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Cultural Cues in Students' Computer-Mediated Communication: Influences on E-mail Style, Perception of the Sender, and Willingness to Help

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Abstract

Computer-mediated communication among university students with different cultural backgrounds has become widespread. In this study, we examine how undergraduates (*N* = 130) react to cultural cues when responding to an e-mail request for cooperation sent by a peer. Participants rated the sender's personality and stated their willingness to help. In the inquiry, 2 types of cultural cues were varied, resulting in a 2 × 2 factorial design: ethnicity (German vs. Chinese name) and

communication style (Western vs. Asian). Results showed that participants aligned their responses to the communication style; however, the ethnicity cue influenced the wording of their response, their perception of the sender's personality and their willingness to help. Results are discussed regarding communication accommodation and social judgment theories.

Enhanced Article Feedback

Peer interaction and collaborative learning activities are integral to studying at university in Germany today: Often, students are required to organize themselves in study groups to prepare coursework. In addition to face-to-face interaction in these study groups, a large part of students' collaborative learning activities and communication processes takes place virtually via e-mail, online forums, chat rooms, and so on (e.g., Hinkle, **2002**) as computer-mediated communication (CMC) is a highly effective and economical way to share information and work cooperatively on common projects. With the ever-increasing importance of virtual communication and virtual learning environments in higher education, a strong development towards universities' internationalization can be observed. A growing number of students pursue degrees, or complete parts of their studies, abroad. In 2013, the number of foreign students enrolled at higher education institutions in Germany reached an all-time high of 11.7% (DAAD, **2014**), and interaction and cooperation among students with different cultural backgrounds in the country have become standard.

However, communication between persons with different cultural backgrounds can be challenging. Especially, this applies to CMC, where the availability of information is restricted. In particular, CMC has been found to be demanding in terms of understanding (e.g., Scollon & Scollon, **1981**), avoiding stereotypes (Epley & Kruger, **2005**), and judging one's own communication abilities appropriately (Kruger, Epley, Parker, & Ng, **2005**).

The aim of this study is to contribute to the understanding of students' behavior and participation in collaborative activities during CMC by investigating the effects of cultural cues in CMC on the formulation of e-mails, on the perception of the communication partner, and on the willingness of communication partners to cooperate. The reduced cue condition of CMC allows the independent examination of the influence of two specific cues for cultural background: the sender's ethnicity (indicated by the name) and writing style (a more direct Western or a more indirect Asian style). By analyzing the wording and writing style of students' e-mail responses, we aimed to discover the influence of cultural cues on the processes of language use and adaptation in students' CMC: Are style and wording of the responses influenced by superficial characteristics such as the style in which the e-mail request is written? Or do students adapt to the sender's style and wording, taking into account the perceived ethnicity of the sender (cf. Hansen & Jucks, **2014**)? In addition to examining the direct behavioral measures of the students' in their e-mail responses, we investigated how the two types of cultural cues influence the students' perception of the e-mail sender's personality as well as their self-reported willingness to help. We use the term *cultural cue* throughout this paper to refer to communication partners' ethnic background (as indicated by an e-mail sender's name) and cultural background (as indicated by writing style). We are aware that these two cues do not wholly represent Western and Asian cultures (cf. Floyd, **2014**).

Theoretical Background

Particularly, two models are crucial to understanding how communication processes during CMC develop and how addressees form social judgments based on restricted cues: the communication accommodation theory (CAT; Gallois, Ogay, & Giles, **2005** ; Giles, Coupland, & Coupland, **1991**) and the social identity model of deindividuation effects (SIDE; Reicher, Spears, & Postmes, **1995** ; Spears & Lea, **1992**). In the following, we briefly introduce these models and summarize recent work on cues influencing the formulation of e-mails, as well as challenges of personality ratings in CMC and factors that influence willingness to help.

CAT

CAT is an intergroup theory on adaptation in communication between members of different groups. According to CAT (Gallois et al., **2005** ; Giles et al., **1991**), dialogue partners adapt under certain circumstances to the other's communication style depending on the perceived individual and group characteristics. People employ various tactics during communication to seek approval and to facilitate communication. If communication partners converge in the way they communicate, CAT assumes facilitation of comprehension as well as the need for approval as predominant motivation. If interactants diverge in the way they communicate, CAT claims that they wish to be dissociated individually and to emphasize interpersonal differences. However, convergence does not necessarily mean linguistic adaptation to the communication partner. In some cases, communication partners believe they are converging but in fact are diverging linguistically (cf. Gallois et al., **2005**).

Communication style can influence perceptions of communication partners. Interactants using communication styles similar to their counterparts' style are often judged more positively (e.g., Colley, **2004** ; Giles & Powesland, **1975**), while diverging communication behavior may lead to negative perceptions of communication partners unless plausible reasons for unfamiliar wording or communication style are given (Street & Giles, **1982** ; Vignovic & Thompson, **2010**).

