluding users who do not understand their native language.

<table>
<thead>
<tr>
<th>Culture</th>
<th>Tags Mean</th>
<th>Tags SD</th>
<th>Title Mean</th>
<th>Title SD</th>
<th>Description Mean</th>
<th>Description SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iran</td>
<td>3.8</td>
<td>8.4</td>
<td>0.1</td>
<td>0.2</td>
<td>1.1</td>
<td>2.2</td>
</tr>
<tr>
<td>Israel</td>
<td>4</td>
<td>8.4</td>
<td>0.2</td>
<td>1.2</td>
<td>0.2</td>
<td>0.5</td>
</tr>
<tr>
<td>Peru</td>
<td>13.9</td>
<td>13.6</td>
<td>0.6</td>
<td>2.9</td>
<td>0.5</td>
<td>1.6</td>
</tr>
<tr>
<td>UK</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Taiwan</td>
<td>9.2</td>
<td>12.4</td>
<td>1.8</td>
<td>5</td>
<td>1</td>
<td>1.7</td>
</tr>
</tbody>
</table>

One interesting finding is that users from Iran and Israel tend to mix their native language and English when tagging more than when writing in titles and description. This is not surprising given the strategic importance of tags compared to titles and descriptions.

Users from Peru in particular exhibit a strong tendency to mix tags in English and Spanish, while users from Taiwan also combine tags in English and Chinese. Another motivation for bilingual tagging may be that tags in the user’s native language are added to facilitate personal search and retrieval, while English tags are seen as way of promoting a photo and attracting users from around the world.
4.4 Group data

The data presented so far was quantitative and referred to specific Flickr parameters and type of language used to annotate content. The following section looks at each culture as a whole in terms of the photos used by users to represent themselves and the most common tags and Flickr groups shared by users in each culture. These factors lend themselves to qualitative as well as quantitative analysis as the aim was to explore frequencies but also content.

4.4.1 Buddy icon

The buddy icon analysis aimed to explore self-representation and compare how users from each culture presented themselves on Flickr. The size of the avatar a user can upload is small (48x48 pixels) and most users chose to show their face, part of it, a body part or use some graphical representation. The analysis focused on the use of self-portrait as a buddy icon, any other representation or the default Flickr buddy icon that is automatically assigned to new users. A self-portrait representation referred to a photo showing a person as opposed to an animal or a graphical symbol for example. It was impossible to be certain that such photo was indeed the user but nonetheless that was the working assumption.

Some users use a photo showing their entire body, which makes it impossible to recognise them and some may prefer to use a childhood photo. Both types were considered a self-portrait since they presumably featured the user. The table below shows that in each culture the majority of users chose to use a self-portrait of some sort.
Most of the buddy icons show the user looking into the camera, sometimes smiling. The 'Flickr pose' in which a person looks into a camera is common on Flickr and can be interpreted as a statement telling people "I am a photographer". Whether or not that is really the case, it shows what image a person is interested to project to others.

<table>
<thead>
<tr>
<th>Culture</th>
<th>Self-portrait</th>
<th>Default icon</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taiwan</td>
<td>84%</td>
<td>2%</td>
<td>14%</td>
</tr>
<tr>
<td>Peru</td>
<td>76%</td>
<td>0%</td>
<td>24%</td>
</tr>
<tr>
<td>Iran</td>
<td>76%</td>
<td>8%</td>
<td>16%</td>
</tr>
<tr>
<td>UK</td>
<td>68%</td>
<td>8%</td>
<td>16%</td>
</tr>
<tr>
<td>Israel</td>
<td>64%</td>
<td>0%</td>
<td>36%</td>
</tr>
</tbody>
</table>

As seen in the table above, users in Taiwan exhibit the highest number of self-portraits. The photo usually shows the entire face placed in the centre as can be seen in Figure 47. There is an interesting negative correlation between Hofstede's Individualism index and the frequencies of self-portraits (-0.74).

Taiwan has low Individualism index (17) and has the highest number of self-portraits while the United Kingdom has very high individualism index (89) and relatively low number of self-portrait buddy icons.

![Figure 70 – Use of self-portrait buddy icon / Individualism (Correlation: -0.74)](image-url)
A strong positive correlation was also noticeable with Power Distance index (0.86). One hypothesis could be that users from a culture where power is distributed unequally in society may have stronger motivation to show themselves and stand out. Flickr may be seen as a place where all are equal and individuals are free to express themselves.

No other strong correlations were observed and the remaining dimensions were less relevant (Masculinity: -0.48, Uncertainty avoidance: 0.14)

Figure 72 - Buddy icon of users from Israel
Figure 73 - Buddy icon of users from the United Kingdom

Figure 74 - Buddy icon of users from Taiwan
4.4.2 Common tags among users

Tag frequency was explored in order to mainly assess collective patterns in terms of themes and culturally relevant references. These included mostly the name of the country, capital city and anything that could have been identified to have a potential political, religious and historical connotation. Like with any content analysis, it was very difficult, if not impossible, to draw conclusions as to the meaning of the tags used. Therefore the analysis focused on commonalities and overall number of common tags in each group. It was also of interest to see how native language and English were used as well as.
Flickr's "Explore/Tags" page shows the most popular tags on the site at any given point in time. As can be seen, the majority of popular tags are of locations, festive events and everyday objects. Almost all the tags are written in English apart from 'de' and 'la' meaning 'of' and 'the' in Spanish and French respectively.

Since phrases must be written in quotation marks (e.g. "The house") it is likely that a lot of users are unaware of this requirement and simply write La Puerta, which results in the creation of two separate tags. At the time of writing, the most popular tags are 'wedding', 'family', 'party', 'travel' and 'vacation'. This is consistent with literature concerning photo sharing, which highlights the use of photos to document social situations one’s life for others to see, possibly friends and family (e.g. Van-House, 2007).

![All time most popular tags on Flickr – December 25th 2007](http://www.flickr.com/photos/tags)

Strategic tagging is also widely noted and refers to the use of keywords people are likely to search for. By placing strategic tags, a user hopes to attract a greater audience of mostly strangers who search for a particular tag on Flickr or come across it on the "Explore/Tags" page. The following table lists the most common tags in each culture. The percentage refers to the number of users, which have used the tag in their collection at least once. The data presented starts from 30% as it was seen the minimum meaningful threshold. The tags are separated by a comma and were all single words.
<table>
<thead>
<tr>
<th>Percentag e</th>
<th>Peru</th>
<th>Taiwan</th>
<th>UK</th>
<th>Iran</th>
<th>Israel</th>
</tr>
</thead>
<tbody>
<tr>
<td>80%-84%</td>
<td>peru</td>
<td></td>
<td></td>
<td>iran</td>
<td></td>
</tr>
<tr>
<td>65%-69%</td>
<td>t'aipei</td>
<td>tree, sunset</td>
<td></td>
<td>telaviv</td>
<td></td>
</tr>
<tr>
<td>60%-64%</td>
<td>lima</td>
<td>taiwan</td>
<td>church, water</td>
<td>flower, sky, tree</td>
<td></td>
</tr>
<tr>
<td>55%-59%</td>
<td>flower</td>
<td>flowers, beach, bridge, london, flower</td>
<td>light, green, girl, tehran</td>
<td></td>
<td></td>
</tr>
<tr>
<td>50%-54%</td>
<td>flower</td>
<td>blue, sky, garden, river, red, clouds, reflection, night, england, light</td>
<td>nature, blue, persia, sunset</td>
<td>red, night, israel</td>
<td></td>
</tr>
<tr>
<td>44%-49%</td>
<td>trees, green, sea, tower</td>
<td>trees, green, sea, tower</td>
<td>red, iranian, water, sun, shadow, bird, night, portrait</td>
<td>blue, cat portrait, green light</td>
<td></td>
</tr>
<tr>
<td>40%-44%</td>
<td>night</td>
<td>street, art, sun, old, uk, sign, bird, architecture, park, white, building, castle, statue, portrait, bw, macro, boat, city, rain</td>
<td>bw, snow, people, yellow, persian</td>
<td>me, pink, beach, bw, birthday, white, love, sea</td>
<td></td>
</tr>
<tr>
<td>35%-39%</td>
<td>beach, playa, miraflores</td>
<td>wedding, sky</td>
<td>blackandwhite, cathedral, dark, people, landscape, cat</td>
<td>sea, child, river, window, isfahan, reflection, spring, moon</td>
<td>jerusalem, smile, girl, sky, old, dog, water, hair, yellow</td>
</tr>
<tr>
<td>30%-34%</td>
<td>mar, de, sea, sunset</td>
<td>light, sunset, dog, train, street, beach</td>
<td>old, mosque, woman, art, cloud, abigfave, esfahan, carpet, clouds, children, garden, mountain, white, women, bridge</td>
<td>window, eyes, food, black, car, street, music, sunset, orange, woman, party, colors, baby, flower, man, shoes, people, art, purim, winter, tree</td>
<td></td>
</tr>
</tbody>
</table>
4.4.2.1 Total number of frequencies

The most noticeable finding is that users from Peru and Taiwan have very few tags in common compared to Israel, Iran and the UK. This is especially interesting considering that on average, users from Peru use the highest number of tags individually (m=325, sd=227). Taiwan also has relatively high average number of tags per user (m=258, sd=635). This may suggest that while users from Israel, Iran and the UK use tags also for strategic purposes in order to attract viewers, users from Peru and Taiwan use tags primarily for functional reasons i.e. photo retrieval.

![Figure 78 – Number of common tags per culture](image)

Tags used for functional reasons and are aimed at small groups are likely to be less generic in nature much like sets, that were observed to be unique and hardly more than one user used the exact same name. As will be described, sets rarely had generic names as they are visible only from a user's profile and are not searchable thus they are not perceived to have much strategic significance. As a result, users assign sets very specific names like *Andy's School Trip* and *Back to nature*. It may be possible that when tagging, users from Peru and Taiwan apply the same logic. However, responses from the questionnaire indicate that these users do consider strangers discovering their photos when tagging.

There is also an important language factor that should be considered as well. The language analysis reviled that excluding the UK, both Peru and Taiwan primarily used their native language to annotate. This finding was consistent across titles, descriptions and tags. There is a strong negative correlation (-0.85) between the number of common
tags and exclusive use of native language when tagging, among the four cultures where English is not the native language.

![Figure 79 – Tags in the user’s native language / Common tags (Correlation: -0.85)](image)

This could suggest that strategic tagging is mostly limited to English as it will be understood by a global audience. Users from Israel and Iran rarely use Hebrew or Persian respectively when tagging and prefer to use generic terms in English thus the high number of common tags among users in these groups.

![Figure 80 – Common tags / Individualism (Correlation: 0.81)](image)
4.4.2.2 Top most common tags

The following table shows the top most common tags in each culture. *Iran* and *Peru* were used by a vast majority of users as well as *Taiwan*. In contrast, there are no reference to either the name of the country or capital city in *Israel* and the United Kingdom. There is a strong correlation (0.77) between the culture's Power Distance index and the percentage of users who used the name of the country, an even stronger correlation (0.85) was found between the the percentage of users who used the name of the capital city.

<table>
<thead>
<tr>
<th>Percentage</th>
<th>Peru</th>
<th>Taiwan</th>
<th>UK</th>
<th>Iran</th>
<th>Israel</th>
</tr>
</thead>
<tbody>
<tr>
<td>80%-84%</td>
<td>peru</td>
<td>tainan</td>
<td>tree</td>
<td>iran</td>
<td>telaviv</td>
</tr>
<tr>
<td>65%-69%</td>
<td>tainan</td>
<td>tree</td>
<td>sunset</td>
<td></td>
<td></td>
</tr>
<tr>
<td>60%-64%</td>
<td>lima</td>
<td>tainan</td>
<td>church</td>
<td>flower</td>
<td>tree</td>
</tr>
</tbody>
</table>

The most frequent tags in the United Kingdom suggest photos of nature and landscapes while in Israel the emphasis is on Tel-Aviv, one the largest cities in the country. There are no explicit references to nationality as seen in Iran, Taiwan and Peru. This becomes more visible when comparing the overall frequency of the capital city and name of country in each culture.
As seen in the above figure, the country and capital city name is used less frequently in tags in Israel and the UK. The tag England was used by 50% of users from the UK, which is still lower than Iran, Peru and Taiwan. The frequency of these references strongly correlates with each culture’s Power Distance value as seen in the figures below.
These two correlations are supported by the following negative correlation (-0.69) between the frequency of country name and a culture’s Individualism value. These findings could suggest that Flickr users from cultures with low Individualism value exhibit more national references through tagging. One possible reason is that Flickr is seen as very much a Western site, therefore people from non-Western cultures feel a need to signal and highlight their nationality. On the other hand, people from Western cultures using Flickr are not as nationally aware. Judging by some of the responses to the questionnaire from people from Peru and Iran who refer to the ‘beauty’ of their country, there is also room to consider a general sense of national pride.

