Culture and Student-Faculty Communication in Higher Education: Implications for the Design of Educational Communication Tools

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Abstract. This paper examines the significance of culture and its impact on communication in higher education. The objectives were to compare Chinese and German university students' different patterns of communication with their faculty, and to provide implications for designing educational computer-mediated communication (CMC) tools. The study involved two phases: first, an explorative interview with students and professors from both countries revealing that communication formality is the most significant difference between the two cultures. Second, an online questionnaire evaluating Chinese and German university students' communication formality and uncertainty avoidance in education (N=125) confirmed that German students communicate more formally with faculty than Chinese students, and this difference can be positively predicted by their degree of uncertainty avoidance. Based on these findings, we discussed the implications for designing the CMC tools which can help university faculty to better communicate with their foreign students.

Keywords: Higher education, computer-mediated communication, intercultural communication, communication formality, uncertainty avoidance.

1   Introduction

Internationalization in higher education has created many opportunities for students to learn with faculty from different cultures. From a statistical report (OECD, 2010; see also Coughlan, 2011), 3.43 million students were studying abroad all around the world in 2009. The number continues to rise sharply and may reach approximately to 7 million by the year 2020. As university students acquire international experiences by studying abroad, they develop perceptions of culture and cultural differences, and learn how to act properly in other cultures. Those perceptions and abilities not only impact academic success during their study, but also form an essential foundation for their future culture experience. Therefore, it is important to help international students to develop proper cultural competency, and to form healthy relationships with other people during their university life.

One of the most important relationships in university life is that between student and faculty. When they are from different cultures, their cultural conflicts and misunderstandings may become a serious problem in the relationship, and may affect their academic performance directly. Furthermore, the decrease of face-to-face talk and the prevalent of online communication in universities may cause more uncertainty and misunderstandings between faculty and students (Gunawardena, Wilson, & Nolla, 2003). The present study aims to address the problem and explore the student-faculty communication in an intercultural context. Specifically, this paper focuses on German and Chinese students' different perceptions and expectations in their communication with university faculty. This study also highlights the implications for designing cultural adaptive communication tools for students studying abroad and faculty with international students, in order to address their communication problems, to improve their relationship, and to benefit their academic performance.

The rest of the paper consists of four parts. Firstly, the researchers review the literature on Chinese and German cultures and communication in higher education. Secondly, an unstructured interview with Chinese and German university students and faculty is introduced addressing the key differences and challenges in their communication. By analyzing the interview results, communication formality is highlighted as an essential issue. Thirdly, two hypotheses are developed proposing cross-cultural differences in communication formality between students and faculty. A questionnaire study assessing both Chinese and German university students supports the hypotheses. Finally, the implications for higher education communication system design are discussed.

2   Literatures

2.1   Communication in Education

Education is a result of communication. Communication is the medium for education and both aspects are inextricably linked. Lewis (1952) stated that the chief instrument of education is communication, and one of the chief aims of education is to foster communication.

Information technology has brought more computer-mediated communications (CMC) in the education context. E-mail, instant message and social networking sites have enriched the student-faculty communications to a large extent (Gunawardena, et al., 2003; Helvie-Mason, 2011). Three attributes of CMC, time-independence, text based communication, and computer-mediated interaction (Harasim, 1990), influence the ways of communication between students and faculty (Gunawardena, et al., 2003).

Different communication patterns influence the educational system and the education. As Wilson concluded, "the quality of student learning is directly related to the quality of instruction and that professors need to know how students can best learn in their classrooms" (Wilson, 1996). Furthermore, there are many different learning styles and ways to practice these learning styles. Evidence showed "that students taught in their preferred learning styles achieve greater academic success." (Melton, 1990)

In intercultural learning context, communication difference across cultures can cause destructive conflicts between students and faculty. In a study by Adrian-Taylor, Noels, and Tischler (2007), 22% of international graduate students and 34% of faculty supervisors have experienced student-supervisor conflict. And the most important sources of these conflicts were all communication-related: including lack of openness and feedback; unclear expectations; and poor English proficiency. But their study didn't inform how different cultural backgrounds can influence the communication process and how to solve the conflicts in different cultures.