SIDE

Spears and Lea (**1992**) describe how people receiving messages form social judgments about the sender. In their SIDE model, they predict that people communicating in cue-limited environments (such as in e-mails) tend to form an impression of the communication partner based on the little information available (i.e., social category cues). SIDE distinguishes personal identity from social identities: Personal identity refers to the individual characteristics of a person and social identity refers to those characteristics of an individual belonging to social categories or groups. Reactions to a communication partner with salient group identity are influenced by group norms and standards whereas reactions towards a communication partner with only salient personal identity depend on individual style and norms. In this realm, the perceived person-group relationship is of particular importance to a communication partner because, especially in virtual, not co-present communication settings, this perceived person-group relationship can lead to attributions of greater similarity and more positive perceptions than in personalized communication (Spears & Lea, **1992**). Comparing various types of depersonalization during CMC, group membership of interacting partners has been found to be more

salient in depersonalized conditions than in individuated interactions, the opposite being true for individual differences (Postmes, Spears, & Lea, 2002). However, it is yet to be determined what types of cues have the potential to influence interactants' perceptions of each other as well as their lexical choices in e-mail communication.

Cues Influencing the Formulation of E-Mails and Addressees' Perception of Senders

Over the past 15 years, several scholars have analyzed cues transmitted in e-mails and how they influence the perception and linguistic behavior (e.g., wording, writing style) of interactants. For example, it has been shown that the topics discussed in e-mail communication depend on the sex of the interactants (Colley & Todd, 2002), that the language style of the sender's e-mail impacts on the addressee's language use (Thomson, Murachver, & Green, 2001), and that messages perceived as impolite are suspected to be written by males or by persons of higher status (Jessmer & Anderson, 2001 ; Hor, Dolgov, & Fretwell, 2012).

Few studies have investigated the influence of the perceived cultural background of the communication partner on the phrasing of e-mail responses or on the perception of the communication partner. Vignovic and Thompson (2010) showed participants e-mails that either contained spelling and grammatical errors or were written in an unusual style, and asked them to rate the sender on a number of different dimensions. Interestingly, senders of e-mails containing “normal” language and style were believed to be more conscientious, intelligent, and trustworthy than senders of e-mails written in an unusual style or containing spelling errors. The negative perception of the sender persisted even when participants were provided with additional information on the sender's foreign background.

A recent study on CMC between faculty members and students in higher education (Hansen & Jucks, 2014) operationalized “culture” by two independent factors: the e-mail sender's name (German vs. Chinese) and the communication style of the e-mail (Western vs. Asian). The influences of the two types of cultural cues on language behavior and perception of the sender were analyzed. Results showed that the cue on the student's ethnicity (student's name) affected the wording of the lecturer's e-mail response, revealing a lexical alignment effect. Lexical alignment (e.g., Pickering & Garrod, 2004) describes the phenomenon of interactants reusing the words (Brennan & Clark, 1996) or the grammatical structures (Colley & Todd, 2002) previously used by the interacting partner. It facilitates mutual understanding by establishing common ground (Clark, 1996) and promotes a productive relationship among interactants.

Challenges of Personality Judgment in CMC

Judging the personality of an interaction partner is far more difficult in CMC than it is in face-to-face communication (e.g., Hancock & Dunham, 2001): Research has shown that stereotypes and expectations regarding the interacting partner persist more strongly in written CMC than in oral communication (Epley & Kruger, 2005). Paired with the fact that one's own ability to communicate emotions via e-mail may often be overestimated by interactants (Kruger, Epley, Parker, & Ng, 2005), there is a danger of adhering to inaccurate stereotypes and pre-existing beliefs about the

communication partner, as one relies merely on the restricted cues on cultural background available in CMC. Additionally, the accuracy of the judgment about a communication partner's personality has been shown to differ among personality traits: Judgments about another person's personality after interacting via CMC were more accurate for extraversion than for other personality dimensions (Gill, Oberlander, & Austin, **2006**). Therefore, it can be assumed that (inaccurate) perception of the others' personality in CMC may negatively influence cooperation behavior among communication partners.

Influences on Willingness to Help

As various studies have illustrated (Burger, Messian, Patel, del Prado, & Anderson, **2004** ; Guéguen, Pichot, & Le Dreff, **2005**), perceived similarity to an interaction partner not only influences communication style or perception, but also one's willingness to help (Lewandowski & Harrington, **2006**), which is referred to as helping behavior or implicit behavior (Burger et al., **2004** ; Guéguen et al., **2005**). Regarding prerequisites for willingness to help during CMC, Lewandowski and Harrington (**2006**), found no effect of abbreviations in e-mails (e.g., “How R U?”) on willingness to help. Hsu, Hwang, Huang, and Liu (**2011**) investigated helping behavior in a CMC environment and identified social identity as an important factor for helping behavior: A shared social identity increased the level of trust in team members and led to more helping behavior in the CMC environment. Based on these findings it can be assumed that the lack of a shared social identity – for example due to cultural divergence – may lead to distrust and therefore hinder willingness to help.