![Figure 85 – Frequency of country name / Individualism (Correlation: -0.69)](image)

### 4.4.2.3 Language

All tags expect four are written in English. Only users from Peru use tags in Spanish. These are: de ('The'), Playa ('Beach'), Mar ('Sea') and Miraflores, which is a seaside district in Lima, the capital city of Peru. The tag de was used by 32% of users from Peru and probably was used in conjunction with another word. This is consistent with the qualitative data gathered in the questionnaire in which the vast majority of respondents from each culture noted they tend to use English to annotate their photos unless it was perceived as having a strong cultural context, which was difficult or impractical to translate to English.

When annotating photos, users consider their global contacts and the wider Flickr community, and opt to use English, which is less likely to exclude people. One respondent in the questionnaire referred to English as being more ‘friendly’ than using one’s native
language. Tags written in a non-English language are presumably aimed at a relative small group of people such as friends, family members and people from the same country.

4.4.2.4 Themes
Overall, the collection of frequent tags in each culture is consistent with the general Flickr collection and the majority of tags refer to nature, landscapes, urban environment, colours and people. Users from the UK in particular share a number of tags, which suggest non-domestic photography with high volume of tags referring to objects, landscapes and architecture (e.g. *tree, trees, church, bridge, garden, park, river, tower, statue, clouds, architecture, castle, cathedral, landscape*).

This finding is consistent with the most common groups among users in the UK sample to be explored later on. It may suggest that a considerable number of users are hobbyists focusing less on domestic themes i.e. friends and family. This notion is reinforced by the presence of the tags *bw* (42%) and *blackandwhite* (38%) that could indicate the use of photos for more artistic purposes. The tag *macro*, which is used by 42% of users from the UK serves as further evidence of semi-professional and professional photography approach by a considerable potion of users in the sample.

Compared to the other four cultures, tags used by users from Iran include more national references. These are: *Iran, Tehran, Persia, Iranian, Persian, Isfahan and esfahan* (two acceptable spellings of the third largest city in Iran). This is consistent with the themes that emerged from the common groups analysis as the majority of common groups names included the word 'Iran' or 'Iranian'.

The collection of frequent tags used by users from Israel consists of significant references to people and individuals: *portrait, me, smile, girl, hair, eyes, baby, woman, man, people* and colours: *red, blue, green, pink, white, yellow, black, orange and colors*. Iran follows closely with: *girl, portrait, child, woman, children*, and *women* while colours include: *green, blue, red, yellow and white*. In comparison, the UK collection includes: *people, portrait, blue, red, green and white*. However, the overall frequency of the four colours shared across the three groups is relatively similar as can be seen in the figure below.
Frequently used tags among users from Israel include also social events, which is less visible in the other cultures, especially Iran and the UK. The tag *party* was used by 32% of users from Israel and *birthday* was used by 40%. *Wedding* was used by 40% of users from Taiwan. The fact that such events do not appear in the UK and Iran may suggest that photos taken by most users are non-domestic and are not meant to capture personal events documenting friends and family members.

### 4.4.2.5 Similarities

The following table outlines tags that most cultures have in common. The only tag that is shared across all five groups is *sunset*. Tags shared by at least four groups are *sea, beach, flower, night, light* and *sky*.

<table>
<thead>
<tr>
<th>Tag</th>
<th>Taiwan</th>
<th>Peru</th>
<th>UK</th>
<th>Iran</th>
<th>Israel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beach</td>
<td>30%</td>
<td>38%</td>
<td>58%</td>
<td>42%</td>
<td>40%</td>
</tr>
<tr>
<td>Flower</td>
<td>50%</td>
<td>56%</td>
<td>64%</td>
<td>32%</td>
<td></td>
</tr>
<tr>
<td>Night</td>
<td>44%</td>
<td>50%</td>
<td>56%</td>
<td>52%</td>
<td></td>
</tr>
<tr>
<td>Red</td>
<td>52%</td>
<td>48%</td>
<td>54%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sea</td>
<td>30%</td>
<td>48%</td>
<td>38%</td>
<td>40%</td>
<td></td>
</tr>
<tr>
<td>Green</td>
<td>48%</td>
<td>56%</td>
<td>46%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sunset</td>
<td>34%</td>
<td>30%</td>
<td>66%</td>
<td>50%</td>
<td>34%</td>
</tr>
<tr>
<td>Light</td>
<td>34%</td>
<td></td>
<td>50%</td>
<td>56%</td>
<td>46%</td>
</tr>
<tr>
<td>Sky</td>
<td>36%</td>
<td></td>
<td>54%</td>
<td>60%</td>
<td>38%</td>
</tr>
<tr>
<td>bw</td>
<td></td>
<td></td>
<td>42%</td>
<td>44%</td>
<td>40%</td>
</tr>
<tr>
<td>tree</td>
<td></td>
<td></td>
<td>66%</td>
<td>60%</td>
<td>30%</td>
</tr>
<tr>
<td>People</td>
<td></td>
<td></td>
<td>38%</td>
<td>42%</td>
<td>30%</td>
</tr>
<tr>
<td>Portrait</td>
<td></td>
<td></td>
<td>42%</td>
<td>46%</td>
<td>46%</td>
</tr>
<tr>
<td>Art</td>
<td></td>
<td></td>
<td>44%</td>
<td>34%</td>
<td>30%</td>
</tr>
</tbody>
</table>
4.4.2.6 Cultural references
Tags used in each group included very few explicit references that were perceived to refer to culture, politics and religion. The tag *mosque* was used by 34% of users from Iran while *church* was used by 60% of users from the United Kingdom and *cathedral* by 38%. It is impossible to understand the context and meaning in which these tags were used and whether for example the photos had more of an architectural than religious context.

30% of users from Israel used the tag *purim*; a Jewish holiday that is commemorated every year were people put on costumes, similar to Halloween albeit for very different reasons. In the context of Flickr, it is most probable that photos tagged with *purim* show people dressed up at a Purim party for example, thus it has more social and leisure context rather than religious one.

4.4.3 Common groups
Similar to the common tags analysis, the common groups analysis examined frequent Flickr groups among users in each culture. Again, the aim was to explore primarily in-group similarities with regard to Flickr groups users are members of. Groups were analysed according to their apparent subject, the use of language in the group’s name and the percentage of users from each culture who were members of particular groups. Several group descriptions are also presented to enrich the results with qualitative perspective.

The results offer a great deal of insight and reveal interesting findings and clear themes. For example, the majority of groups shared by Iranians have a national orientation as the word ‘Iranian’ appears quite frequently and in context that is unique to this culture (e.g. *Iranian Women, Iranian Beauty* etc.) On the other hand, most groups common to users from the UK revolve around pictorialist themes of landscapes and objects, reinforcing the notion that the majority of them are hobbyists and not domestic photographers.

As explained in the methodology chapter, since some users were sampled from the groups *UK, Iranian, Israel, Taiwan* and *Peru* these groups should be ignored. The percentage indicates the number of users in each culture that are members of each Flickr group.
Table 18 - Common groups in each culture

<table>
<thead>
<tr>
<th>Cultural Region</th>
<th>Peru</th>
<th>Taiwan</th>
<th>UK</th>
<th>Iran</th>
<th>Israel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peru (56%)</td>
<td>Flickr Taiwan (English) (76%)</td>
<td>UK (86%)</td>
<td>Iranian (90%)</td>
<td>Tel Aviv (44%)</td>
<td></td>
</tr>
<tr>
<td>Peru Photos (56%)</td>
<td>Taiwan (68%)</td>
<td>FlickrCentral (42%)</td>
<td>Iranian (68%)</td>
<td>Tel Aviv Stories (40%)</td>
<td></td>
</tr>
<tr>
<td>Peru Images (44%)</td>
<td>i ♥ Taiwan (34%)</td>
<td>England (40%)</td>
<td>Iranian Photographers @ Flickr (50%)</td>
<td>flickr.co.il - Israeli flickr community (34%)</td>
<td></td>
</tr>
<tr>
<td>Lima Fotos! (34%)</td>
<td>Night Images (30%)</td>
<td>Black and White (32%)</td>
<td>Iranian Beauty (50%)</td>
<td>Tel Aviv Stories (40%)</td>
<td></td>
</tr>
<tr>
<td>B&amp;W (24%)</td>
<td>FlickrCentral (26%)</td>
<td>London (30%)</td>
<td>Persia and Persian monuments (50%)</td>
<td>Tel Aviv Stories (40%)</td>
<td></td>
</tr>
<tr>
<td>Latinoamericanos! (22%)</td>
<td>Mobile01 (21%)</td>
<td>The British Countryside (28%)</td>
<td><em>ISFAHAN</em> (48%)</td>
<td>my israel (32%)</td>
<td></td>
</tr>
<tr>
<td>Soda Stereo (22%)</td>
<td>Taipei (24%)</td>
<td>Sunsets and sunrises around the world (28%)</td>
<td>Iranian Photo Contest (42%)</td>
<td>B&amp;W (30%)</td>
<td></td>
</tr>
<tr>
<td>South America - public group (20%)</td>
<td>FLOWERS (20%)</td>
<td>UK Landscapes, Sea and Country (26%)</td>
<td>Iranian Portrait (40%)</td>
<td>TA girls (30%)</td>
<td></td>
</tr>
<tr>
<td>Black and White (18%)</td>
<td>Chinese (18%)</td>
<td>Britain in Pictures (Buildings) (26%)</td>
<td>MY WINNERS!Trophy INVITED photos ONLY/Comment on 2 of your faves (40%)</td>
<td>Tel Aviv Stories (20%)</td>
<td></td>
</tr>
<tr>
<td>* Flickr en Español (18%)</td>
<td>Sunsets and sunrises around the world (18%)</td>
<td>Night Images (24%)</td>
<td>B&amp;W (38%)</td>
<td>israel group (26%)</td>
<td></td>
</tr>
<tr>
<td>FlickrCentral (18%)</td>
<td>24 hours of Flickr (16%)</td>
<td>Rivers (24%)</td>
<td>Iranian Women (36%)</td>
<td>Top 20 Israel (20%)</td>
<td></td>
</tr>
<tr>
<td>MY WINNERS!Trophy INVITED photos ONLY/Comment on 2 of your faves (18%)</td>
<td>Black and White (16%)</td>
<td>Churches (22%)</td>
<td>FLOWERS (36%)</td>
<td>Tel Aviv Stories (20%)</td>
<td></td>
</tr>
<tr>
<td>Paisajes del mundo/World Landscapes (16%)</td>
<td>Catchy Colors (16%)</td>
<td>Flickr Diamond: The Diamond Class Photographer - Invited Photos (22%)</td>
<td>FlickrCentral (34%)</td>
<td>Portrait (20%)</td>
<td></td>
</tr>
<tr>
<td>**A Big Fave (Invite Only)-Post 1/Fave or Comment 2 (16%)</td>
<td>Dogs! Dogs! Dogs! (14%)</td>
<td>UK and Ireland! (22%)</td>
<td>IRAN AND IRANIAN (34%)</td>
<td>Guess Where Tel Aviv (20%)</td>
<td></td>
</tr>
<tr>
<td>Peru Flickr (16%)</td>
<td>1-2-3 Taiwan/台湾</td>
<td>Sunrise (22%)</td>
<td>Portrait (34%)</td>
<td>Night Images (20%)</td>
<td></td>
</tr>
</tbody>
</table>
4.4.3.1 Frequencies

When analysing the results, one of the most noticeable findings is that beyond the fourth most common group, the percentage drops significantly below 30% as the subjects become more specific and the chances of users in each sample having specialised groups in common diminishes. This is true in all cultures expect Iran where the lowest percentage is 34% compared to 16%, 14%, 22% and 20% in Peru, Taiwan, UK and Israel respectively. The percentages across all 15 groups common by users from Iran are relatively high with a small margin between each one. This raises two possibilities:

1. As a collective, users from Iran have more similar interests on Flickr compared to users in the other cultures in this study. In that respect, they are more homogenous.

2. The number of users from Iran on Flickr is smaller than users from the other cultures in the study; therefore they are more likely to cluster together in common groups.