2.2   Cultural Differences in Education

Among the most comprehensive theories of national cultural difference, Hofstede (1986, 1991)'s dimensional theory is widely accepted and adopted in cross-cultural studies. Although it roots from studies in workspace context, the theory is also applied well in educational practice. The following part introduces this four-dimension theory (large vs. small power distance, individualism vs. collectivism, masculinity vs. femininity, and strong vs. weak uncertainty avoidance) and its application in education.

According to Hofstede (1986), the power distance in school and more precisely the teacher-student relationship is comparable with the parent-child relationship. In high power distance situations students show high respect for their teachers with a simultaneous need for dependence. Whatever the teacher says is accepted as he is right and talking back is not appreciated. In contrast, in low power distance situations the student is actively involved in the learning process and the teacher-student relationship is based on a more equal level. "They argue with teachers, express disagreement and criticisms in front of the teacher, and show no particular respect to teachers outside from school" (Hofstede, 1991). As students of low power distance countries reach higher education levels their dependence toward the teacher or academic staff gradually decreases and they tend to channel their study by themselves. High power distance affected students still remain dependent on their teachers.

Hofstede also defines the differences of individualism and collectivism in school. In collectivistic cultures students prefer in-group behavior. They tend not to speak up individually for their group, and instead they take turns presenting results. Students of individualistic oriented cultures tend to speak up for themselves. For the latter, learning means a lifelong progress, in contrast to collectivistic oriented students, who identify learning as a means to reach a certain social status. After reaching higher education such as university, collectivistic students consider the degree they achieved as giving them access to a group of a higher social class. In contrast, the students of individualistic cultures regard their achieved university degree as a symbol of self-respect.

Masculinity and femininity at school can be seen in class behavior. According to Hofstede, students from masculine determined cultures are more competitive toward better appearance and grades. These latter students' specification and educational orientation is strongly determined by career opportunities. On the other hand, in cultures with more feminine-oriented character the students are more modest and their choice of major corresponds to their interests. Teachers can also be differentiated

according to the above mentioned cultural dimension patterns. Teachers with masculine-oriented pattern emerge with reputation, while feminine-oriented teachers emerge because of their pedagogical excellence.

Hofstede describes the students from cultures with a high level of uncertainty avoidance as students who prefer precise assignments with detailed information. They expect their teachers, for whom they have a high level of respect, to know the one correct answer and are comfortable with structured learning situations. A student from a culture with a low level of uncertainty avoidance does not like to be restricted by precise assignment. He prefers to grow with creativity, disbelieving that there is only one true answer. He is comfortable with open-ended learning and concerned with intense discussions.

The above presented cultural differences on education are Hofstede's four dimensions, which draw on personal teaching experiences at different Universities. There has also been some practical research on this topic. In a study by Kragh and Bislev (2005), they investigated the correlation of student values and the dimensions of Hofstede through a questionnaire survey covering 31 countries. They compared the students' values of different countries including Germany and China by asking how they evaluated teaching styles in their home countries and exchange counties and their preferences. Their answers were evaluated based on the dimensions of Hofstede, which showed that the most significant correlation between the professor-student relationship and the dimensions of Hofstede was not as expected the power distance, but the uncertainty avoidance and the masculinity/femininity value.

2.3   German and Chinese Cultural Differences in Education

According to Hofstede (1991), German culture is more individualistic, with a higher level of masculinity and a higher level of uncertainty avoidance. Chinese culture has a significant higher level of power distance and a higher level of long term orientation.

There have been several studies on the differences of education in both countries, some concerning the basic idea and transmission of education and others concerning the teacher student relationship. As regards the basic ideas of learning and education, Jarvis, Holford and Griffin (2003) claimed that "westerners believe exploration should precede the development of skill. Chinese educators in contrast believe skills should be developed first (which requires repetitive learning); this provides a basis to be creative with."