Hypotheses

In this study, we investigate the influence of different cultural cues on CMC among students. Student participants are presented a peer-student's e-mail requesting cooperation in preparing a presentation for a course. Cultural cues are operationalized by two independent factors: an e-mail sender's name (German vs. Chinese) and the communication style of the e-mail (Western vs. Asian).

We are interested in the effects of cultural cues on the formulation of e-mails (e.g., writing style, wording; cf. Colley & Todd, **2002** ; Hor et al., **2012** ; Thomson et al., **2001**) as well as on personality perception (cf. Jessmer & Anderson, **2001** ; Vignovic & Thompson, **2010**). In addition to the influence of cultural cues on communicative behavior and perception of the communication partner, we investigate the influence of these variables on willingness to help (i.e., the actual help offered to the peer requesting assistance). We include this construct because of its supposed importance to the context of peer-to-peer communication and because it has not been examined sufficiently in relation to CMC and intercultural communication. Previous research findings led us to the following hypotheses:

Our first hypothesis is in line with CAT (Gallois et al., **2005** ; Giles et al., **1991**) and predicts that interactants will converge in style because of their similarity or – more likely for the chosen setting – their predominant motivation to demonstrate shared group membership with the requesting student. In line with findings of previous research (Hansen, Scholz & Jucks, **2010** ; Hansen & Jucks, **2014**) and with results of studies on lexical alignment (e.g., Bromme, Jucks, & Wagner, **2005** ; Jucks, Becker, & Bromme, **2008**), we further predict ethnicity cues to influence the strategic wording of a response.

H1a. The communication style (Western or Asian) of a peer's e-mail request will influence the German respondent's *writing style* (with regard to length of the text and politeness) and *wording* (i.e., the expressions used). Responses to Western style e-mails are expected to be shorter and less polite but to contain more aligned terms.

H1b. Also, ethnicity cues (German or Chinese name) are expected to influence the *wording* (i.e., expressions used) of an e-mail response. If the e-mail request is signed with a German name, more aligned terms will be used in the response than when the e-mail is signed with a Chinese name, as the participants are of German ethnicity.

In communication situations, people using diverging communication styles are perceived negatively (Vignovic & Thompson, **2010**). Therefore, senders of e-mails written in a style common to the reader should be perceived more positively (cf. also the assumption of SIDE, e.g., Lea & Spears, **1995**). At German universities, Western communication style is the norm. Further cues signaling a common background also should lead to more positive perceptions of the sender (due to in- and out-group categorizations; cf. Reicher et al., **1995**). Starting from these assumptions, our second hypothesis is as follows:

H2. In an e-mail request, both types of cultural cues (sender's name and communication style) are expected to influence the *perception of the sender's personality* independently: We expect the German recipient of the e-mail to perceive the sender's personality more positively when the e-mail is signed with a German name and/or when it is written in a Western communication style.

Research in clinical psychology has revealed what has been called *online disinhibition effect* (Suler, **2005**): When interacting online, people tend to be more generous and helpful than during face-to-face interactions. Therefore, we expect self-reported willingness to help to be generally quite high. However, as represented in our third hypothesis, we expect students to be less willing to help when reacting to e-mails including cultural cues that do not match their own cultural background (i.e., German vs. Chinese name and Western vs. Asian communication style). This would be in line with CAT (Gallois et al., **2005** ; Giles et al., **1991**) and with findings by Hsu et al. (**2011**), both leading to the prediction that requests by in-group members increase the recipient's willingness to help.

H3. Both types of cultural cues (sender's name and communication style) in an e-mail request are expected to influence independently the recipient's willingness to help. German students are expected to be less willing to help a student in Chinese name conditions, and also in Asian style conditions.

Due to a lack of research concerning willingness to help and different ways of providing support (face-to-face, via e-mail, etc.), it is not possible to derive specific predictions. Hence, we raise an exploratory

research question only:

> RQ. Are there differences in the amount of helping behavior among face-to-face support, CMC support, and support via mobile phone?

Method

Sample

The 133 undergraduates (78% female) from eight German universities participating in this study ranged from 19 to 46 years of age ($M = 23.68$, $SD = 4.15$), were enrolled in different programs of study (psychology: 54%; educational sciences: 17%; others: 25%), and varied in the number of study terms they had completed from 1 to 20 ($M = 5.92$, $SD = 4.15$). All participants were native Germans. Almost half (48%) of the participants reported having spent a certain amount of time in a foreign country (for studying, doing internships, or working). Almost all of the students (97.7%) reported some experience in giving oral presentations at university, 88.7% of whom had experience in preparing a presentation in a collaborative setting. To ensure data validity, only e-mails containing at least 10 words were included in the analyses, resulting in a sample size of $n = 130$. Participants were invited via e-mail using student mailing lists of eight universities to participate in a study on CMC and were given a link to obtain access to the experimental environment realized with Unipark© online survey software. As an incentive to participate in the experiment, the participants could take part in a draw to win one of 10 USB memory sticks.