The fact that a considerable number of users from Iran in the sample are members of the same Flickr groups links to previous findings suggesting high social activity, primarily the percentage of users that have a testimonial written about them and number of contact and favorites. It is worth referring to the sampling strategy and note that users were sampled from lists of contacts and one group as explained in the methodology chapter. However, this process was applied equally to all five cultures so there is little room to assume that the users from Iran were sampled from a specific cohesive community of users on Flickr.

4.4.3.2 Content and Themes

The emerging themes are fairly consistent with those covered in the tags analysis in the previous section. The most noticeable result is that the majority of groups shared by users from Iran are dedicated to Iranian subjects (e.g. Persian monuments, Iranian portrait, Iranian photo contest and Iranian women). The use of the word Iranian is significant and worth expending upon as it does not simply indicate location but rather national association, which is almost unique to Iran and links to national identity.
None of the other cultures include similar references to people’s national identify; for example *English Photographers, Israeli women* or *Peruvian Portrait*. This could tie in with Iran’s low Individualism value (43) according to Hofstede’s, which indicates group-orientation.

In order to better appreciate the meaning, purpose and perception of some of the Flickr groups mentioned in this section, it is worth referring to the short description that appears on the main page of each one. However, this is not meant as a formal content analysis.

**Iranian Women group description:**
*This group is all about Iranian Women. So you can submit any photos related to Iranian Women living anywhere in the world. But there is one rule: there should be an Iranian lady/girl in each picture, please!* Thanks

**Iranian Beauty group description:**
*This group is about Iranian culture, nature, people and every thing is associated with Iranian beauty.*

**Persia and Persian monuments group description:**
*This group is all about Great country of Iran (Persia). Please just post photos about Iranian historical places and monuments, you can also post photos of Iranian modern architecture, (Iranian Architecture in general) but please don't send photos of people or nature here. Thanks.*

There is strong emphasis on Iranian culture and references such as ‘Great country of Iran’ and ‘Iranian Beauty’ that is indicative of national pride and national orientation. Albeit these are only three groups they should be considered in relation to the other group descriptions.

The groups common to users from the UK focus mainly on pictorialist photography (e.g. *The British Countryside, Rivers, Churches, UK Landscapes, Sea and Country*). Similar to the observation made during the tags analysis, there is no explicit reference to people as prime subjects as seen in Iran and Israel with group names such as *TA Girls, Portrait* and *Iranian Women*. Reading through some of the group descriptions, there are references to
‘the great British countryside’ and ‘the beauty of the UK’s sea and countryside’, which help to appreciate the noticeable interest in these photography subjects.

**UK group description:**
*Group primarily for members based in the United Kingdom. However, all are welcome to join.*

**The British Countryside group description:**
*All pictures of the great British Countryside and all that comes with it. Post as many pictures as you like.*

**UK Landscapes, Sea and Country. group description:**
*Photos of the beauty of the UK's sea and countryside.*

Among users from Israel the most dominant theme is Tel-Aviv (One of Israel’s largest cities), which was also the most frequently used tag among these users. The name Tel-Aviv appears in five groups (including *TA Girls*. At the time of writing, the *TA Girls* group description reads: “the gorgeous ladies of Tel-Aviv, and even those who aren’t so gorgeous’.) The word *Israel* appears six times but only once in a descriptive context (e.g., flickr.co.il - Israeli flickr community). All the group names are in English expect one, which loosely translates to “Flickr meeting – And the city was filled with flash!”

**Tel-Aviv stories group description:**
*Life in Tel-Aviv. Post and share anything to do with our special Urban life, if it's Art / Exhibition, please give details. Don't forget to discuss about events, parties, exhibitions and any other social / culture activities in Tel Aviv.*

**My israel group description:**
*Everything and everywhere that remind u "israel"*

===== The Israel Project ===== group description:
*To put it simply, everything Israeli belongs to this group. This is a photographic forum, please post pictures of all kinds, but refrain from heated discussion, thx.*
People looking for political issues will be welcomed in other groups, list follows.

Compared to Iran and the UK the descriptions suggest a more casual approach, which does not strongly suggest pictorialist photography or national orientation.

Common groups among users from Peru are very general and do not focus on specific subjects observed in Iran, Israel, the UK and Taiwan. Peru has the highest percentage of groups with a non-English name as four names are in Spanish. Four groups include the word *Peru* and one includes the word *Lima*. Similar to Iran, one of the descriptions includes a reference to Peru as a ‘Great country!’ Names is in Spanish may also be indicative of national orientation or simply be the result of language proficiency. Some of the group descriptions are:

**Peru photos group description:**
*Peruvian Photos*

**Peru images group description:**
*Photos from Peru (Lima, Cusco, Inca Trail, etc.) Open to all ...*

**Peru group description:**
*Para toda la gente que tenga algo que ver con este gran pais!*
(Translation: To all the people who have anything to do with this great country!)

Common groups among users from Taiwan don’t seem to have a dominant theme and combine generic groups such as *Taiwan* and *Taipei* along some special interest groups (e.g. *Black and White, FlickrCentral*). Apart from the name ‘I ♥ Taiwan’ there is little explicit national orientation as was observed in Iran and to some extent in the UK Flickr groups. There are specific references to Chinese or Taiwanese locations, objects or people (e.g., *Taiwanese landscapes*). Chinese appear once as part of a name of a group, which translates to *1-2-3 Taiwan, Taiwan has Alishan* (Alishan is a name of a mountain in Taiwan).
I ♥ Taiwan group description:

*Enjoy yourself in Taiwan. Photograph what you like and prefer. Taiwan is a paradise for everyone. Everything about Taiwan. Have a nice new life here*

Flickr Taiwan (English) group description:

*I would like to invite you to Join our group. Actually, you don't have to be a Taiwanese to join us! If you would like to know more about Taiwan (One of the most beautiful Islands in the world), welcome to join us!! Of course, if you've been in Taiwan B4, we will be more than happy having you sharing your photos and life in Taiwan. Have a great day!!!*

Quite similar to Israel, the overall approach is very casual and inviting and there are no strong national references as was observed in Iran and to some extent in Peru.

4.4.3.3 Similarities across cultures

Apart from FlickrCentral, all the groups that are shared by at least two cultures target hobbyist and professional photographers as they focus on style (e.g Black and White) and a particular subject. All were reflected in the tags as well and none of the groups focus on a domestic i.e. friends and family. This is not surprising given that groups, according to most questionnaire responses, are a place where people show their work in order to receive feedback and attract viewers. Domestic photos on the other hand are shared with a much smaller and often familiar audience, probably the people featured in the photos or people who know who they are.

<table>
<thead>
<tr>
<th>Flickr group</th>
<th>Taiwan</th>
<th>Peru</th>
<th>UK</th>
<th>Iran</th>
<th>Israel</th>
</tr>
</thead>
<tbody>
<tr>
<td>B&amp;W</td>
<td>24%</td>
<td></td>
<td>38%</td>
<td></td>
<td>30%</td>
</tr>
<tr>
<td>Black and White</td>
<td>16%</td>
<td>18%</td>
<td>32%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Portrait</td>
<td></td>
<td></td>
<td>34%</td>
<td>20%</td>
<td></td>
</tr>
<tr>
<td>FLOWERS</td>
<td>44%</td>
<td></td>
<td>36%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FlickrCentral</td>
<td></td>
<td>18%</td>
<td>42%</td>
<td>34%</td>
<td></td>
</tr>
<tr>
<td>Sunsets and sunrises around the world</td>
<td>18%</td>
<td></td>
<td>28%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Night Images</td>
<td>30%</td>
<td>24%</td>
<td></td>
<td>20%</td>
<td></td>
</tr>
</tbody>
</table>
4.4.4 Sets analysis

The sets analysis reviled that the use of native language and English was consistent with the findings described in the language analysis section. Users from Israel and Iran use English almost exclusively. Users from Taiwan use Chinese and English quite equally with a considerable number of names combining both languages. However, users from Peru again use primarily Spanish. As suggested in the language analysis section, this could be the result of a number of factors (e.g. language proficiency, objectives etc.).

<table>
<thead>
<tr>
<th>Culture</th>
<th>English</th>
<th>Native</th>
<th>Combined</th>
<th>Total sets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iran</td>
<td>97.3%</td>
<td>1%</td>
<td>1.7%</td>
<td>294</td>
</tr>
<tr>
<td>Israel</td>
<td>97.2%</td>
<td>2.7%</td>
<td>0.1%</td>
<td>501</td>
</tr>
<tr>
<td>Peru</td>
<td>11%</td>
<td>87.2%</td>
<td>1.8%</td>
<td>481</td>
</tr>
<tr>
<td>UK</td>
<td>100%</td>
<td></td>
<td></td>
<td>711</td>
</tr>
<tr>
<td>Taiwan</td>
<td>39.8%</td>
<td>38.8%</td>
<td>21.4%</td>
<td>718</td>
</tr>
</tbody>
</table>

A second interesting finding is that set names are far more personal and specific than tags. This could be explained perhaps by the fact that unlike tags, sets are non-searchable and thus don't play a strategic role in attracting viewers to the user's collection. For that reason, the name a user chooses doesn't have to be generic and predictable as was observed with tags. Overall, most of the names given to sets were unique, specific and quite personal (e.g. Birthday TAR 31.10.06, Boaz Day by Day, First day at Gila's kindergarten, Balloon trip from leeds castle, 4th Iranian Flickies Gathering).

There were a very few noticeable exceptions were the same set name was used by a considerable number of users. The name NYC was used by 14 users from Israel and the name Nature was used by 14 users from Iran. As discussed in the literature review, besides allowing users to group there photos in logical collections for easy retrieval, sets also enrich content with context and meaning. They serve functional as well as social purposes.
4.5 Open-ended questionnaire

44 users, between the ages of 14 and 47 (mean=27.3, SD=6.4) completed the questionnaire (25 males and 19 females). The response rate was about 10%-15% for each group.

<table>
<thead>
<tr>
<th>Culture</th>
<th>Total responses</th>
<th>Males</th>
<th>Females</th>
<th>Mean age</th>
<th>SD age</th>
<th>Unknown age</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iran</td>
<td>7</td>
<td>4</td>
<td>3</td>
<td>25.1</td>
<td>3.5</td>
<td>0</td>
</tr>
<tr>
<td>Israel</td>
<td>9</td>
<td>2</td>
<td>7</td>
<td>26.6</td>
<td>4.9</td>
<td>0</td>
</tr>
<tr>
<td>Peru</td>
<td>10</td>
<td>4</td>
<td>6</td>
<td>23</td>
<td>14.1</td>
<td>2</td>
</tr>
<tr>
<td>UK</td>
<td>10</td>
<td>9</td>
<td>1</td>
<td>29.6</td>
<td>8</td>
<td>2</td>
</tr>
<tr>
<td>Taiwan</td>
<td>7</td>
<td>5</td>
<td>2</td>
<td>26.8</td>
<td>2.6</td>
<td>1</td>
</tr>
</tbody>
</table>

The responses were very insightful and offered valuable qualitative data that complements the findings outlined so far. However, the fact the questionnaire was administered primarily in English could have had an impact in terms of breadth of responses from Taiwan. Unlike users from Iran and Peru responses were very short and provided fairly limited data compared to the other groups. The end result provides important information regarding user’s motivations, perceptions, tagging behaviour and use of language to annotate content on Flickr.

The questionnaire focused on four main aspects: 1) General Flickr usage and motivational factors 2) Language preferences 3) Tagging patterns 4) Social interactions.

4.5.1 Overview of findings

Reading through the responses it became very clear that regardless of cultural background, Flickr users in general have considerable things in common. Most enjoy displaying their work and value feedback and interaction with people from around the world. They see Flickr as an effective learning ground where they constantly learn from other people’s work and comments. Tags are used to facilitate content retrieval while also enable others to find that content.

Similar behavioural patterns were observed across all five cultures as well as more unique instances that stood out and were limited to one or two groups. For example, two Iranian
respondents commented that they are motivated in part by the will to show people the “beauty” of their country and city. This links directly to the patterns observed in the qualitative groups and tags analysis, which suggested strong national orientation. The majority of Iranian respondents mentioned they quote poems in Persian when annotating content. This proved to be a very interesting and unique finding to Iran, which also relates to sense of national pride observed throughout the study.

Responses were generally consistent with the literature covered regarding tagging and photo sharing behaviour (Ames & Naaman, 2007). In broad terms, user motivation and behaviour was governed by personal and social considerations relating to content organisation and communication. Tagging was used to organise content for easy retrieval while also communicated meaning to others.