The teacher-student relationship differs also in both countries. Recent studies showed that the teacher-student relationship in China is more a personal relationship (Wang, 2006). The relationship is not limited to the classroom and the academic work of that arena. There is a norm that teachers and students should think of each other as members of an extended family. For them, responsibility, authority, and morality (heart) are all part of the relationships (Wang, 2006). This indicates that the teacher-student relationship in China goes beyond the university life. In Germany, however, the student-teacher relationship is more distant. The student-teacher relationship at German Universities is 1 faculty member to 60 students (Jaroch, 2007). Therefore, a familiar relationship as that in China cannot be realizable.

3   Interview

The objective of this study was to single out the communication patterns of students and faculty at institutions of higher education that can be related to their cultural backgrounds. In a first step, an in-depth interview was developed with the objective of collecting spontaneous answers from students and faculty, who actively experienced different cultures in communication processes. The interview was designed to receive personal field reports from individuals who experienced studying or working at Chinese or German institutions of higher education, to evaluate the outcomes on the basis of the previous literature review, and to determine the key cultural differences in student-faculty communication.

3.1   Interview Methodology

For the interviewee sample, it was intended to keep the group size relatively small (n=3) due to the fact that this interview was intended to collect data about personal experiences, field reports, and personal opinions on the most important cultural differences. The intention was not to circumstantiate all the cultural issues, but to underline the most important cultural differences.

The three persons interviewed were a male Chinese and a male German university student, who each had spent one year as an exchange student in the other country. The third person was a male university faculty member, who was responsible for an exchange program between a Chinese and a German university, and had also taught courses for both Chinese and German students. He, therefore, was confronted with students of both nationalities and different cultural communication patterns. All of the participants were from internationally renowned engineering programs.

The participants were interviewed face-to-face. The unstructured interviews had only one priming question at the beginning: "During your education experiences in China and Germany, did you feel any cultural differences in the relationship between faculty and students?" Each interview lasted between 37 and 55 minutes and was recorded for analysis.

3.2   Interview Results

The responses of the interviews showed that the participants experienced significant differences in communication behavior. All three participants shared similar experiences regarding the approach of the student to the professor. The Chinese student explained that students in China can easily address the professor or his assistant whenever they have questions regarding the lectures. In German universities it is expected to make an appointment, which is highly restricted to pre-scheduled office hours of the teaching staff. As a result, German student has to rely more on his or her own competence or on the help of friends.

The participants all agreed on the differences existing in communication formality/informality, which means the level of principle-oriented behavior pattern. In formal communication, people follow pre-determined rules; however in an informal

communication, people show less official and more personal behaviors. The Chinese student experienced a high level of formality at German university. Besides making an appointment before meeting, he also gave an example that meeting with German professors required a very well preparation on what to ask. He should never expect a not prepared "flexible" talk with German professors as that with Chinese professors. The German student was also quite surprised about the informality at Chinese university. He felt confused when a Chinese professor talked about informal and personal matters during their meeting.

The professor teaching both Chinese and German students also describes the Germans as well educated with a formal behavior pattern, whereas the Chinese students still lack this type of approach. He said:

"…German students come to the office, knock at the door and wait till I ask them in. Chinese students, especially the undergraduate students just open the door and come in. We are teaching them to behave more formal and to knock at the door, for as if they are finished and they work in a company this will be required. There is now such education in the Chinese scholar system. The Chinese students who have studied abroad have a big advantage because they are aware of these behavior patterns…"

The purpose of the interview was to ask the participants about their experiences regarding the different communication patterns. Surprisingly, all participants mainly focused on the differences in the degree of formality even though the topic was generally explained as "communication between professors and students in a cross-cultural context". These results underline again the significance of formality, which will be the focus of the following survey study.

4   Questionnaire Survey

4.1   Objective and Hypothesis

The interview indicated that there are notable differences in how university students from each culture communicate with their faculty. The most significant difference is that Chinese students approach their faculty less formally than German students and their faculty. We proposed that the difference can be predicted by different level of uncertainty avoidance. Faculty and students with a higher level of uncertainty avoidance have more intension to make an appointment, to prepare for the details, and to stick to decided procedures and norms. In comparison, people with lower level of uncertainty avoidance can allow more flexibility in their behavior and behave more frequently in an informal way. Therefore, German students with a higher level of uncertainty avoidance communicate more formally with the faculty than students with a lower level of uncertainty avoidance. Based on these statements the hypotheses of this study included:

H1: German students communicate more formally with the faculty than Chinese students.