Design

As stimulus material, we used an e-mail from a fictitious student asking a fellow student to cooperate in preparing a presentation. We varied ethnicity (German vs. Chinese) as well as communication style (Western vs. Asian) of the student sending the request, resulting in a 2 × 2-factorial design.

Procedure

The study was administered online. Each participant obtained access to one version of the request by following a link in the e-mail invitation leading to the experimental environment. Participants were told that the purpose of the survey was to learn about study organization and communication among students. They were informed that they would be presented an e-mail request and should respond to this as they would do in a real comparable case. First, the e-mail request was displayed. After reading the request, participants were asked to compose a response in a designated text box, to judge the personality of the student sending the request based on the five dimensions of the International Personality Item Pool (IPIP, Goldberg et al., **2006**), and to respond to additional questions on how they would help the student making the request (meet with the student, correspond via e-mail, communicate via mobile phone). Finally, participants were asked to provide their sociodemographic

information by completing a short questionnaire.

Material

To indicate the ethnicity of the student requesting assistance the sender's name was introduced in the first sentence of the e-mail ("my name is…") and appeared again in the signature at the end of the e-mail (either *Kathrin Schneider* or *Li Hua*). To indicate communication style, the length and conciseness of the text, the amount of politeness markers used (e.g., Biesenbach-Lucas, **2007**), and the degree of directness employed (connected to politeness in Asian cultures; e.g., Brown & Levinson, **1987**) were varied. Both versions of the request were written in accurate language, that is, without orthographic, morphologic or syntactic errors (for an English translation of the request see Appendix).

The Western request was written in a more direct style, as is common in Germany, consisting of 67 words. It was concisely strung together without any superfluous statements or explanations and contained one polite expression. Before the request itself ("Would you prepare the presentation with me?") was made, an introduction of 50 words was given. The Asian request was written in 141 words and in an indirect style. It contained many supportive moves (Chen, **2006**) before the actual request was expressed, and to preserve harmony and to show a perceived hierarchical difference between a novice and a more experienced student, the sender of the e-mail provided a long introduction explaining the situation and praising the addressee's presentation skills. After an extensive introduction of 119 words, the request for help was made, which is typical in Asian writing (Chang & Hsu, **1998**). The request was made in a particularly polite manner with nine polite expressions (modal verbs or expressions praising the addressee).

To ensure that the Asian request was realistic, it was developed in cooperation with a Chinese colleague who is well grounded in the German language. Also, we conducted a manipulation check and had 44 students guess the cultural background of the sender of the Asian style e-mail, which was presented without a name. Results confirmed the validity of our material; most of the participants (n = 38) guessed a foreign (i.e., non-German) cultural background and within this group, 17 postulated an Asian, and 11 a Russian or Eastern European background. Indeed, Russian and Eastern European cultures are similar to Asian cultures in their communication style in terms of politeness and indirectness (Hofstede, Hofstede, & Minkov, **2010**).

The variation of the two factors resulted in two congruent and two incongruent experimental conditions. Incongruent conditions comprised a request written in the indirect Asian communication style and signed by "Kathrin Schneider" or a request written in the direct Western communication style and signed by "Li Hua."

As a manipulation check and in addition to the experimental variations (ethnicity and communication style), we varied the wording of the e-mail requests to test lexical alignment (e.g., Pickering & Garrod, **2004**) by paraphrasing seven expressions in the e-mails (e.g., "course" vs. "seminar" or "presentation" vs. "talk"). We refer to this third experimental variation as "wording-version 1 vs. 2" to facilitate the distinction from communication style variation (Western vs. Asian). Each version of the e-mail request (wording-version 1 vs. 2) contained one of two synonyms (e.g., "course" in wording-version 1 vs. "seminar" in wording-version 2) for the seven expressions. By varying the wording, we were able to check to what extent our participants aligned their wording to the student's: It allowed us

to calculate a lexical alignment score (*number of aligned manipulated words*) by counting the number of times the expressions displayed in the request were reused in the e-mail response and adjusting this count by the total number of words in the response.

Measures

E-mail response (H1)

We applied a coding system to analyze responses to the e-mail request for several measures. Two raters coded the responses independently to allow calculation of interrater reliability (intraclass correlations, ICC). All ICCs ranged in acceptable bounds (see below), indicating consensus among raters. The measures used to code the e-mail responses all matched the assumptions of CAT, as alignment with regard to length (conciseness), style (politeness), and wording (lexical alignment) represents a strategy of approximation to the communication partner (Gallois et al., **2005** ; Giles et al., **1991**). The following dependent measures were used:

Conciseness

Conciseness was operationalized as the total length of the response (*number of words*) as well as the *relative length of the introduction* (ICC = .91), that is, the number of words used before addressing the topic, known as phatic communication. The number of words was counted using a text processing software program.