Through some of the responses it also emerged that users’ perception and behaviour may change over time. One respondent for example mentioned that she started to use Flickr to show-off her photos but after a while began using it mostly to stay in touch with friends. One initial hypothesis was that users from cultures with high Individualism value would be more likely to be driven by a desire to express and promote themselves on Flickr as opposed to users from cultures that are more group-oriented.

The findings are first presented and addressed on a general scale before a comparison is made between the five groups to highlight similarities and differences.

4.5.2 Reasons for using Flickr

Respondents gave a variety of reasons for using Flickr. Some were more common than others (e.g. receive feedback, share photos, improve one’s skills as a photographer) while others were unique (e.g. seeing other people’s lives). This emphasises the fact Flickr caters to a wide range of needs and preferences. To some it is a professional showcase where they can display their work for all to see. For others it offers an easy way to keep in touch with friends and share photos with family members. Not surprisingly, most of the reasons given had strong social context and referred to sharing and interacting with others. Several respondents mentioned more self-centred reasons for using Flickr such as exposing and documenting their lives or the need to be recognised and appreciated as a photographer.
The following are the overall reasons given for using Flickr, displayed in no particular order:

1. Provides motivation to take photos
2. Receiving feedback from others
3. Learn from others and improve one’s skills as a photographer
4. Provides inspiration
5. Seeing other people’s work and talent
6. Connect with other photographers
7. Share photos with friends and family
8. Storing photos (backup)
9. It is free
10. Seeing other people’s lives
11. Pro account option
12. Socialising / Making friends / Getting to know people
13. Seeing photos from around the world
14. Self-expression
15. Self-documentation (memories and moments in life)
16. Self-exposure
17. Self-exploration
18. Self-promotion / Recognition
19. Display and share photos
20. People respect photos
21. Number of people using Flickr
22. Show people the beauty of one’s city or country

From a cultural perspective there is a clear distinction between self-oriented and group-oriented reasons. One initial hypothesis was that users from a culture with high Individualism index would be more likely to use the site for more self-centred reasons such as gain recognition and share their lives with a global audience, while users from a culture with low Individualism value were assumed to focus more on friends, family and perhaps even their country.

Most users from the UK referred to Flickr from a professional point of view, as a place where they can show their work, learn from others and receive feedback. This is consistent with the data presented so far showing a strong tendency to share non-domestic photos of nature, landscapes and buildings. Out of 10 respondents, only two mentioned that they share photos with their friends.
These are some of the responses given by users from the UK as to why they use Flickr:

I use flickr to display my photos, connect with other photographers and to learn how to be a better photographer. I also use it to socialise and meet up with people. (Male/29)

So that they are viewed and not kept in a draw to collect dust. (Male/47)

Because otherwise me photos don’t really have an "end product" - because I am not a pro photographer my shots are not published anywhere or shown in galleries etc, so without something like flickr I have no motivation to "finish" things (especially since I work with digital so I dont even get prints most of the time). Also, I am keen on getting better as a photographer but I dont really read books about photos or famous photographer - flickr lets me see more people's work, and often share knowledge with other people. (Male/28)

To share my work with others, get feedback and improve. To see others work and learn from them. (Male/32)

To get feedback on my photography work. To show my friends. To promote myself and get more well known as a photographe. (Male/20)

Responses by users from Taiwan focused on the functionality and design of the site emphasising the Flickr interface:

I like the way of photos displaying on flickr, clear, diversify, convenient and the usage. (Male/26)

I love its stable service and friendly UI (Male/30)

I like the layout and I like the community (Male/28)

The majority of responses provided by users from Israel were quite self-centred and focused on social aspects (e.g. feedback and social networking). Some suggested self-
exposure and self-promotion. Other people were mentioned primarily as an audience or source of inspiration.

*Gain recognition. I look for feedback in other places. It’s a good way to keep in touch with friends. Compared to a phone conversation, it is easier to see what my friends have been up to based on their photos and talk about it during the weekend.* (Female/19)

*Although I am a very private person, Flickr is a way to expose myself in front of others. It’s a way to explore new areas of my personality as well as that of others. It is also a way to document a period and get motivated to take photographs.* (Male/32)

*The ability to share my life with other people, which is something I wouldn’t do in real life. Meeting people from all over the world and see amazing things.* (Female/28)

*Self-promotion. Promoting my photos and website to a wide and unknown audience. Also a source of inspiration.* (Female/25)

*Flickr is the first social network I got hooked on, even though today I mostly use Facebook and other sites. At first it was just a matter of showing off cool things but then it became more artistic. I bought a better camera and started considering shooting angles and so on. It pretty much ended up being a regular community more or less of friends who comment on each other’s work.* (Female/29)

This is consistent with the themes identified previously, especially during the qualitative tag analysis. It too showed a clear emphasis on people and individuals with common tags such as *me, portrait, man, smile* and *people*.

Among users from Peru, there was a dominant social theme as most noted they like sharing photos and interacting with people from around the world. The first quote is of particular interest as the respondent describes how she wants people on Flickr to see the beauty of her country. Similar national pride was expressed by two respondents from Iran.
who also used the word *beauty* to describe their country. Albeit these are isolated cases they link to the observation made during the qualitative tags and groups analysis, which showed a clear national-orientation.

*My main reason is to share photos with people from all around the globe, I like to take pictures from my hometown and publish them on Flickr so people can see the beauty of my country. Another reason would be just to get some feedback from my photography. I love photography, but I'm no expert and I know there are a lot of professional photographers on this network so I appreciate every comment once in a while. I use it to share pictures with my friends as well. Every picture I upload to Flickr doesn't have to be, you know "the" picture, I just like to know there's somebody else enjoying what I upload. (Female/Unknown age)*

*I can interact with other people who share my interest and vision about photography, and I can learn and know about other people points of view. I can share my photos with friends without having to take them with me. (Male/47)*

*To exhibit my photos, I'm not an expert taking them, but I like people to look at my memories, and special moments in my life. (Female/19)*

*I like to share and watch pictures from all over the world. (Male/38)*

Responses from users from Iran focused on photography and the desire to improve one’s skills and abilities through interaction with others. Flickr is described as an effective learning environment to get better as a photographer.

*Different reasons... sharing the beauties of my city with other people also seeing other parts of the world by photo, and of course learning new things about photography and improving my skills by looking at other photos. (Female/23)*

*Showing my best photos to other and understand the errors and advantages of those shots. And also have relation with my friends that I found them in flickr (Male/22)*
I love photography and I am trying to continue my course of professional photography, so I can get comments about my works to improve them and also can see great photos to find new ideas and methods. (Female/26)

I'm a photographer, I like to know how am I, and where am I standing. am I good or bad. just like others. and I like to know what do others think of my works. & I also have to say what I think of them!(Male/24)

I use flickr to higher my photography abilities by knowing which of my photos are viewed more and what's their opinion about my photos. (Male/29)

4.5.3 Reasons for using native language
One of the prime objectives of the questionnaire was to explore the circumstances in which users, whose first language is not English, chose to use their native language on Flickr when annotating content. This was especially important given the clear differences observed between users from Israel and Iran who use English almost exclusively unlike users from Taiwan and Peru.

Again, the responses were varied and in certain cases quite unexpected. The majority of users commented that when a photo is aimed at friends and family or has a strong cultural context that is hard to convey in English, they would use their native language to annotate it. The following are the overall reasons given for using one’s native language to annotate content, displayed in no particular order:

1. The photo is meant to be viewed by family members or native language-speaking friends
2. The photo is meant to be viewed by native language speaking people
3. The photo features friends
4. Inability to spell a word properly
5. The meaning is lost or misunderstood in English
6. There’s no appropriate translation (name of a band)
7. Specifying a name of a place
8. The context of the photo is culture-specific
9. When quoting text (poem, song)
10. When using slang
11. Someone may search for the photo in one’s native language
12. The photo is not made public
13. The photo has a religious meaning
14. The photo is related to local literature (poem)
There are cases were translation is not practical such as when specifying a name of place or a band for example. Probably the most significant and interesting finding was that five out of eight respondents from Iran mentioned they use Persian when quoting a poem. Such finding strongly reinforces the data suggesting clear national-orientation, which expressed on Flickr in a variety of ways. The matter of Persian poetry on Flickr was explored further using an Iranian discussion board and revealed that the use of poems is common among Iranian users.

These are some representative responses to the question “When would you use your native language?”

*When I want to introduce a place or important sentences which I want every one could read it I use English but I use my language when English couldn't answer it for example lovely Persian poems showing my feeling looking at that special photo which translating them wouldn't be good.* (Female/23/Iran)

*When the photos are more of family gathering in nature, so my close friends and family can read it. And sometimes when the title expresses better in Mandarin.* (Male/28/Taiwan)

*I’ll use Hebrew depending on the context of the photo and when I know that someone who isn’t Israeli won’t fully understand the meaning.* (Female/19/Israel)

*I’ll use Hebrew when the context is very much local or when I post photos of friends.* (Female/29/Israel)

*I use my own language -Spanish - mostly for local names or situations that I cannot simply explain in English.* (Male/33/Peru)

*When the situation or cultural issue related is very locally oriented sometimes can be hard and boring explain what is going on to foreign people* (Male/45/Peru)
The frequent references to Persian poems (5 out of 8 respondents) prompted further investigation using one of the discussion boards. The topic was of great interest as it was unique among the five cultures and was very much rooted in culture. During a discussion it became clear that Persian poems are used often when describing or commenting on a photo. The following quotes by three different users summarise the responses given during the online discussion regarding the use of Persian poems on Flickr:

"Poems used are either traditional or non-traditional; those are used to explain emotions, opinions, feeling, succinct narrative, confirmation and sometime for criticizing and so on..... Sometime, the poem may be used for describing a picture and it is possible someone has a thought, then he uses a picture and poem to describe that."

"...Poetry is an important part of Persian culture. I, personally, have come across lots of pictures taken by Iranians that include a Persian poem in its description."

"A poem written under a photo, does not necessarily describe a landscape or introduce somewhere/something; A poem could be an expression of the photographer's mindset at the moment of shooting or even a new interpretation thereof after seeing the photo from his own point of view. And this is the standing and influence of poems in Iranian culture and other Iranian art forms, even in a modern art such as photography."

4.5.4 Reasons for using English

The majority of respondents from Israel, Peru, Taiwan and Iran noted they tend to use English, though not always exclusively, to annotate content in order to make it accessible to a global audience. Contacts are also frequently considered and the use of native language tends to be limited to specific instances as mentioned in the previous section.
The following are the overall reasons given for English to annotate content, displayed in no particular order:

1. Reach a global audience
2. Receive feedback from as many people as possible
3. Increases opportunities for interaction
4. Most of the users on Flickr speak English
5. Represent one’s country to others in the world
6. English is a universal language
7. Friends and family members don’t speak one’s native language
8. Sometimes things sound better in English
9. Contacts don’t speak one’s native language

These are some representative responses to the question “Do you sometime use English to describe your photos?”

Yes, considering that the majority of user on flickr are not Mandarin speakers, I’d like as many people to be able to understand my descriptions as possible. (Male/28/Taiwan)

Yes. I use English to address a wider global audience, so that people abroad could view them. Sometimes, things simply sound better in English. (Female/19/Israel)

I am using English since my family members and friends don’t all necessarily speak Hebrew. Once the photos are made public, I think that the use of English is more 'friendly', because anyone who understands English can read and comment. Using only Hebrew limits and restricts you to a Hebrew speaking community. (Female/32/Israel)

I do use English most of the times because English is the universal language and is more likely that people know English other than Spanish. (Female/14/Peru)
I use both, depending on the type of photograph and depending to who is the picture meant to be seen. (Female/26/Peru)

Yes, mostly English and because this is the international language. Although I use my own Persian poets as caption for some of my pics. (Female/27/Iran)

4.5.5 Reasons for using tags

Motivation for tagging was fairly consistent across all five cultures, noting primarily that it facilitated content retrieval and enabled other Flickr users to find the content. The following list of reasons given for tagging corresponds to Ames and Naaman’s taxonomy for tagging motivation (2007). Tagging was used to communicate meaning and organise content for personal as well as social reasons.

The following are the overall reasons given for tagging, displayed in no particular order:

1. Search photos easily
2. Allow people to find the photos
3. Add information and describe a photo to others
4. Add personal reminders
5. Tell stories about photos
6. To enable the people featured in the photo to find it
7. Entertainment value (jokes)

These are some representative responses to the question “Do you tag some of your photos?”