H2: Uncertainty avoidance is a positive predictor of students' degree of communication formality when they communicate with the faculty.

A questionnaire survey was designed to compare the cultural differences on student-faculty communication formality, and to test the hypothesis above.

4.2   Participants and Procedures

Students from China and Germany with the same major and from comparable universities were recruited in the study. After deleting invalid cases, 65 Chinese students from the Department of Industrial Engineering, Tsinghua University, Beijing China and 60 German students from the RWTH Aachen University in Germany were included in the sample. Both universities are internationally renowned, especially for their engineering programs.

The average age of the 65 Chinese participants was 23.16 years. Thirty five of them are male and 30 are female. Concerning their level of education, 27 were undergraduates, 29 were graduates, and 9 were postgraduates at the time of the study. Thirty nine Chinese students have studied in other countries before.

The average age of the German students who participated in this study was 24.97 years. From the total number of 60 German students, 52 are male and 8 are female. Twenty five were undergraduates, 32 were graduates and 3 were postgraduates. Twenty eight of the 60 students have experience studying abroad.

As all the Chinese and German participants have proficient English abilities, it was decided to present the questionnaire in an English version for both nationalities to be comparable. The first version of the questionnaire was tested in a pilot study in prior with two German students and two Chinese students to check if the questions are clearly understandable for non-native English speakers. The pilot study ensured that the terminology was comprehensible and consistent.

The questionnaires were taken online. The students were addressed with an Email explaining briefly the purpose of the study and referring to the link of the online questionnaire.

4.3   Measures

To measure communication formality, we designed 12 questions in a 5-point Likert scale order, ranging from 1-agree to 5-disagree. The students were expected to read these statements and to rate how the individual statement applies to the communication pattern observed at their home university. The statements included both formal aspects and informal aspects of the student-faculty communication, which asked students about their self-reported approach, behavior, and choice of words when communicating with their faculty. The term "formality" stands for the tendency to comply with rules, established forms, or customs, i.e. norms and common attitudes. "Informality", in contrast, stands for a less official, more personal and not so principle-oriented behavior pattern. The items are shown in Table 1. Item 5 to item 8 are reversed statements which should be scored conversely in the analysis. A higher score of the measurement means a higher level of communication formality. The calculated Cronbach's alpha for communication formality scale in this study were 0.62 for Chinese participants and 0.75 for German participants, indicating an acceptable level of reliability.

Table 1. Communication formality scale items

1.	I visit my professor without previous notification.*
2.	My professor always has time to answer my questions.*
3.	When I talk with my professor we also talk about personal matters.*
4.	When I disagree with the professor I disturb him and correct him.*
5.	When talking to my professor I am highly concentrated on my behavior.
6.	I expect my professor to treat me in a formal matter.
7.	I choose my words carefully while talking to the professor.
8.	I am indirect when expressing my ideas to the professor.
9.	I always communicate informally with my professor face to face.*
10.	I always communicate informally with my professor outside of the university.*
11.	I always communicate informally with my professor via E mail.*
12.	I always communicate informally with my professor via telephone.*

*Reversed statements.

Table 2. Uncertainty avoidance scale items

1.	If I get an assignment I prefer a detailed precise description.
2.	If I get an assignment I like to have latitude and be creative.*
3.	If I get an assignment the teaching assistant or professor wants me to be open-minded and find a solution with a different perspective.*
4.	If I go to my professor with a question I am very nervous that I may look foolish, because the question is too simple.
5.	One can be a good professor without having precise answers to my questions.*
6.	I consult my teaching assistant or professor before making a decision regarding your research project or student life in general.
7.	I am nervous when I have to talk with my professor.
8.	I like a structured hierarchy at the university so I know how to address people.
9.	I have fear of saying my opinion to my professor.
10.	My thoughts become confused and jungle when I am talking with my professor.