Politeness

Politeness was operationalized by a *relative politeness score* (ICC = .94) comprising various politeness features (Biesenbach-Lucas, **2007** ; Knupsky & Nagy-Bell, **2010**) coded in the categories of lexical modifiers, syntactic modifiers, and typing errors. We assessed the number of modal verbs, personal pronouns, “please/thank you,” and downtoners/flowery phrases (e.g., “possibly,” “maybe,” “glad”) and calculated the number of typing errors, with correct spelling being an indicator for politeness. This score was adjusted by the total number of words.

Lexical alignment

As described above, we counted how many of the experimentally manipulated words in the respective e-mail request wording-version were adopted by the participants and adjusted this count by the total number of words in each response (*number of aligned manipulated words;* ICC = .94). In addition to the first lexical alignment measure, we assessed a second one in which we examined whether the address and salutation in the responses were aligned to those in the e-mail request (variable *score of address and salutation alignment;* ICC = 1.0).

Perception of the communication partner (H2)

The perception of the sender's personality was measured using the short scales of the IPIP, comprising the five dimensions: *extraversion* , *agreeableness* , *conscientiousness* , *emotional stability* , and *intellect* (Goldberg et al., **2006**). Each scale consists of 10 items that were translated into German. The scales provide good predictive validity and invariance of factors across cultures

(Ehrhart, Roesch, Ehrhart, & Kilian, **2008**). Reliabilities for all IPIP scales ranged in acceptable bounds from Cronbach's α = .72 to .81.

Willingness to help (H3 and RQ)

To assess willingness to help, we used two types of measures related to two data sources (e-mail response and judgments of likeliness to give various kinds of support). First, for each e-mail response, a *help score* (0 to 5 points; ICC = .93) was calculated: 0 points were assigned to responses containing no offer for support or a refusal to cooperate, 1 point was assigned to responses suggesting other people or institutions that may be asked for assistance, 2 points were assigned to responses containing general advice, responses with concrete offers for support (e.g., feedback, review, fine-tuning) were given 3 points, and responses in which the sender proposed an actual meeting to start collaboration were given 4 points. An extra point was assigned to answers containing distinct questions. The help score ranged from 0 to 5 points. For the second score to measure willingness to help, we asked participants after composing their e-mail response to rate their willingness to provide support in three different ways: face-to-face interaction (meeting with the student), CMC (corresponding via e-mail), and communicating by mobile phone (scale ranging from 1 to 4).

Results

Manipulation Check

Following the procedure used in other psycholinguistic studies on lexical alignment (e.g., Bromme et al., **2005**), we counted the number of manipulated words presented in e-mail wording-version 1 (e.g., “course”, “presentation”) as well as the number of words presented in wording-version 2 (e.g., “seminar”, “talk”). Then we conducted an analysis of variance with the number of words similar to those in wording-versions 1 and the number of words similar to wording-version 2 as repeated measures and the assigned wording-version (1 or 2) as a between-group factor to test for the occurrence of lexical alignment. In line with findings on lexical alignment (e.g., Bromme et al., **2005**), our analysis revealed a significant interaction, $F(1,128) = 23.16$; $p = .000$; $\eta_p^2 = .153$. Hence, across all experimental conditions, participants with test material in e-mail wording-version 1 used more of the expressions used in this version to compose their answers than expressions used in wording-version 2 and vice versa (e.g., when the e-mail request contained the term “course,” participants were more likely to use “course” than “seminar”). Therefore, the *number of aligned manipulated words* was used as a dependent measure in the following analysis, as we were interested in checking the effect of cultural cues on the occurrence of lexical alignment.

Testing the Hypotheses

A two-factorial multivariate analysis of variance (MANOVA) was conducted to examine associations between ethnicity (German vs. Chinese) and e-mail communication style (Western vs. Asian) as independent variables (IVs) and indicators for conciseness *(number of words; length of the introduction),* politeness *(politeness score)* , lexical alignment *(number of aligned manipulated words; score address/salutation)* , personality perception (*extraversion; agreeableness; conscientiousness;*

emotional stability; intellect), and willingness to help *(help score)* as dependent variables (DVs). Means and standard deviations for all variables included in the MANOVA are presented in Table 1.