Yes, nearly all of them. Most of the tags are just so the photo will be findable in a search - so my tags tend to be where the photo was taken, what camera was used and what the subject of the photo is. (Male/28/UK)

Yes, all of them. It’s the easiest way for people to find your photos when they use the searchbar. (Male/23/Taiwan)

I use tags but not the obvious generic ones. I gave that up long time ago. I’m using them now to describe the image. It could be a joke or part of a song. What ever comes to my mind at that particular moment. (Female/19/Israel)
I used to use tags when I first started using Flickr so people could find my photos and me as well. Slowly I gave up using them at all. (Female/28/Israel)

I always tag my pics. In the first place in order to catalogue them so I can find more easily what I am looking for, and to allow other people do the same with my pics. (Male/45/Peru)

YES. For all reasons that they have created this TAGGING thing! It is to make others' job easier to find what they are looking for. We are here to be clear... not to be hide from each other! (Male/24/Iran)

4.5.6 Reasons for joining groups
All the respondents, except 3 (One from Peru and two from Israel) replied that they are members of some Flickr groups. The vast majority found groups beneficial and useful in order to meet other users with similar interests. There was consistency in terms of reasons given across all five groups and no particular trends were observed. Two respondents from Israel noted they gave up on the idea of groups since they ‘under maintained’, ‘crowded’ and ‘anyone can join’.

The following are the overall reasons given for joining Flickr groups, displayed in no particular order:

1. Display photos to likeminded people
2. Get feedback and ideas
3. Socialise and meet up with people at Flickr meetings
4. To be able to present my photos to wider audience
5. My friend invited me
6. Share photos with people who are not my contacts
7. Its fun to share pictures and talk about them
These are some representative responses to the question “Are you a member of any Flickr group?”

Yes, a lot. Mainly to display photos to likeminded people, get feedback and ideas for becoming better. I also socialise and meet up with people at flickrmeets. (Male/29/UK)

Groups relating to my interests are my main focus, a place again to learn about particular kinds of photography. (Male/32/UK)

Yes, so I can view and share with as many people as possible and to view great inspiring works. (Male/28/Taiwan)

I am a member of a number of groups in order to share photos with people who are not my contacts. Groups also allow me to view photos based on themes and come across new talented individuals. (Female/19/Israel)

I am not a member of any group. They are too crowded and anyone can join. When I was a member of a group, I hardly ever browsed through it. The best to come across things on Flickr is using contacts. (Female/25/Israel)

I am a member of many groups, most of them I have been invited to. It’s a way of showing your photographs to a wider audience (Female/Unknown age/Peru)

As I said I like the interactivity of flickr and this interactivity is not only between ME and Web, it is also between ME and OTHERS. Groups help me to interact with other flickr users. (Male/32/Iran)

4.5.7 Establishing friendships

In retrospect, the last question in the questionnaire was very open, resulting in the most varied collection of answers. Respondents were asked had they made any friends on Flickr in order to explore the social networking aspect of the site and how it differed across the five cultures.
The word ‘friend’ could be interpreted in different ways, especially in the context of an online experience. Iran was the only group, which included only positive and in some cases, highly enthusiastic responses (e.g. “WOW! Manyyyyyyyyyyyyy”, “So many!”). This finding is consistent with a number of results described earlier, which suggested an increased social activity among users from Iran compared to users in other groups (e.g. percentage of users with a testimonial, average number of contacts per user, average number of groups and favourites per user).

Responses could be classified as following:

1. I have not made any friends / wouldn’t classify them as friends
2. There are some people on Flickr I keep in touch with through mutual commenting and messaging
3. I have made ‘virtual friends’ on Flickr
4. I have made real life friends on Flickr
5. I have met my boyfriend/girlfriend through Flickr

The diverse responses in each group suggest that the social networking aspect of Flickr is perceived on an individual basis, with some users socialising to a greater extent and various degrees than others. Some social ties are stronger and more meaningful than others and in some instances they cross over to real life. Three respondents (two females from Israel and a male from Iran) answered they are romantically involved with a person they met on Flickr. This highlights the social richness found on the site, which craters to different needs and preferences.

These are some representative responses to the question “Have you made any friends through Flickr?”

Yes now [I] go on photoshoots with new friends and swap ideas (Male/47/UK)

Depends what you call friends! I haven't met any flickr people in real life that I hadn't met before I joined, but there are a few people I do consider as "internet friends". (Male/28/UK)

None that I would send a postcard this Christmas (Male/28/Taiwan)
I wouldn’t say I met very good friends, but a few my close friends have Flickr accounts and I was able to learn new things about their lives. Things I don’t see when we meet. I’ve met a number of people I would never otherwise have met. I’m relatively shy, which doesn’t really fit Flickr in a way, but it does allow a sort of minimal exposure. (Female/28/Israel)

Of course. I dated five men I met on Flickr and one of them introduced me to my current boyfriend. There are other platonic friends and I also met quite a lot of girls who ended up being good friends offline as well. (Female/29/Israel)

I've made some 'virtual friends' and there's no contact with them beyond mutual comments. (Female/32/Israel)

Well, I have many contacts, but still I wouldn't say any is a real friend, but they're all nice people. (Male/33/Peru)

Friends in the Flickr world yes, but we don’t get personal. (Female/Unknown age/Peru)

Yes I have some friends. At least I think about them in that way. (Male/45/Peru)

Yes, I have made lots of friends through flickr. Even I met my current girlfriend in flickr meetups! (Male/32/Iran)

YESSSSSSSSSS ! some of my best REAL friends now , are the flickr members before and flickr give them to me !!! (Male/22/Iran)

4.5.8 Summary of questionnaire responses

The questionnaire responses show that despite common characterises shared by most Flickr users, there are also visible cultural patters and trends, which are more dominant in some cultures as opposed to others. The results are consistent with a great deal of data presented in the user and especially group data section of the results chapter.
The responses provided valuable qualitative data, which places the figures regarding usage in context and perspective. It is most evident that Flickr popularity and success could be attributed to its flexibility and the way it enables users to utilise it for a wide array of reasons, which could be either very function, very social or a combination of both.
5 CONCLUSIONS

This chapter summarises the research and includes a reflective account of the objectives, methodology, results, limitations of the study and future directions. The validity of the results is addressed as well as the extent to which they could be generalised and applied to other user content driven websites other than Flickr. Challenges and problems encountered during the research are presented as well as lessons learnt.

5.1 Introduction

This study sought to explore cultural differences in user content driven website by focusing on Flickr as a case study. The primary research question was: To what extent does cultural background impacts the use of a user content driven website? In order to answer it the research approach was to collect and compare different data from five national cultures and observe if there are any noticeable patterns that could be attributed to cultural background. Once any differences were encountered the task was to try and explain them. This was attempted partially by applying Geert Hofstede’s cultural model, which have been widely used by HCI researchers investigating cultural differences.

The data analysis revealed noticeable and consistent trends and patterns; however most were too contextualised and sometimes general to be interpreted using Hofstede’s model. They were more about “Flickr culture” than national culture and the correlations with most of the quantitative data were very weak. This could be for a number of reasons such as the model’s validity or the appropriateness of the Flickr data used in the correlations. In this case, it is believed that the latter is the probable cause.

The study focused on overall group differences and aimed to answer such questions as: “Would users from Peru be more likely to have fewer contacts than users from the UK?” for example. The view taken is statistical and does not try to account for the behaviour of specific individuals. As the following figure illustrates, Flickr users are unique individuals that are affected by the culture they were born into and all are also affected by a greater and ‘Flickr culture’ that every user, to a certain extent could be seen to be a member of.
The bottom layer represents what most Flickr users are likely to have in common such as appreciating feedback and enjoying the various options offered by the system. However, the study showed that when comparing users based on their nationality, in some groups users are more likely to appreciate the casual side of Flickr as opposed to the more professional learning-driven aspect. In some cultures and for various reasons, users are less likely to have a Pro account and thousands of photos as was observed with Iran and Peru.

The individual layer at the top of pyramid represents the large standard deviations observed with most parameters during the data analysis. This was not surprising and expected. On a group level i.e. the middle layer, it was evident that whereas users from one culture were more likely to annotate their content in English (e.g. Israel), users from another culture preferred to use their native language (e.g. Peru). It was also quite obvious that users from Iran were more likely to have tags in common than users from Peru or Taiwan.

The results presented in this study are statistical probabilities that have been proven to be fairly solid based on the data collected and analysed in the different sections. The validity of the results is in part supported by the consistency observed throughout the analysis stage.
5.2 Objectives review

The objectives of the project were as follows:

1. Compare and contrast parameters between users from five cultures in order to explore the impact cultural orientation has on the use of Flickr, and user content driven websites in general
2. Apply Geert Hofstede’s cultural model to those parameters and investigate the degree to which they can account for any differences and similarities found
3. Investigate user perceptions, preferences and motivation for using a user content driven website like Flickr
4. Identify both Flickr-specific and general cross-cultural considerations that could inform the development of future user content driven websites

5.2.1 Objective I – Compare and contrast parameters

This objective was achieved successfully as the study included a variety of parameters used to compare the five cultures in order to explore differences and similarities that could be linked to cultural orientation. The majority of the parameters were quantitative with some originating from qualitative methods. The breadth and combination of parameters has made it possible to identify clear trends and patterns that strongly suggest that national culture has an observable impact on the use of Flickr.

The parameters were chosen based on their availability and potential cultural relevance to Geert Hofstede’s model. Noticeable differences as well as similarities were evident from a relative early stage of the data collection and the process was continued iteratively until data saturation was reached and it was observed that additional contributions do not have a significant impact on the results.

The majority of results were unexpected and very interesting. They highlighted important differences with regard to tagging behaviour, use of language and motivation for uploading and sharing content with others online. The Pro account analysis indicated that national culture has a considerable impact on people’s ability to access the Internet and specific sites due to government mandated ban, as is the case in Iran. Furthermore, it also
affects people’s financial means and likelihood of spending money. All of which are relevant to a wide range of sites and applications other than Flickr.

The parameters used in the study were divided to user data and group data and in some cases were complementary. For example, the user data tag analysis reviled that users from Peru used the highest number of tags however the group data showed that as a collective, users from Peru had very few tags in common, unlike users from Iran, Israel and the UK. This was crucial data that suggested that as a group, Peruvians are probably more likely to tag content for personal reasons. This may also suggest their photos are more domestic in nature and are not meant to be viewed by a wide audience.

The language analysis was also extremely important and exposed obvious trends as users from Israel and Iran rarely used their native language to annotate content and preferred to use English. This implies they target a global audience and also do not wish to exclude any contacts they have from other countries. In that sense, the Flickr experience is more universal. On the other hand, users from Taiwan and especially Peru used primarily their native language. Besides intent, there is also the matter of language proficiency, which could help explain the reason why Flickr is also available in Spanish and Chinese.

The analysis of the number of users in each culture that have a Pro Flickr account exposed an important aspect of cross-cultural design that is sometimes easy to overlook as people are not necessarily aware of local restrictions on Internet usage, as is the case with Iran where Flickr is banned by the government. Users from Iran had to resort to hacks in order to bypass a national ban and use Flickr, which is also a testament of Flickr’s value. Although it is not known why the Iranian government censor Flickr, one interesting hypothesis is that the concept of user-generated content is less acceptable in cultures with large Power Distance and low Individualism value.

One of the most significant conclusions from the parameters analysis is that in order to fully appreciate the data, the researcher needs to be very familiar with the cultural and functional context of the site under investigation. Flickr contacts for example, differ significantly from the ‘friends’ concept that dominates such sites as Facebook and Myspace.
Because Flickr is based around one specific subject i.e. photos, contacts also play a functional role as they allow users to follow the activity of others with whom they probably never exchanged a word. Groups also need to be understood in the context of Flickr and content promotion and should not simply be seen as a social mechanism.

5.2.2 Objective II – Apply Geert Hofstede’s model

Hofstede’s model has been quite popular among researchers investigating cultural differences in HCI and while some reported satisfactory correlations and findings, others found the model to be less useful when used in the context of interface design (Callahan, 2005). In that respect, the research approach was fairly standard as quantitative data was correlated with Hofstede’s scores.

The majority of correlations were very weak and only three was between 0.6 and –0.6 and considered strong. The more meaningful correlations were observed with regard to more qualitative data such as the frequency of the country and capital city names in tags common among users in each culture. In those cases, the data was more specific as opposed to Flickr parameters such as total number of contacts.

The data obtained from calculating Flickr parameters was too general as only public data could be used in the study. At such level of abstractness it is very difficult to extract potential meaning that could be linked to cultural orientation. A prime example is the number of contacts as user has, that could have been more useful had it was broken down to contacts specified as a ‘friend’ or ‘family’. Considering the various roles that contacts play on Flickr, referring to them as homogenous is likely to create a too much ambiguity.

