Global Teamwork: The Influence of Multiculturalism on Project Product and Process Success

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ABSTRACT

Cross-cultural interaction in global business has become standard in design and construction industry. This paper presents lessons learned from a study aimed to determine how different multi-cultural team settings and cultural awareness trigger different conflict situations and influence team dynamics and processes. We build on extant classic mono-cultural studies and extend it to focus on analyzing the influence of different multicultural team settings on global project product and process success. We used empirical data from the 2012 generation of the 19th AEC Global Teamwork course offered by the PBL Lab at Stanford with partners worldwide. We took an inductive approach integrating qualitative and quantitative methods for date analysis. The paper presents cultural team compilation cases of AEC global student teams that were successful or challenged in producing high quality solutions and achieving effective team processes. The paper discusses findings related to: the relation between nationality and migration backgrounds indicating that mono-culture studies do not suffice to analyze global teamwork; correlation of project outcome and the multi-cultural team compilation; correlation of cultural awareness and diversity of global team processes towards successful multi-cultural team interaction.

INTRODUCTION

Due to the trend of internationalization and globalization following the opening of several borders an increased migration process is noticed. Cross-border business is one phenomenon of globalization, with multi-national projects and cross-cultural teamwork being the norm, as researchers indicated (Anabari 2010; Fruchter 2003; Bartlett 2002). This trend permeated the design and construction industry which experiences the pressure of globalization, demanding stakeholders distributed around the world to engage in technology mediated and integrated projects to respond to the clients' call for bids. Even when project teams are collocated the migration processes lead to high cultural diversity, for instance in 2010 13% of the US population had a migration background following the American Community Survey by the Census Bureau (www.census.gov/acs).

International design and construction projects, often called 'global teams,' experience all discontinuities and challenges of cross-disciplinary multi-stakeholder coordination, global time and space distribution, cultural diversity, virtual collaboration via Information and Communication Technologies (ICTs),

and constantly changing team settings. The analysis and understanding of behavioral dynamics in multicultural teams and the influence on the project outcomes is still in its infancy in the design and construction industry. (Ochieng 2010, p. 451) To develop highly efficient, innovative, global, project teams it is important for organizations to train employees understand behaviors and everyday situations from different cultural standpoints. (Ochieng 2010; Bartlett 2002, p.18)

THEORETICAL POINTS OF DEPARTURE

This study builds on classic and recent culture research. Culture represented by the members of global teams, is described by various anthropologists and ethnographers. It is very hard to define culture in its full extend as it is a highly complex system. In 1952 Kluckhohn and Kroeber counted more than 150 different definitions of culture (Kroeber et al. 1985). Hill's definition states: "Culture [is] a system of values and norms that are shared among a group of people and that when taken together constitute a design for living"(Hill 2009, p. 90) that is always in the process of being formed. All human interaction is fundamentally colored by the culture of the interaction partners; hence it influences global teamwork. Most of the research has focused on influence of culture on teamwork based on the mono-cultural approach of different culture theories. The five most cited theories by Kluckhohn and Strodtbeck (1961), Hall (1982), Hofstede (2003), Trompenaars and Hampden-Turner (1997), and the GLOBE (Hoppe, 2007) initiative are used as theoretical points of departure for this research. Nevertheless, these theories focus on mono-cultural characteristics and do not provide a deep insight into the dynamics of multicultural interaction.

In a global team work setting all tasks become more complex and take longer due to the discontinuities mentioned before. Difficulties in cross-cultural interaction often arise resulting in conflicts ranging from misunderstandings due to a language barrier, coordination difficulties due to time zone differences, to misunderstandings due to cultural differences in work styles, interaction protocols, and perception of appropriate behavior in general. (Anabari et al. 2010) Especially in so called 'swift' teams, which are common in the construction industry, these difficulties increase since the team members do not have any past experience working together and no time to get to know each other well enough to adapt to different working approaches, language, and work practices. To be successful teams need to build a level of trust fostered by information sharing (Koehler 2009) and a level of cultural awareness (Hill 2009, Berry et al. 2009) that creates an understanding of the differences and similarities.