Table 1. Means and Standard Deviations of DVs for the Conditions of German and Chinese Ethnicities and for Western and Asian Communication Styles

Variables	Ethnicity				Communication Style			
	German *n* = 62		Chinese *n* = 54		Western *n* = 67		Asian *n* = 49	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Conciseness								
Number of words	65.11	38.86	56.98	32.72	57.37	33.57	66.73	39.24
Length of introduction	.21	.20	.19	.17	.15	.14	.29	.21
Politeness								
Relative politeness score	.19	.06	.19	.05	.20	.05	.18	.05
Lexical alignment								
N. of aligned manipulated words	1.53	1.59	1.41	1.32	1.21	1.41	1.84	1.45
Score of address/salutations *(0–2)*	0.77	0.69	0.41	0.57	0.54	0.61	0.69	0.71
Willingness to help								
Help score *(0–5)*	2.58	1.43	3.11	1.45	2.93	1.41	2.69	1.53
Personality perception (1–5)								
Extraversion	3.31	0.57	3.11	0.57	3.16	0.57	3.31	0.59
Agreeableness	3.55	0.35	3.64	0.50	3.59	0.40	3.60	0.48
Conscientiousness	3.70	0.55	3.80	0.55	3.76	0.51	3.73	0.59
Emotional stability	3.00	0.44	3.11	0.46	3.06	0.40	3.05	0.52
Intellect	2.97	0.47	3.21	0.55	3.07	0.53	3.09	0.52

Significant multivariate main effects were found for both communication style, $F(11,102) = 2.85$; $p = .003$; $\eta_p^2 = .24$, and ethnicity, $F(11,102) = 2.50$; $p = .008$; $\eta_p^2 = .21$; the overall interaction effect was not significant ($p = .068$). Further results are presented according to the individual hypotheses.

E-mail response (H1)

Conciseness

In concordance with H1a, the *introduction* was significantly longer in the responses to the Asian style e-mail than in those to the Western style e-mail, $F(1,112) = 18.66$; $p = .000$; $\eta_p^2 = .14$. However, the *number of words* did not differ between the conditions ($p = .236$).

Politeness

Contrary to H1a, there was no significant effect on the *relative politeness score* ($p = .104$).

Lexical alignment

Contrary to H1a, the *number of aligned manipulated words* varied significantly for communication style, with more aligned words in responses to Asian style e-mails, $F(1,112) = 4.56$; $p = .035$; $\eta_p^2 = .04$ than in those to Western style e-mails. In concordance with H1b, there was more alignment with regard to the *form of address and salutations* in the German ethnicity condition than in the Chinese one, $F(1,112) = 9.67$; $p = .002$; $\eta_p^2 = .08$.

Personality perception (H2)

In H2, we expected to find more positive personality perceptions for the e-mail written by a German and/or in a Western communication style. Indeed, results showed significant effects of sender ethnicity on the two personality dimensions of extraversion and intellect, but the German ethnicity led to more positive perceptions regarding extraversion only, $F(1,112) = 3.27$; $p = .073$ (one-tailed test); $\eta_p^2 = .03$. This is in line with H2, as in Western cultures, extraversion is regarded as positive personality trait (Hofstede & McCrae, **2004**). For intellect, the Chinese sender was judged more positively, $F(1,112) = 5.34$; $p = .023$; $\eta_p^2 = .05$. This result contrasts with our expectations.

Willingness to help (H3 and RQ)

In H3, we assumed that respondents' willingness to help would be less when responding to e-mails with a Chinese sender and when the e-mail was written in an Asian style. Regarding the *help score* derived from the composed answers, we found a significant main effect for ethnicity, $F(1,112) = 4.46$; $p = .037$; $\eta_p^2 = .04$; however, participants scored higher in conditions with Chinese sender ethnicity. To be able to compare the types of support proposed as formulated in the explorative RQ, we conducted an additional MANOVA with the *willingness to help* (three types of support: face-to-face, CMC, mobile phone) as repeated measures and communication style and sender ethnicity as between-subject variables. We found a main effect, $F(2,91) = 29.58$; $p = .000$; $\eta_p^2 = .39$ for type of support, with participants rating their *willingness to help* in the following descending order of ways: face-to-face ($M = 3.64$, $SD = 0.54$), CMC ($M = 3.28$, $SD = 0.85$), and by mobile phone ($M = 3.00$, $SD = 0.90$). The calculation of simple contrasts showed significant differences between face-to-face and CMC, $F(1,92) = 15.71$; $p = .000$; $\eta_p^2 = .15$, and between face-to-face and mobile phone, $F(1,92) = 57.09$; $p = .000$; $\eta_p^2 = .38$. In line with our assumptions, there was a main effect for communication style, $F(1) = 4.09$; $p = .046$; $\eta_p^2 = .04$ with more help offered to students writing in a Western style ($M = 3.40$, $SD = 0.72$) than to students writing in an Asian style ($M = 3.19$, $SD = 0.78$). Additionally, we found a significant

ordinal interaction for *willingness to help* between communication style and types of support, $F(2,91) = 3.82$; $p = .046$; $\eta_p^2 = .07$. In Asian communication style conditions, the difference among face-to-face ($M_{a\_ftf} = 3.56$) and CMC ($M_{a\_cmc} = 3.14$) was more important than in Western communication style conditions ($M_{w\_ftf} = 3.8$; $M_{w\_cmc} = 3.33$), $F(1,92) = 5.61$; $p = .020$; $\eta_p^2 = .06$. This was also the case for the difference between mobile phone ($M_{a\_mp} = 2.67$; $M_{w\_mp} = 3.15$) and face-to-face support, which was more important in Asian than in Western communication style conditions, $F(1,92) = 4.66$; $p = .036$; $\eta_p^2 = .047$.