Out of the four dimensions, only Individualism, Power Distance and Uncertainty Avoidance were seen as potentially relevant to the use of Flickr. A strong positive correlation of 0.89 with the average number of tags a user had could be interpreted as a need to better organise content by annotating it with more tags for example. On the other hand, a strong negative correlation (-0.71) with the average number of public groups a user is a member of might be read as the need to focus on a small number of groups in order to avoid uncertainty when it comes to sending a photo to groups.
The relevance of Hofstede’s model to study cultural differences on a site like Flickr is questionable and any conclusion is mostly speculative at best. During the study it was felt there are too many variables and contextual considerations that impact how people use a site like Flickr, making any assumptions related to Hofstede’s dimensions too superficial and detached from the context of use.

One example is the use of English to annotate content as users from collectivist cultures (Peru and Taiwan) used primarily their native language. Looking at this finding from a ‘Hofstedian’ perspective may suggest that such users opt to use their native language because they mainly target their friends, family members and people from their country. However in this case it is probably just a matter of language proficiency (whether English proficiency is linked to a cultural dimension is another matter).

Another important example is the relative intense social activity observed among users from Iran, which initially was attributed to Iran’s low Individualism value. Although a collectivist orientation may well impact users’ level of sociability, the fact that users in Iran are bypassing a government ban is likely to have a much stronger impact on how they perceive each other and their shared experience on Flickr. One could indeed argue that a link between Iran’s large Power Distance and low Individualism value could point to an interesting relationship.

Overall, it is felt that Hofstede’s scores need to be considered in conjunction with contextual data as numbers alone cannot uncover hidden meanings and practices that are extremely relevant to the analysis process. In this study, it was very important to acknowledge ‘Flickr culture’ and its impact on users’ behaviour and objectives.

**5.2.3 Objective III – Investigate users’ perceptions**

This objective was achieved satisfactorily using the open-ended questionnaire and ad-hoc discussions on Flickr that complemented the quantitative data gathered using the sampling tool. The quantitative data raised a lot of questions and speculations that were difficult to answer simply by relying on Hofstede’s model and direct contact with users from each culture proved highly beneficial. It exposed the fact that people who use Flickr have fundamental things in common such as the desire to have their photos discovered by others, which is the reason why most make the effort to tag their photos.
Improving one's photography skills through interaction with others, either direct or indirect, was a universal reason for using the site among users who could probably be considered hobbyists to a certain extent. Users from all five cultures, perceived Flickr as a useful service for a variety of reasons. Amateur photographers valued the interaction with others in order to learn while people who share more domestic content appreciate the ability to do so with friends and family members. Regardless of the reason for using Flickr, most users exhibited enthusiasm and appreciation.

Despite such similarities, the questionnaire also suggested possible differences as users from the UK for instance referred primarily to the professional aspect of Flickr and focused on learning and improving their skills while users from Israel emphasised the social networking aspect of the site. Responses from Israelis included references to romantic involvement through Flickr, maintaining ties with friends and family and also using the site to explore and expose their lives in a way they cannot do in ‘real life’.

From a cross-cultural perspective Flickr’s success could be attributed to the fact that it is able to cater to a wide range of needs and preferences. This study shows that culturally-related preferences and needs are met by an interface and system that do not limit users and enables them to use it as they see fit.

The underlying conclusion is that a social networking site that is based on user generated content should strongly consider how it avoids creating a niche and instead supports high level of flexibility. Flickr is not just a site for hobbyists and has room for people who prefer to use it to store photos or share content privately with close groups of friends or family members. The differences and similarities in perceptions and user preferences between the five groups,

5.2.4 Objective IV – Identify cross-cultural design considerations
The study highlighted culturally related differences in tagging behaviour, use of language and motivation for uploading and sharing content online. In terms of cross-cultural design considerations the most notable conclusion relates to native language support that enables users to communicate in their preferred language, whether it is English or their native
language. In that respect, a user content driven website is no different than any other site
developers need to consider the terminology they use and possibly localised version if
there is an amount of users to justify such decision.

Motivation for tagging appear to be affected by cultural orientation as users from Peru and
Taiwan had very few tags in common as a group, compared to users from Iran, Israel and
the UK. As covered in the literature review, tags are used in a number of ways to facilitate
communication and organisation both personally and socially. The simple tagging
mechanism found on Flickr as well as similar sites supports different needs and is highly
flexible. One design consideration, which stems from this study, is that sites should
consider how they can suggest tags

5.3 Validity of results
The validity of the results presented in this study is governed by the extent to which each
user group could be seen as representative sample of each culture and the size of sample
used in terms of statistical significance. The selection process was as random as possible,
placing considerable emphasis on ensuring that users are selected according to the
location they specified in their profile. Users were selected from general groups and
contact lists and it is acknowledged that the final sample did not include users that have
no contacts and are not members of any Flickr group. However, such scenario was
considered rare and statistically insignificant.

Once the groups were assembled, the data collection process was iterative and exhaustive.
The results were constantly monitored to see when the data has become saturated and
additional contributions do not have a significant impact on the results. The final sample
was made out of 50 users from each culture and is considered valid despite its relative
small size. The trends and patterns identified in the study suggest clear tendencies.

When considering the validity of the results it is worth mentioning that the sampling tool
used in the study could only process the first 500 photos a user had. This only had an
impact on the language analysis as the rest of the data referred to general statistics and
content such as tag collection and groups a user is associated with. The majority of users
had less than 500 photos and the patterns observed with regard to use of language were
very strong, thus it is assumed that despite this limitation, the overall results have not been significantly affected.

Finally, the study focused only on publicly available data as it was not feasible to obtain private data such as private photos, type of contacts and private groups. This had an impact on the results obtained concerning these parameters, however most are seen as less significant to the results as a whole.

### 5.4 Future directions and suggestions

This study has shown that user content driven websites like Flickr offer researchers a vastly rich social environment with an abundance of options to explore cultural difference on the Internet and in Web 2.0 sites in particular. From a cross-cultural perspective there is considerable scope to explore the following aspects on Flickr and other user content driven websites:

1. **Private versus public** – This study did not address the privacy settings found on Flickr and it strongly felt that referring to them in a comparative study could prove extremely valuable as it may expose culturally-related privacy preferences. Focusing on private content could provide data specific enough to yield more meaningful results when correlated with Hofstede’s dimension. One possible hypothesis could be that users from cultures with low Individualism value may be more likely to have private photos, contacts and groups.

2. **Visual content analysis** – The type of content that users upload to Flickr is extremely diverse and very generally could be classified as either domestic or non-domestic as some users see themselves as amateur photographers and others take more casual photos. It would be interesting to explore this from a cross-cultural angle and explore as well specific themes that users from different countries upload, though such an approach would be less HCI-related.

3. **Extending current study** – Given the sampling tool and monitoring interface are in place, this study could be extended in the future by either adding more users from the current five cultures or introducing new ones. The latter would provide a richer overview regarding the data that has been collected so far.
6 REFERENCES


APPENDIX A: All parameter correlations
<table>
<thead>
<tr>
<th></th>
<th>Public photos</th>
<th>Contacts</th>
<th>Public groups</th>
<th>Unique tags</th>
<th>Sets</th>
<th>Favorites</th>
<th>Users with testimonials</th>
<th>Pro account</th>
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</thead>
<tbody>
<tr>
<td>Pro account</td>
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<td>-0.76</td>
<td>-0.03</td>
<td>-0.44</td>
<td>0.94</td>
<td>-0.67</td>
<td>-0.52</td>
<td></td>
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<td>-0.53</td>
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<td>0.51</td>
<td>0.65</td>
<td>0.67</td>
<td></td>
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<tr>
<td>Contacts</td>
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<td>-0.15</td>
<td>-0.28</td>
<td>0.08</td>
<td>-0.49</td>
<td>-0.76</td>
<td></td>
</tr>
<tr>
<td>Public photos</td>
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<td>-0.75</td>
<td>0.05</td>
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<td>-0.85</td>
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<td>Unique tags</td>
<td>0.05</td>
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<td>-0.53</td>
<td>-0.28</td>
<td>0.08</td>
<td>-0.49</td>
<td>-0.44</td>
<td></td>
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<tr>
<td>sets</td>
<td>0.86</td>
<td>-0.28</td>
<td>-0.33</td>
<td>-0.28</td>
<td></td>
<td></td>
<td>-0.79</td>
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<td>Favorites</td>
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<td>0.08</td>
<td>0.51</td>
<td>0.08</td>
<td></td>
<td></td>
<td>0.69</td>
<td>-0.67</td>
</tr>
<tr>
<td>Users with testimonials</td>
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<td>-0.49</td>
<td>0.65</td>
<td>-0.49</td>
<td>-0.67</td>
<td>-0.67</td>
<td>-0.52</td>
<td></td>
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<tr>
<td>tags in native</td>
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<td>0.43</td>
<td>-0.31</td>
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<td>-0.49</td>
<td>-0.29</td>
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<td>-0.001</td>
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<td>-0.69</td>
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<td>0.2</td>
<td>0.26</td>
<td>0.54</td>
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<td>0.2</td>
<td>0.78</td>
<td>-0.61</td>
<td>0.07</td>
<td>0.44</td>
<td>0.41</td>
<td>0.33</td>
</tr>
<tr>
<td>Photo descriptions in English</td>
<td>-0.36</td>
<td>0.01</td>
<td>0.86</td>
<td>-0.64</td>
<td>0.14</td>
<td>0.24</td>
<td>0.32</td>
<td>0.43</td>
</tr>
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<td>Bilingual tagging</td>
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<td>-0.78</td>
<td>0.63</td>
<td>-0.12</td>
<td>-0.73</td>
<td>-0.37</td>
<td>-0.39</td>
</tr>
<tr>
<td>Bilingual photo titles</td>
<td>0.87</td>
<td>-0.4</td>
<td>-0.87</td>
<td>0.06</td>
<td>0.57</td>
<td>-0.69</td>
<td>-0.51</td>
<td>0.3</td>
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<tr>
<td>Bilingual Photo descriptions</td>
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<td>0.16</td>
<td>-0.59</td>
<td>-0.21</td>
<td>0.18</td>
<td>-0.3</td>
<td>0.07</td>
<td>-0.03</td>
</tr>
<tr>
<td>self-portrait buddy icon</td>
<td>0.47</td>
<td>0.01</td>
<td>-0.56</td>
<td>-0.21</td>
<td>0.2</td>
<td>-0.51</td>
<td>0.007</td>
<td>-0.008</td>
</tr>
<tr>
<td>Frequency of capital city in tags</td>
<td>0.53</td>
<td>-0.3</td>
<td>-0.4</td>
<td>-0.28</td>
<td>0.37</td>
<td>-0.77</td>
<td>-0.16</td>
<td>0.24</td>
</tr>
<tr>
<td>Frequency of country name in tags</td>
<td>-0.37</td>
<td>0.61</td>
<td>-0.14</td>
<td>0.18</td>
<td>-0.71</td>
<td>0.23</td>
<td>0.49</td>
<td>-0.82</td>
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<td>Shared tags</td>
<td>-0.64</td>
<td>0.41</td>
<td>0.84</td>
<td>-0.41</td>
<td>-0.23</td>
<td>0.69</td>
<td>0.54</td>
<td>0.02</td>
</tr>
</tbody>
</table>