AEC GLOBAL TEAMWORK EDUCATION TESTBED

This research is a case study based on the 2012 AEC Global Teamwork project based learning (PBL) course by the PBL Lab at Stanford University (pbl.stanford.edu) were seven cross-disciplinary, collaborative, globally distributed teams were observed during their AEC global teamwork project. The 19th generation of AEC global Teamwork took place from January 12th 2012 till May 11th 2012. It started with a four day Kick-off event at Stanford University, followed by a three and a half months period of globally distributed teamwork, and concluded with one week of collocated teamwork experience at Stanford before the final presentation in May. The total duration of the project was

seventeen weeks. The schedule allowed for comparisons of the collocated and distributed team dynamics, i.e. two collocated weeks at the kick-off and end of the PBL course, and weekly online team meetings and project review sessions with faculty and industry mentors during the three and a half months period of the course. The student cohort was composed of 39 participants coming from 9 universities from the Americas and Europe representing 7 different countries. They were grouped into seven cross-disciplinary, globally distributed teams. Each team was composed of an architect, two structural engineers, two construction managers, one mechanical building systems engineer, and a life cycle financial manager. Note that more than 50 % of the participants had a migration background, following the German definition of being born, or having parents that were born, in a foreign country. 18 different national and migration backgrounds were identified: Canadian, Chinese, Danish, British, French, German, Hongkongese, Indian, Micronesian, Polish, Serbian, Slovenian, Swedish, Syrian, Taiwanese, Turkish, and US American. Each of the AEC seven teams had representatives from at least three different geographic locations and universities.

DATA COLLECTION AND ANALYSIS METHODOLOGY

Based on the grounded theory approach (Corbin and Strauss, 2008) this study combined qualitative and quantitative research methods in an inductive manner, in order to achieve a broader understanding of complex cross-cultural interactions. The collected data underlay the theoretical sampling, coding, and constant comparison methods. Special attention was paid to avoid prejudices and stereotyping which easily accompany cultural differentiation.

Data Collection. Three main data sources were used: in depth analysis of the meetings from one of the seven teams, participants' self-reported insights from all seven AEC teams, and Dr. Fruchter's instructor field observations from all the seven teams meetings and activities.

The team meetings were analyzed through direct field observation as well as through detailed video protocol analysis. Twenty one videos from meetings were examined with a total of approximately thirty hours. Field observations were conducted over ten days of collocated work and fifty virtual meetings.

The participants self-reported insights were collected through a questionnaire which 36 out of 39 participants completed as well as through 18 interviews with at least one member from each team. In the questionnaire the participants were asked to evaluate their own behavior, the behavior of their team members, and the overall project. The focus was laid on subjectively perceived behavioral patterns which relate to the cultural background, with a focus on the perception of time, interpersonal relations, interaction protocols, communication norms, communication channels, emotionality, conflict behavior, and cultural awareness. Dr. Fruchter provided comparative instructor's insights on the team processes before and during the data collection and analysis.

Data Analysis. The field observations, video protocol analysis notes, and interview information were analyzed using a coding scheme proposed by Hay (2005) consisting of a basic coding to distinguish general patterns and an interpretative code which revealed more specific themes.

The questionnaire data was analyzed using linear regression analysis and frequency distributions. The focus lay on two units of analysis – individual and

team level focusing on various behaviors related to nationality and migration background. Further analysis was conducted on highly indicative aspects based on statistically significant results and impacts on team dynamics.

The GLOBE (2007) study subsumes nations in 10 different culture clusters. The characteristics of these culture clusters are described by the aforementioned culture theories. The AEC students were assigned to one of these clusters based on their nationality. This approach allowed for more cases in the respective groups. The common culture criteria presented in the five culture studies were clustered into ten master categories. The complex matrix using these ten culture categories was developed to analyze the culture related behaviors and processes in the seven AEC global project teams.

To evaluate the participants' behavior the participants' self-assessment and the assessment by their team members was used. The behavior was then analyzed with respect to nationality, migration background and discipline using a linear regression analysis that determined the r^2 value and the ANOVA to indicate the statistical significance and probability (p) for the model.