*Reversed statements.

In measuring uncertainty avoidance, this paper focuses on communication patterns at universities. The statements were based on Hofstede's description of uncertainty avoidance in education (Hofstede, 1986). The present study and the respective questionnaire focused on two characteristics: (1) avoidance of ambiguous situations in the university setting, and (2) avoidance of ambiguous situations while communicating with the faculty.

The first characteristic emphasizes precise assignments and the student's trust in the fact that the professor knows the right answer. The second characteristic included the student behavior when he approaches, addresses, and talks to a professor. In total, there were 10 questions in the measurement. The items were designed in a 5-point Likert scale order, ranging from 1-agree to 5-disagree, with 7 reversed items. A higher score demonstrated higher level of uncertainty avoidance. The calculated Cronbach's alpha for uncertainty avoidance scale in this study were 0.61 for Chinese participants and 0.63 for German participants.   All the items are shown in Table 2.

4.4   Results

Hypothesis 1 predicts that German students communicate more formally with the faculty than Chinese students. ANOVA test (Table 3) showed significant cultural difference on communication formality: Germans communicate more formally than Chinese (F=58.35, p<0.001). Therefore, hypothesis 1 was supported. The cross-cultural difference on uncertainty avoidance was also tested: German students scored higher on uncertainty avoidance than Chinese students, but the difference was not significant (F=0.822, p=0.367).

Table 3. ANOVA testing results for variables according to culture

Measures	Culture	Mean	*SD*	F	p
Communication	Chinese	37.66	5.59	58.35	<0.001*
formality	German	45.88	6.40		
Uncertainty	Chinese	27.72	4.67	0.822	0.367
avoidance	German	28.52	5.14		

* Result is significant at the 0.05 level (2-tailed).

Hypothesis 2 states that uncertainty avoidance is a positive predictor of students' degree of communication formality when they address their faculty. First, a 2-tailed Pearson correlation analysis showed a significant positive correlation between the two variables (correlation=0.248, p=0.005). Second, regression analysis was used to test the hypothesis. The independent variable was uncertainty avoidance and the dependent variable was the degree of formality. As a result, uncertainty avoidance was found to be a significant positive predictor of communication formality (β=0.248, t=2.830, p=0.005). Hence, hypothesis 2 was confirmed.

5   Discussion

The objective of this study was to compare Chinese and German university students' different communication patterns with their faculty, and to provide implications for designing intercultural CMC tools. By interviewing Chinese and German students and professors, communication formality was found to be the major cultural difference in their communication pattern. After that, a questionnaire survey confirmed this finding, and further found that the communication formality between faculty and students can be predicted by the different levels of uncertainty avoidance of the students. Therefore, it can be predicted that people with higher uncertainty avoidance are more likely to set roles and adhere to existing norms in social interaction in order to prevent uncertain events. In comparison, people with lower uncertainty avoidance can tolerate more flexible interactions with other people and, therefore, do not value the formal communication as much as high-uncertainty avoidance people.

The findings of this study have implications for designing educational CMC tools to better assist the faculty-student communication in intercultural contexts. First of all,

the communication tools should provide choices and options for users in order to provide a flexible environment that will adapt to their cultures (Collis, 1999). For examples, an imbedded calendar and meeting scheduling tool will be very helpful for German professors to emphasize the importance of pre-notification. And for Chinese professors who are used to more flexible communications, displaying the "available" or "busy" status aside the portrait will be more appropriate, and this may encourage the students to start a conversation. Such cases can also be applied to other cultures with different levels of uncertainty avoidance.

Secondly, the communication tools should help the students and professors to get aware of the cultural differences between each other. A Chinese students should understand that informal and personal communications may be strange to their German professors, while German students should notice that Chinese professors welcome instant discussions even through the students have not get a precise idea. One possible way is to display the communicator's preferred communication patterns on the interface using a few tags, such as "precisely", "openly", or "formally". The tags may be manually set by the users or automatically generated from the previous communication behaviors.