(Strong correlations are highlighted)
APPENDIX B: Questionnaire responses
<table>
<thead>
<tr>
<th>Question</th>
<th>Male/29</th>
<th>Male/unknown age</th>
<th>Female/unknown age</th>
<th>United Kingdom</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. What are the main reasons you use Flickr?</td>
<td>I use flickr to display my photos, connect with other photographers and to learn how to be a better photographer. I also use it to socialise and meet up with people.</td>
<td>show my pictures, use as backup</td>
<td>Initially as a place to store my photos online but recently I have become more involved with the social side of Flickr.</td>
<td>United Kingdom</td>
</tr>
<tr>
<td>2. What is the thing you like most about Flickr?</td>
<td>The community aspects</td>
<td>interactivity (discussion groups), comments on pics</td>
<td>I enjoy sharing the results of my photographic efforts with likeminded people.</td>
<td>United Kingdom</td>
</tr>
<tr>
<td>3. Do you sometime use English to describe your photos (title, description, tags)? If so, why do you use English and not your native language?</td>
<td>To allow myself to be able to search my photos easily and to allow others to find my photos.</td>
<td></td>
<td>Yes, a lot. Mainly to display photos to likeminded people, get feedback and ideas for becoming better. I also socialise and meet up with people at flickrmeets.</td>
<td>United Kingdom</td>
</tr>
<tr>
<td>4. When would you use your own language to describe a photo (title, description, tags)?</td>
<td>Yes, lots.</td>
<td></td>
<td>Yes, because of their specificity (for example a group of people having the same camera)</td>
<td>United Kingdom</td>
</tr>
<tr>
<td>5. Do you tag some of your photos? If so, for what reasons?</td>
<td>Yes. To enable others to find photos of whatever subject they are looking for and for which</td>
<td></td>
<td>Yes. I take a variety of subjects and like being able to put them in appropriate groups where</td>
<td>United Kingdom</td>
</tr>
<tr>
<td>6. Are you a member of any Flickr group? If so, for what reasons?</td>
<td></td>
<td></td>
<td>Yes.</td>
<td>United Kingdom</td>
</tr>
<tr>
<td>7. Have you made any new friends through Flickr?</td>
<td></td>
<td></td>
<td>Yes.</td>
<td>United Kingdom</td>
</tr>
<tr>
<td>No.</td>
<td>Gender/Age</td>
<td>Motives</td>
<td>Perspectives</td>
<td>Other comments</td>
</tr>
<tr>
<td>-----</td>
<td>------------</td>
<td>---------</td>
<td>--------------</td>
<td>----------------</td>
</tr>
<tr>
<td>4.</td>
<td>Male/23</td>
<td>To share my photos with people and to get feedback from other photographers.</td>
<td>The simplicity of its interface.</td>
<td>Yes, I tag most if not all of my photos. It's mostly for my own benefit so I can find things easily. I'm a member of many groups. I rarely participate in the discussions within these groups, they're just good opportunities to get fresh feedback.</td>
</tr>
<tr>
<td>5.</td>
<td>Male/32</td>
<td>I am learning photography, I use it to store my pictures and to get inspiration from others.</td>
<td>Being able to look at so many wonderful and well taken pictures.</td>
<td>Just to improve searches. Groups relating to my interests are my main focus, a place again to learn about particular kinds of photography.</td>
</tr>
<tr>
<td>6.</td>
<td>Male/27</td>
<td>To share my photos with my friends</td>
<td>Obtaining feedback on my photos</td>
<td>Yes. SO people and myself can find the photos easily. Many groups. To share my photos with a greater audience</td>
</tr>
<tr>
<td>7.</td>
<td>Male/47</td>
<td>So that they are viewed and not kept in a draw to collect dust.</td>
<td>Seeing others work and subsequent inspiration.</td>
<td>Tagged to aid searches</td>
</tr>
<tr>
<td>8.</td>
<td>Male/20</td>
<td>To get feedback on my photography work. To show my friends. To promote myself and get more well known as a photographer</td>
<td>The ease of showing your work.</td>
<td>To make my work easier to find</td>
</tr>
<tr>
<td>9.</td>
<td>Male/28</td>
<td>Because otherwise me photos dont really have an &quot;end&quot;</td>
<td>I'd say the fact that you can actually</td>
<td>Yes, nearly all of them. Most</td>
</tr>
<tr>
<td><strong>1. Female/unknown age</strong></td>
<td><strong>Friendly layout/format for users</strong></td>
<td><strong>when? If the photo is just for my families in Taiwan, Mandarin is necessary.</strong></td>
<td><strong>when? If the photo is just for my families in Taiwan, Mandarin is necessary.</strong></td>
<td><strong>when? If the photo is just for my families in Taiwan, Mandarin is necessary.</strong></td>
</tr>
<tr>
<td>------------------------</td>
<td>---------------------------------</td>
<td>-----------------------------------------------------------------</td>
<td>-----------------------------------------------------------------</td>
<td>-----------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>2. Male/26</strong></td>
<td><strong>I like the way of photos displaying on flickr clear, diversify, convenient and the usage.</strong></td>
<td><strong>I like the function of &quot;note&quot; that I can describe the details more precisely and interesting.</strong></td>
<td><strong>In my opinion, most of user in flickr are English user. So, I like to use English to describe my photos. Second, and the most interested thing is when I use English I can easily delineate my point of view...</strong></td>
<td><strong>When I have to show some of my native language speaking friends.</strong></td>
</tr>
<tr>
<td><strong>Taiwan</strong></td>
<td><strong>for my friends/families in other countries can see what I am doing in Taiwan.</strong></td>
<td><strong>yeah, most of the time I would use English. cause my friends in Australia/Mexico/Germany/US... can't read Chinese...............hahaha...</strong></td>
<td><strong>nope, no need. Being found is not my reason here.</strong></td>
<td><strong>yes, just for fun, haha!!</strong></td>
</tr>
</tbody>
</table>

| **10. Male/31** | **To share my work with others, get feedback and improve. To see others work and learn from them.** | **The community.** | **Most of them. To make them easier to find and so seen by more people.** | **Yes, to be able to present my photos to wider audience.** | **Yes.** |

<p>| <strong>product</strong> - because I am not a pro photographer my shots are not published anywhere or shown in galleres etc, so without something like flickr I have no motivation to &quot;finish&quot; things (especially since I work with digital so I dont even get prints most of the time). Also, I am keen on getting better as a photographer but I dont really read books about photos or famous photographer - flickr lets me see more people's work, and often share knowledge with other people. | <strong>learn from some of the more generous flickr users</strong> | <strong>of the tags are just so the photo will be findable in a search - so my tags tend to be where the photo was taken, what camera was used and what the subject of the photo is.</strong> | <strong>to share your work.</strong> | <strong>haven't met any flickr people in real life that I hadn't met before I joined, but there are a few people I do consider as &quot;internet friends&quot;.</strong> |</p>
<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>3. Male/30</strong></td>
<td>I love its stable service and friendly UI</td>
<td>User Interface</td>
<td>Sometimes I will use English to describe the photos to let worldwide guys know my photos</td>
<td>Not public subjects</td>
<td>Yes, to classify and know more details and find it easily</td>
<td>Yes, and I can appreciate to many photos mixing with different cultures or personal styles to increase my view</td>
</tr>
<tr>
<td><strong>4. Female/29</strong></td>
<td>for me, it's free and large</td>
<td>I can make some friends I never knew before I came here</td>
<td>I use tags in English, because that I can connect my photos with the whole world</td>
<td>I make tags in English, but I use Chinese when I make my photos' title and description</td>
<td>I tagged all photos, and I can gather them in the same tag</td>
<td>Yes, because a group with a specific topic would have great photos to discuss those beauty etc...</td>
</tr>
<tr>
<td><strong>5. Male/25</strong></td>
<td>I can see a lot of picture of world.</td>
<td>I can see a lot of picture of world.</td>
<td>Yes, I usually use both when I can't spell that word</td>
<td>Yes, I want some people can find this</td>
<td>Yes, my friend invited me</td>
<td>maybe yes</td>
</tr>
<tr>
<td><strong>6. Male/28</strong></td>
<td>I like the layout and I like the community</td>
<td>I like the layout and I like the community</td>
<td>Yes, considering that the majority of user on flickr are not Mandarin speakers, I'd like as many people to be able to understand my descriptions as possible.</td>
<td>When the photos are more of family gathering in nature, so my close friends and family can read it. And sometimes when the title expresses better in Mandarin,</td>
<td>So it will be easier for me and others to find required topics' photos</td>
<td>Yes, so I can view and share with as many people as possible and to view great inspiring works</td>
</tr>
<tr>
<td><strong>7. Male/23</strong></td>
<td>watch other peoples lives exposure</td>
<td>most users that view my photos are not people i've met and English is the language that the majority of them speak.</td>
<td>when it is not possible to express the essence of what i'm showing in English. Note: essence as in the term used in philosophy.</td>
<td>yes, all of them. Its the easiest way for people to find your photos when they use the search bar.</td>
<td>yes, however i'm not an active user of any of them.</td>
<td>not really, just occasional messaging with other users.</td>
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<td>Israel</td>
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<tr>
<td><strong>1. Female/30</strong></td>
<td>being able to get to know people and art that I would never have seen otherwise and getting response on my work.</td>
<td>comments</td>
<td>i think so..</td>
<td>i guess i wouldn't since not everyone would be able to read it</td>
<td>no i don't</td>
<td>a few of them. not many. probably because more people would be able to &quot;run into&quot; it this way. but i'm not a big fan of the groups thing</td>
</tr>
<tr>
<td><strong>2. Female/19</strong></td>
<td>Gain recognition. I look for feedback in other places. It’s a good way to keep in touch with friends. Compared to a phone conversation, it is easier to see what my friends have been up to based on their photos and talk about it during the weekend.</td>
<td>Based on my experience, an individual’s ‘Flickr persona’ is different than what you encounter in real life. I think it’s great people have a place where they can express themselves. Beyond that, it is a social network like any other and as someone who prefers visuals it feels like the right place for me.</td>
<td>Yes. I use English to address a wider global audience, so that people abroad could view them. Sometimes, things simply sound better in English.</td>
<td>I’ll use Hebrew depending on the context of the photo and when I know that someone who isn’t Israeli won’t fully understand the meaning.</td>
<td>I use tags but not the obvious generic ones. I gave that up long time ago. I’m using them now to describe the image. It could be a joke or part of a song. Whatever comes to my mind at that particular moment.</td>
<td>I am a member of a number of groups in order to share photos with people who are not my contacts. Groups also allow me to view photos based on themes and come across new talented individuals.</td>
</tr>
<tr>
<td><strong>3. Male/32</strong></td>
<td>Although I am a very private person, Flickr is a way to expose myself in front of others. It’s a way to explore new areas of my personality as well as that of others. It is also a way to document a period and get motivated to take photographs.</td>
<td>Discovering new people in Israel and abroad. A moment, a state of mind of real people half way across the world.</td>
<td>Always.</td>
<td>I don’t use Hebrew since I want to share the content with non-Israelis, who are most of my contacts.</td>
<td>Usually I don’t</td>
<td>Yes. I’m a member of many groups. I get invited quite a lot. I tend to join when I’m invited by a friend.</td>
</tr>
<tr>
<td><strong>4. Female/28</strong></td>
<td>The ability to share my life with other people, which is something I wouldn’t do in</td>
<td>I really loved the interaction with people and there</td>
<td></td>
<td>I would use Hebrew in cases I couldn’t think</td>
<td>I used to use tags when I first started</td>
<td>The only reason to join a group is to be part of a</td>
</tr>
<tr>
<td><strong>5. Female/25</strong></td>
<td>Self-promotion. Promoting my photos and website to a wide and unknown audience. Also a source of inspiration.</td>
<td>Ease of use.</td>
<td>I speak English fluently and most of my contacts don’t speak Hebrew.</td>
<td>There’s no point in using Hebrew unless I’m quoting a song or something like that.</td>
<td>I use tags to tell little stories about the photo. It has nothing to do with their formal purpose.</td>
<td>I am not a member of any group. They are too crowded and anyone can join. When I was a member of a group, I hardly ever browsed through it. The best to come across things on Flickr is using contacts.</td>
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<td><strong>6. Female/29</strong></td>
<td>Flickr is the first social network I got hooked on, even though today I mostly use Facebook and other sites. At first it was just a matter of showing off cool things but then it became more artistic. I bought a better camera and started considering shooting</td>
<td>The incredible ease of use and immediate responses from friends. During hectic times in my life, friends and even family used the site to see what I was up to.</td>
<td>I usually use Hebrew but I have a few friends from abroad so I also try to make my content accessible to them from time to time.</td>
<td>I’ll use Hebrew when the context is very much local or when I post photos of friends.</td>
<td>I use tags so that the people who are in the photos can find themselves more easily. Also so I can find a specific</td>
<td>I used to think that groups are a good way to get my photos noticed by more people but I was wrong. Everyone has had enough with groups and</td>
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angles and so on. It pretty much ended up being a regular community more or less of friends who comment on each other’s work.