The following represent the final team evaluation based on: (1) the reported behavior, i.e. work preferences and whether students prefer to work in a team, individually or both - shown in Figure 1, and (2) theoretical team members' behaviors, i.e. Level of Individualism. The level of individualism is to be understood as the extent to which a person is focused on oneself in contrast to a focus on the collective or group based on their nation's cultural predisposition. By comparing the theoretical and observed distributions we observed the following similarities between the teams: teams 5 and 6 have an almost identical distribution in their cultural predisposition and in the actual reported behaviors. This shows that specific team constellations result in specific team behaviors. Culture theory and their dimensions were used to determine the mean team behavior. This qualitative analysis highlighted how different cultural backgrounds affect the observable behavior. The results were compared with the qualitative and quantitative findings. The findings are discussed in section 5.
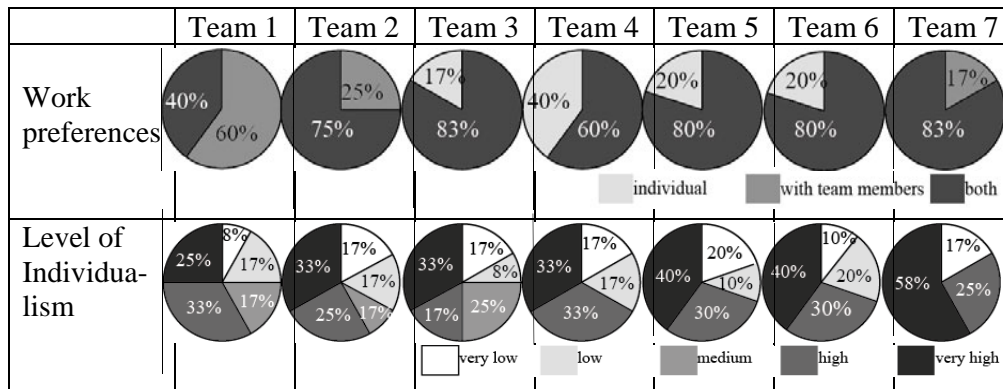

Figure 1. Observed and theoretical culture related behaviors

FINDINGS

To analyze the team behavior the common elements of the five theories were clustered in ten master categories according to their affinities. Some critique points of individual theories could be leveled out and draw a more complete picture. The ten master categories are: dimension of Human Nature, Space,

Context, Social Relation, Time, Performance, Power, Uncertainty, Gender, and Emotionality. This study focused on the dimensions of Context, Social Relation, Time, Power, and Emotion as a main framework. Following the master categories the teams were evaluated and their behavior compared.

Influence of Nationality and Migration. The participants were grouped in their culture clusters, following the GLOBE model (2007) and the observed behaviors were used to determine culture related behavior. An interesting observation in this study is the effect of migration background on culturally influenced behavior. It was assumed that migration, as an exposure to two or more cultures, leads to a mitigation between those cultural components and different behavioral patterns. Most of the research studies focused on mono-cultural characteristics do not take into consideration the effects of migration on behavioral patterns. The data indicate the influence of migration on team members' behavior. Participants having a migration background do not merely behave along neither their national culture standards nor their migration background national culture standards, but can create completely new behaviors.

The Influence of Multiculturalism on the Project Outcome. The cultural compilation of teams influences their interaction and dynamics and thereby can result in different project outcomes. In this study an evaluation of the project outcome based on process and product success was used. Culturally complex teams can reach a high process and product success level following the theory stating that heterogeneity improves team work.

Team Process Success. The team process evaluation was based on the insights of the class instructor and coach Dr. Fruchter as well as on the teams' feedback through the questionnaire. Evaluation criteria considered the number and the type of conflicts that occurred during the project, the way in which conflicts were resolved, as well as the overall team relation. A good team process is closely related to trust building between the team members and creating valuable communication and interaction norms. As a consequence teams can interact more efficiently and reach a higher product success.

The process success was influenced by four multi-culture aspects. The first aspect is a high cultural diversity. The teams having a high cultural complexity, and many cultural background similarities reached the highest level of process success as show Teams 2 and 3. A mutual understanding of the influence of culture and therefore a high cultural awareness fostered good communication. The teams that experienced the most interaction problems were teams with a low cultural heterogeneity like Team 5 and 6. Being multicultural as a team but not very complex reduces the chances of cultural awareness. Cultural differences are minimized and hence not acknowledged but transferred to the personal level.

The second aspect is the general mean of culture context (Hall, 1982). It was more difficult for teams with a low-context mean to develop an amicable team relation, since the focus on the task and the specific behavior favors professionalism as in Team 5 and 6. Teams with a low-context predisposition managed to develop an amicable relationship, when all members were from low-context cultures and had similar communication norms as in Team 7. In a team with a low context mean a low cultural diversity leads to process success. Teams with higher context means and a higher cultural diversity resulted in a good process success as well. It was observed that the higher the context of the

preferred communication channels the better (e.g. virtual collaboration space) the team relation and trust level, since more personal information was shared.

The third aspect is the level of individualism. Very high and very low diversity in the 'Dimension of Social Relation' and the level of individualism versus collectivism result in a low conflict frequency. Teams having a medium level of complexity with the team being between individualism and collectivism showed a higher conflict frequency and complicated team dynamics as happened in Teams 1 and 4. This indicates that a high cultural heterogeneity can lead to better awareness of cultural differences, and a low cultural heterogeneity results in similar behaviors.