Discussion

In our study we investigated the influence of cultural cues on e-mail communication between university students, on perception of the e-mail sender's personality, and on helping behavior.

Adaptation in the Responses and CAT

Our first aim was to explore the way participants composed responses to a written request for cooperation from a peer-student depending on two types of cultural cues. We found evidence supporting our assumption that cultural cues would play a role in the formulation of the e-mail response. With regard to the writing style of the e-mail response, an alignment of style effect (Hansen & Jucks, **2014**) could be replicated for length of the introduction as one of the conciseness measures.

This result is in line with H1a, which predicts that students would adapt more automatically; they behaved as predicted by CAT (Gallois et al., **2005**; Giles et al., **1991**).

However, convergence could not be found with regard to the total number of words. Also contrary to our prediction in H1a, students did not respond more politely to a request written in Asian style, containing more features of politeness.

One possible explanation for this finding is that the politeness of the Asian-style requests may not have been perceived as unusual enough to trigger alignment to this style in the participants' responses. E-mail requests to fellow students often are formulated in a more polite style than those addressed to faculty members (Knupsky & Nagy-Bell, **2010**). This somewhat surprising finding might be explained by the fact that asking for support from a peer is often regarded as a more imposing request (Duthler, **2006**) than asking for support from a professor, for example when asking for an appointment during his or her consultation hours (Duthler, **2006**). Establishing contact with a future cooperation partner can be seen as a face-threatening act for both interactants and therefore requires extra politeness (Vinagre, **2008**). As an alternative explanation, it is possible that there is no real divergence (cf. Gallois et al., **2005**) when taking into account the role differences between the two communicating students: While both are members of the same status group of students, the student making the request is less advanced in her studies and she is asking for support and cooperation. Therefore, responding less politely can be regarded as convergent to the role determined by the situation.

In line with the predictions and results of our previous studies (Hansen et al., **2010**; Hansen & Jucks, **2014**), alignment to the wording of forms of addresses and salutations occurred more often when e-mails were signed with a German name (H1b). This result points to a more strategic component of

lexical alignment, as participants did – in a way – inhibit the lexical alignment process with regard to address and salutation expressions when responding to the Chinese student. It suggests that the participants may not have trusted “Li Hua” to use appropriate vocabulary (Hansen & Jucks, **2014**). At the same time, we found that participants tended to align more words in their e-mails when responding to those written in Asian style. At first glance this result contradicts our hypothesis (H1a) as well as the results found in previous research (Hansen & Jucks, **2014**) showing more lexical alignment in responses to Western style e-mails. However, this difference may be influenced by the status of the participants. In a study by Hansen & Jucks (**2014**), lecturers responded to a student's request; in the present study the CMC took place between peer-students. In the study with lecturers as respondents, the assumed expert-layperson discrepancy may have added to the impression of unusual Asian writing style and therefore inhibited lexical alignment. In the present study examining peer-to-peer communication, the unfamiliar style in Asian conditions may have led to the idea that the communication partner did not have the same knowledge base or background and thus might misunderstand a response containing alternative expressions.

Personality Perception and SIDE

Our second aim was to examine the influences of cultural cues on the perception of the communication partner's personality. Although we could not find the assumed effect of communication style (i.e., Western style leads to a more positive perception of the sender), we found that e-mails signed with a German name triggered higher scores on extraversion. A high score on extraversion is not necessarily a positive score but rather depends on preferences and cultural values. In Western cultures, extraversion often is preferred to introversion (Hofstede & McCrae, **2004**). Therefore, this result is in line with H2.

Previous research has shown that people judging others' personalities after interacting via CMC could do so most easily for the dimension of extraversion than for other personality dimensions (Gill, Oberlander, & Austin, **2006**). Apparently, the social identity of the student making the request (cf. SIDE, Spears & Lea, **1992**) was triggered enough by the name to activate group norms and stereotypes of Chinese students. It can be assumed that stereotypes of Chinese students as shy and introverted influenced personality perception. Similar to the finding on extraversion, we found that e-mails signed with a Chinese name led to higher intellect judgments, independently of the style the request was written in. Although not expected, this result is in line with what is known about positive stereotypes of Asian students (Shih, Pittinsky, & Ambady, **1999**) and points again to the salient social and personal identity (SIDE, Spears & Lea, **1992**) of the student making the request.