Thirdly, the educational CMC tools should be used to supplement rather than to replace the face-to-face communications between students and faculty. From our interview results, face-to-face communication is still the most important media between faculty and students, and it helps to develop cultural expectations for other persons' behavior on CMC. Previous studies also found that face-to-face education is better in terms of cultural fit than computer education (Collis & DeBoer, 1998; Griffiths, Heppell, Millwood, & Mladenova, 1994).

Future studies may compare different CMC tools and designs to better understand the culture issue in educational communication system design. It is also interesting to investigate other cultural variables to predict different communication patterns.

6   Conclusion

With the aim of comparing Chinese and German university students' communication patterns with their faculty, this study conducted interview and survey with students and faculty in both cultures. Both qualitative and quantitative evidence revealed that Chinese and German students had different degrees of communication formality with their faculty. The cultural dimension of uncertainty avoidance can predict such communication differences. The results have practical applications for educational communication tool design, and inspire future studies on cultural adaptive education technologies.

References

1. Adrian-Taylor, S.R., Noels, K.A., Tischler, K.: Conflict between international graduate students and faculty supervisors: Toward effective conflict prevention and management strategies. Journal of Studies in International Education 11(1), 90–117 (2007)
2. Collis, B.: Designing for differences: Cultural issues in the design of the WWW-based course-support sites. British Journal of Educational Technology 30(3), 201–215 (1999)
3. Collis, B.A., De Boer, W.F.: Rapid prototyping as a faculty-wide activity: An innovative approach to the redesign of courses and instructional methods at the University of Twente. Educational Media International 35(2), 117–121 (1998)
4. Coughlan, S.: Record numbers of international students (2011),
   `http://www.bbc.co.uk/news/business-12671198`
   (accessed January 11, 2012)
5. Griffiths, D., Heppell, S., Millwood, R., Mladenova, G.: Translating software: What it means and what it costs for small cultures and large cultures. Computers & Education 22(1), 9–17 (1994)
6. Harasim, L.: Online education: An environment for collaborations and intellectual application. In: Harasim, L.M. (ed.) Online Education: Perspectives on a New Environment. Praeger, New York (1990)
7. Helvie-Mason, L.: Facebook,"Friending," and Faculty–Student Communication. Cutting-edge Technologies in Higher Education 3, 61–87 (2011)
8. Hofstede, G.: Cultural differences in teaching and learning. International Journal of Intercultural Relations 10(3), 301–320 (1986)
9. Hofstede, G.: Cultures and organizations. Software of the Mind. McGraw-Hill, London (1991)
10. Jaroch, M.: Exzellenz in der Lehre (2007) (in German),
    `http://bildungsklick.de/pm/51960/exzellenz-in-der-lehre/`
    (accessed June 20, 2010)
11. Jarvis, P., Holford, J., Griffin, C.: The theory & practice of learning. Taylor & Francis, Sterling (2003)
12. Kragh, S.U., Bislev, S.: Universities and student values across nations. Journal of Intercultural Communication 9, 48–63 (2005)
13. Lewis, M.M.: Communication and education. British Journal of Educational Studies 1(11), 28–32 (1952)
14. Melton, C.D.: Bridging the cultural gap: A study of Chinese students' learning style preferences. RELC Journal 21(1), 29–57 (1990)
15. Gunawardena, C.N., Wilson, P.L., Nolla, A.C.: Culture and online education. In: Moore, M.G., Anderson, W.G. (eds.) Handbook of Distance Education. Lawrence Erlbaum Associates, Mahwah (2003)
16. Organization of Economic Cooperation and Development (OECD). International migration outlook: SOPEMI (2010),
    `http://www.oecd.org/dataoecd/12/9/45612617.pdf`
    (accessed January 11, 2012)
17. Wang, T.: Understanding Chinese culture and learning. The Australian Educational Researcher (2006), `http://www.aare.edu.au/06pap/wan06122.pdf`
    (accessed July 8, 2010)
18. Wilson, P.: A Call for closer professor-student relationships: Students at the University of Alaska, Fairbanks, speak out. Anthropology & Education Quarterly 27(3), 432–441 (1996)