The fourth aspect is that higher acceptance of unequal distribution of power helped the team dynamics. In Team 5 and 6 were everybody wanted to be in charge simultaneously more conflicts occurred and the team relation worsened. In teams where members accepted that power is distributed unequally and one team member takes the lead position the team process improved.

Team Project Product Success. The product success of the teams was measured based on the following criteria: (1) the results of two independent competitions launched by two companies affiliated with the AEC Global Teamwork course (see http://pbl.stanford.edu/AEC%20projects/projpage.htm), (2) the instructor's assessment based on five criteria that include both individual and team contributions to the product and process, and (3) mentors' assessment. The different elements were summarized and translated into a ranking with 1 being the highest score and 7 the lowest (Table 1).

The process success typically fosters product success, but there is an additional culture related component that enhanced product success. A high "present orientation", i.e. short-term results, in the 'Dimension of Time' supported the product success especially in Team 6 and stated a high professionalism level of the teams. In a short-term oriented (Hofstede 2003) construction project timely submission of deliverables is a key success factor, since it creates space for further improvements and innovation. Having a short-term oriented multi-cultural compilation helped respective teams to have a better final product.

Influence of Culture Awareness on Product and Process Success. A deeper culture insight was gained comparing Team 5 and Team 6 (Table 1) who had a similar low process success but very different product success. Both teams had low cultural complexity, but besides similar challenging team processes, characterized by many conflicts and misunderstandings, the product outcome of the two teams was very different. Team 6 managed to achieve an excellent product outcome winning the competition focused on product quality, despite their complicated and challenging process. Comparing the culture related behavior characteristics of Team 5 and 6 offered insights into success factors.

The main aspect differentiating Team 6 was the fact that it behaved similar to the high process success teams, in the willingness to help out and culture awareness. More specifically, understanding team members' differences and challenges, enables a challenged team relation to still result in a successful project outcome showing the importance of forgiving shortcomings. If a team member accepts differences in behavior and can relate them to cultural differences the team becomes more successful and produces a quality project outcome. This indicates that even though different multicultural team compilations create

different conflict risks and project outcome situations, the main factor of product success is not linked to a specific culture related behavior, but to intercultural sensitivity and awareness. Table 1 shows the seven teams and their culture diversity according to the 10 GLOBE clusters, and process and product success.

Table 1. Multi-cultural team setting, product, and process success

	Team 1	Team 2	Team 3	Team 4	Team 5	Team 6	Team 7
Diversity							
Process	*4*	*1*	*1*	*4*	*7*	*6*	*1*
Product	*5*	*4*	*2*	*5*	*7*	*1*	*2*

Percent of team members within this culture cluster:

10 %　20%　30%　40%　60%

Italic numbers represent team rankings based on outcome with 1 being the best
Diversity Legend: 1 Nordic, 2 Anglo, 3 Germanic, 4 Latin European, 5 African, 6 East European, 7 Middle Eastern, 8 Confucian, 9 SE Asian, 10 Latin American

DISCUSSION

Culture influences human behavior fundamentally and hence has a significant impact on team interaction in the modern global workplace. The research showed that not only national culture influences behavior but also migration background. This is an aspect that requires further research in international settings. Furthermore this study deepened the understanding of the influence of different multicultural team settings in highly diverse global teams on the project success. Especially in the AEC industry this topic is not discussed in depth and this study provides further insight into team formation and teamwork facilitation. Consequently, importance of cultural awareness and training within the multicultural teams is critical. When a person is not aware of cultural behavior differences s/he often assigns a behavior to individual characteristics, which if varying from one's own norms and values, can lead to conflicts. A culturally sensitive person can see different behaviors with a culture lens, knowing that different cultures have different norms and encourage different interaction protocols. This creates an understanding and leniency for different behaviors, which in turn leads to a better team interaction, higher trust, and a better project outcome. It is to be argued that is not the full understanding of cultural differences that leads to successful team interaction, but the awareness that there are differences. The next level of cultural competence, the understanding of difference then can lead to both good project outcomes and good team dynamics.

It is important to educate students and knowledge workers about cross-cultural awareness and understanding. Getting to know the team members and their cultures creates an understanding to better interpret differences in behavior and relate them to culture. Thereby conflicts on a personal level that often interfere with the project success can be minimized. In closing we offer some recommendations for global learners and workers: be clear and explicit in conversation, be understanding and ask questions about different behaviors, leverage each culture's characteristics, and learn about different national cultures.

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