Help score, SIDE, and Helping Behavior

While communication style had no effect on the help score, participants offered more support when responding to e-mails signed with a Chinese name. This is contrary to our prediction in H3, assuming that clues indicating the same group membership should lead to greater willingness to help (cf. SIDE, Spears & Lea, **1992**). Interestingly, this finding corresponds well with our findings with regard to personality perception. Even though the Chinese name indicated a lack of a shared social identity, we found more positive ratings for intellect for the fictitious sender with the Chinese name. The greater willingness to help students with a Chinese name is well in line with this positive judgment.

It is quite comprehensible that a student's willingness to collaborate with a peer is influenced by the assumed intellectual abilities of that peer. In group work, social loafing and comparable problems are common and are known to be influenced by cultural background (Earley, **1989**). A presumed higher intellect or other positive stereotypes associated with the social identity of the student making the request may have led to a higher help score.

Alternatively, the result may also be explained in terms of social desirability. In our experimental setting, it might have been perceived as politically incorrect to deny help to an international student. This is a clear limitation of our paradigm, reducing the external validity of our results.

As formulated in our first exploratory research question RQ1, we were interested in examining the effect of cultural cues on the likeliness of giving further support via various types of communication channels (face-to-face, CMC, mobile phone). Our results showed that participants preferred to offer face-to-face support, and then computer-mediated support. Participants were least willing to provide support via mobile phone.

This finding might reflect the usual behavior of university students in Germany when working together during a course: When students meet for weekly course sessions, they often meet shortly before or after the session to do group work. Working together via e-mail or mobile phone may require more effort (additional time for composing e-mails or making phone calls), or may involve too much closeness or familiarity, as intimacy or trust develops more slowly in non-face-to-face communication (Lea & Spears, **1995**).

We found less willingness to provide computer-mediated and mobile phone support in the Asian style conditions than in the Western style conditions, meaning less willingness to use these communication channels to cooperate with students adopting an unfamiliar writing style. A possible explanation for this result is the greater familiarity with the Western communication style among the German participants in our sample. The students may have assumed that a student displaying an unfamiliar writing style might better be supported by a face-to-face meeting than by using communication channels prone to misunderstandings. Moreover, expectations placed on communication partners when using CMC are quite high (Epley & Kruger, **2005**).

Implications

The reduced cue condition of CMC has clear advantages with regard to social equity, as the gender, race, and age of interactants are not necessarily revealed. However, small cues indicating the ethnic or cultural background of interactants may suffice to activate pre-existing stereotypes associated with the social identity of the communication partner. Our results show that revealing the name of a communication partner can be sufficient to influence one's perception of his or her personality, and first impressions and stereotypes are especially perseverant in CMC (Epley & Kruger, **2005**).

From our results it can further be supposed that the follow-up communication and collaboration processes were influenced by cultural cues embedded in the first e-mail interaction. Superficially, it may seem as though the domestic (in our case German) students were quite helpful and supportive of the international students. They tried to facilitate comprehension by adopting the style and wording of the e-mail sender and they agreed to work together with the international student. Nevertheless, participants in conditions with the request being written in an unusual Asian communication style

proposed less support via e-mail and mobile phone. This result may help to explain results of German national surveys on student withdrawal (Heublein, Sommer, & Weitz, **2004**) which show that foreign students in Germany complete their studies less often compared to domestic students and that foreign students experience a lack of support.

In our study, we chose a setting with a Chinese student asking fellow students for help. Even though in Germany, the Chinese nationality is associated with rather positive stereotypes, we found that cues indicating a Chinese nationality may negatively influence the addressee's willingness to help. For future research, it would be interesting to replicate the paradigm with cues indicating an ethnic or cultural background associated with less positive stereotypes.

Knowledge derived from our research can be used to develop effective intercultural communication education programs. Such programs can prepare undergraduate and graduate students not only for studies abroad but also for interacting in their intercultural classrooms at home. By making the differences in communication styles in CMC explicit to the students and by encouraging them to reflect on their own culturally determined practices and behaviors, cooperation between international and domestic students could be enhanced.

Appendix

E-mail request in the condition “German ethnicity and Western communication style” (Translated from German)

Dear …

My name is Kathrin Schneider, I'm studying in my first year and I'm taking the course with Mr. Mueller along with you. In another course at the beginning of the year you gave a presentation that I liked very much. I still don't know how to prepare a good presentation. Would you agree to prepare the presentation for Mr. Mueller's course with me?

Best

Kathrin

E-mail request in the condition “Chinese ethnicity and Asian communication style” (Translated from German)

Dear…

My name is Li Hua, I'm studying in my first year and I'm taking the course with Mr. Mueller along with you. How are you?

I'm very interested in all the topics we are learning about and I am happy that Mr. Mueller and you, as an experienced student, share your knowledge and ideas with us. In another course at the beginning of the year you gave a presentation that showed your great knowledge, and I liked it very much. To present the complicated texts in such a clear and straightforward way is amazing! I still don't know how to prepare a good presentation. I would very much like to learn from you. Would you agree to prepare the presentation for Mr. Mueller's course with me?

Best

Li Hua

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