| 7. Male/26 | I came across Flickr as I was looking for a free photo hosting service, so the fact it is free was one of my main considerations. I don’t remember now the other free alternatives, but I remember that in Flickr people respected photos. It is easy to navigate the site and it doesn’t get in the way of viewing the content. In most sites you usually view tiny thumbnails. Another thing is tagging and search by tags. I really liked when I first joined and still use it. | It is difficult to point out one thing. I love tags which allow you to stumble upon esoteric subjects or places in the world I would have never been able to view photos of. I also like groups which enable you to focus on one particular topic. | Almost all the photos I have which have a title have a title in English. People who use Flickr are from all over the world. I may mix between Hebrew and English and rarely may use Hebrew if there’s no English alternative, like a name of a band. | I hardly use tags in Hebrew unless I think that someone may search for that tag in Hebrew. | I tag all my photos for two main reasons: Exposing my photos to tag search and reminding my self of details associated with it like location, type of camera I used etc. Also so I’m able to locate my photos based on a specific search criteria like type of camera. | I am a member of many groups. For some reason, I never quit a group. I only visit a few on a regular basis. I view some because of the content and others because of the discussions. The fact that anyone can start a group means you find very groups that focus on a very specific subject. | No. I corresponded with a number of people, but that was the extent of that. |

| 8. Female/19 | In order to receive feedback about my work and enjoy other people’s talent | Its simplicity and accessibility | I use English so the photo reaches a wider audience | Sometimes I do need to use Hebrew but in general, why | I use tags to explain what the photo is about and | Groups provide information about the photo and allows more | Certainly |
| 9. Female/32 | Initially I joined Flickr to share family photos with friends and family abroad, mostly of my son. | I like seeing other people's work, get inspired and read/write comments. | I am using English since my family members and friends don't all necessarily speak Hebrew. Once the photos are made public, I think that the use of English is more 'friendly', because anyone who understands English can read and comment. Using only Hebrew limits and restricts you to a Hebrew speaking community. Since Hebrew text is foreign to most people, as opposed to Spanish for example, people have no way of even making partial sense of what is written. | I use Hebrew for my own use to define photos and when I'm sharing them with friends and family members who speak the language. | I used to use tags because I thought they would help me retrieve photos faster. I don't use them anymore. I'm not interested to use tags so other can find my photos. | Most of the photos I have in groups were invited by others. I never found a reason to add photos to groups since that's not the reason I joined Flickr. | I've made some 'virtual friends' and there's no contact with them beyond mutual comments. |

### Peru

| 1. Male/33 | Main reasons are: quality of views, amount of people that share with Flickr, option for pro-account. | The thing I like the most is how Flikr presents photos: sets and collections (for pro-account), and how easy you can share your pictures. | I mostly use English because it's simply the language most used worldwide. | I use my own language - Spanish - mostly for local names or situations that I cannot simply explain in English. | Yes, I tag my photos, because this easy it's easy other people find them. | Yes, I'm member of many groups, principally for two reasons: the ones that have something in common with me (archaeology, history, my country, nature, etc.) and groups with contests, I like to share my photos and receive opinions of people. | Well, I have many contacts, but still I wouldn't say any is a real friend, but they're all nice people. |

| 2. Female/unknown age | My main reason is to share photos with people from all around the globe, I like to take pictures from my hometown and publish them on Flickr so people can see. The "explore" section. There are some extraordinary photography on this site. Other thing is... I love the groups of... | Yeah, I use english a lot, because is a world wide known language. Everyone who has a proper education or wants to communicate with the rest of the world has to know English, and that's my main reason...I want every | I put tags on both languages (english and spanish) being my native | I tag every single photo, simply because I want people to find my pictures. | I'm member of 72 groups. Because I think is easier to find pictures like this, to put your photo... | From member that like Green Day, which is my favorite band of all time. I was looking for... |
the beauty of my country. Another reason would be just to get some feedback from my photography. I love photography, but I'm no expert and I know there are a lot of professional photographers on this network so I appreciate every comment once in a while. I use it to share pictures with my friends as well. Every picture I upload to Flickr doesn't have to be, you know "the" picture, I just like to know there's somebody else enjoying what I upload.

photography. you can just easily find a picture by searching them in groups...whether you search for shoes, instruments, colors, babies, etc, you can find them all just like that, and by categories (interesting, recent, most viewed, etc)

language in every picture I upload. But, I only put tags or descriptions or titles in Spanish when I only want my friends to read them.

out there for everyone to see, and get some feedback from members that have something in common.

pictures of the concert I went to on 2005, and found this guy who had one picture, and this guy had a comment of a girl telling him she went to that same concert and was looking for more pictures...so I contacted her and shared with her picture I took, and she sent me some great pics she also had, and we kept on talking via email.

3. Female/14
For storing pictures and show them to everyone
Seeing other people pictures + groups
I do use English most of the times because English is the universal language and is more likely that people know English other than Spanish
When its a random picture mostly
I do tag them, its easier when looking for a specific pic
I am member of several groups. Its fun to share pictures and talk about them
Yes, a couple of them, very nice.

4. Female/unknown age
To get feedback on my photographs.
The feedback
Yes, I use English, and sometimes Spanish, but more people understand English
I would use Spanish if the word suited the photograph better than an English word
I tag photographs, so that if someone is looking for a specific thing, it’s easy to find.
I am a member of many groups, most of them I have been invited to. It’s a way of showing your photographs to a wider audience
Friends in the Flickr world yes, but we don’t get personal.

5. Male/24
Feedback with people around the world
I use my native language for all
Yes, could be more easy to find them.
Yes, to share pictures.
Not yet.

6. Male/38
I like to share and watch pictures from all over the world.
Easy interface to use and is very popular. You can find pictures almost about any
I use both: Spanish and English. I believe English is a kind common use language for some people from Brazil, German and others countries
Both languages. I believe is not limit for tags and I share tags
Because I share my pictures in Flickr
There is a lot of groups and depends from my mod to look for
A lot of friends from all over the world.
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<tbody>
<tr>
<td>7. Female/27</td>
<td>I found it funny</td>
<td>that use other second languages.</td>
<td>in Spanish and English.</td>
<td>community.</td>
<td>pictures.</td>
<td></td>
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<td></td>
<td></td>
<td>Photo Notes</td>
<td>Yes, because the first times I use flickr I didn't notice it was available in other languages</td>
<td>Coz there are groups in my own language</td>
<td>yes if they have something to do with my photos</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Female/26</td>
<td>to store pictures</td>
<td>the capacity and easiness to upload photos, besides the it allows other to criticizes your composition and technique.</td>
<td>I use both, depending on the type of photograph and depending to who is the picture meant to be seen.</td>
<td>When the photos are meant to be seen only by my spanish speaking friends</td>
<td>To find them easily in my own archive, or for other to find</td>
<td></td>
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</table>
| 9. Male/45 | a) I can interact with other people who share my interest and vision about photography, and I can learn and know about other people points of view.  
  b) I can share my photos with friends without having to take them with me. | Is easy and simple to use. It has well designed, and a visually pleasant interface. | Following the reason a) in my answer to question 1: Is a way to interact with much more people than with my native language. | When the situation or cultural issue related is very locally oriented sometimes can be hard and boring explain what is going on to foreign people, and I choose to switch the focus to people in my culture to talk about the issue without having to explain this first. | I always tag my pics. In the first place in order to catalog them so I can find more easily what I am looking for, and to allow other people do the same with my pics. | Many groups. I do that because is a way to interact with people more related to particular subjects or way of thinking about photography. | Yes I have some friends. At least I think about them in that way. |
<p>| 10. Female/19 | To exhibit my photos, I'm not an expert taking them, but I like people look my memories, any special moment in my life. | Expert people can look my photos an maybe write a criticism to improve them. | Most of what I wrote in English are tags, and I did it for people who wants to find any picture can get a variaty of them. I write my tags in both languages. | Most of the time. | The same reason I wrote before, to people who wants to find a special item. | No, I'm not. | Yes, two, one from my own country and another from Argentina. |
| 11. Male/28 | to stock my photos | to be provided for a yes, cause i like it, and a lot of ppl can i mix, more of | to find | yep, to share | by messages |   |   |
|---------|------------|------------|-------------|-------------|
| Iran    | I enjoy sharing my works with others. Also I learn by looking at others works. | Showing my best photos to others and understand the errors and advantages of those shots. And also have relation with my friends that I found them in flickr ... | Communication! To share the point of view | I love photography and I am trying to continue my course |
|         | Interactivity. Flickr is by far the most interactive photosharing website. | The friendship and friendly relations between the members with various ideas and minds ... | Yes, mostly English and because this is the international language. Although I use my own Persian poets as caption for some of my pics. | I like the whole flickr community, the |
|         | Yes, most of the time English. I also use my native language in certain cases. I prefer to allow more people to read/watch my photos and English gives me more audience. | YES! I use English in all of my profile, descriptions, titles and ... (Except in my comments sometimes!) Because flickr is a Global site and too many of my visitors didn't know Persian (My language). In addition that one of my reason that I use flickr is that I want represent my country and beauties to other people of the world and this might only in English ... | It depends on my feelings! And of course if I want to share it with Persian spoken people, ONLY :| I usually use English to describe my photos, cuz it is |
|         | If I require to add a poem from a native poet. Even in that case I prefer to write the English translation as well. But for the tags, I always use both English/Native tags. | When I want say something to my compatriots and didn't need others found my concept ... | To describe it in words ONLY :) | I usually use English, |
|         | Yes ALWAYS, it helps people to find photos related to their specific interest easier and faster. | YES! because I want my photos find in search engines (and flickr search too) | yes, Share and Communication | I usually try to tag them, cuz |
|         | As I said I like the interactivity of flickr, and this interactivity is not only between ME and Web, it is also between ME and OTHERS. Groups help me to interact with other flickr users. | YES! I learn too much lessons in some groups, ask my questions, make gathering and ... in groups ... | WOW! Manyyyyyyyyyyyyyy | Yes! I am member of so |
|         | Yes, I have made lots of friends through flickr. Even I met my current girlfriend in flickr meetups! | YESSSSSSSSS ! some of my best REAL friends now, are the flickr members before and flickr give them to me !!! | Yes! I have found good friends | Yes! I found good friends |
| 5. Female/23 | different reasons... sharing the beauties of my city with other people also seeing other parts of the world by photo, and of course learning new things about photography and improving my skills by looking at other photos. | learning new skills in photography by reading some group discussions and looking at other shots yes I use English for describing my photos as much as I can because all the people could understand the descriptions, tags and title... If I use native language only the people of my country could read it, and I write Farsi most for Iranian comments. | in this way I can find them more easily and also in this way people can find them easily in searches. Also one of the facts that can lead your photo to Explore pages is that you tag your photos. | through Flickr, but only in this community! we usually see each other's photos and fav the ones we like and comment on them. |</p>
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<th>No.</th>
<th>Gender/Age</th>
<th>Experience</th>
<th>Gatherings (Tour, Meet up)</th>
<th>When that photo depended on my nation literature (using the poem and something like this in Persian)</th>
<th>Helping Flickr to good search about the photo subjects and increasing my visitors also!</th>
<th>Stupid question?!?</th>
<th>Remarks</th>
</tr>
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<tr>
<td>6.</td>
<td>Female/24</td>
<td>I'm a photographer, I like to know how am I, and where am I standing, am I good or bad, just like others, and I like to know what do others think of my works. &amp; I also have to say what I think of them!</td>
<td>It's reality! It's a real world of share and privacy... simple and useful, no limits and more than what I need!</td>
<td>always. I like to make a connection with all the people in this world, not those that I can talk with every day. 6000000000 people all around the world, and only 10000000 are talking in my native language... but most can speak English.</td>
<td>some times, when a photo shoot has some extra meaning in our religion, or can say something much more important about it. only for those 1000000000, and I really don't like to do that!</td>
<td>YES. for all reasons that they have created this TAGGING thing! it is to make others' job easier to find what they are looking for. we are here to be clear... not to be hide from each others!</td>
<td>YES. to be more in touch with those who are same and are like me in any ways.</td>
</tr>
<tr>
<td>7.</td>
<td>Male/22</td>
<td>Experience</td>
<td>Gatherings (Tour, Meet up)</td>
<td>When that photo depended to my nation literature. (using the poem and something like this, in Persian)</td>
<td>helping flickr to good search about the photo subjects and increasing my visitors also!</td>
<td>Stupid question?!?</td>
<td>So many!</td>
</tr>
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<td>8.</td>
<td>Male/29</td>
<td>I use flickr to higher my photography abilities by knowing which of my photos are viewed more and what's their opinion about my photos. only people who are interested in photography are here, very easy to work, nice and interactive design, many people are here (large number of members)</td>
<td>yes, because I want to know every people's opinion</td>
<td>rarely, when there is poem or something i cannot say it in English</td>
<td>Yes, because if someone search about a particular thing, it would be easy for him to find if my photos could help him.</td>
<td>Yes, many of them, some for technical info, others because of being seen more, and my interest in particular subjects</td>
<td>Yes, many</td>
</tr>
</tbody>
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147