

MEANING AND PEDAGOGICAL IMPACT OF CLASS NOTES TRANSLATED INTO MANDARIN CHINESE FOR SCHOLARS FROM CHINA ENROLLED IN RESEARCH TECHNIQUES TRAINING

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ABSTRACT: We conducted a qualitative study to understand the meaning of translating class notes into Mandarin Chinese for Chinese students enrolled in our hands-on training program for biomedical techniques. To date, no studies have reported interventions to support researchers from China as they learn animal care and use techniques, particularly whether translating class materials into Mandarin Chinese fulfills a specific pedagogical need. Semi-structured interviews were conducted in order to collect rich, descriptive data. Interviews were transcribed and open coding was conducted by each researcher independently. Axial coding was performed in unison until a consensus for categories was reached. Several themes emerged from the findings: a) Pedagogical impacts that ranged from time-saving to a distraction from learning English, b) Range in personal meaning from positive to negative, depending on English proficiency and degree of adaptation to U.S. culture, and c) Recommendations for supporting a variety of learning styles. While the translated documents saved time and clarified meaning for researchers new to the United States, these documents were offensive to those who reported being more proficient in English. Interestingly, most participants suggested that particular attention should be placed on the social aspects of teaching and learning. Therefore, our translated documents failed to address some pedagogical obstacles for Chinese scholars including listening and speaking English, adapting to different social environment in the US classroom and culture shock. As a result of this study, we have shifted the focus of our hands-on training program away from content and toward cultural competence for teachers.

Introduction

The Responsible Care and Use of Laboratory Animals Training Program (RCULATP) was instituted in August of 2010 at Penn State Hershey College of Medicine in response to an urgent need to provide opportunities for researchers to practice common laboratory animal techniques. Additional goals of the program include encouraging a collaborative atmosphere between researchers and veterinary staff, and fulfilling the institution's regulatory obligation to assure that researchers are proficient in all procedures using animals. While all regulatory and curricular details were seemingly in place as we embarked on our new program, what we didn't plan for was how to fulfill our goals for participants who were not native English speakers. Because much of the content was presented in the format of a group discussion, we soon observed that it was difficult for non-native speakers of English to participate in class and for instructors to evaluate their

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comprehension of the material. Because Chinese visiting scholars composed twenty-one percent of our total enrollment, we decided to address our concerns, starting with this group, by providing the class notes in both English and Chinese to all participants in the program. The translation was performed collaboratively by an American faculty member who was born and raised in China and a Chinese participant who had attended the training sessions, both of whom were passionate about this endeavor. It was our hope that the translated notes would clarify important regulatory information, send a positive message to Chinese students and support self-reported coping strategies of Chinese students studying in the United States. The purpose of this qualitative study was threefold: to identify the pedagogical impact of the translated notes, to elucidate what meaning our efforts to translate class notes into Mandarin Chinese had for the Chinese students enrolled in our training program, and to seek input from the students about additional pedagogical interventions that might be used to improve the hands-on training experience for this group of scholars.

Theoretical Framework

In the academic year 2009-2010, China eclipsed India in the number of students who traveled to the United States to study. In the same year that we launched the Responsible Care and Use of Laboratory Animals Training Program, the number of Chinese students entering the US to study surpassed 157,000, representing nearly 22 percent of the total number of international students studying in the US (Institute of International Education, 2014). As this trend has continued, welcoming a record number of over 235,000 Chinese students to the United States in 2013 (Institute of International Education, 2014), education research has started to explore pedagogical challenges that face both Chinese students studying in North America and North American teachers who seek to provide valuable learning experiences for these students. We chose to frame our study from the perspectives of international education and English for Speakers of Other Languages (ESOL) in order to gain insight into reported contrasts between traditional Chinese and Western pedagogies, self-reported struggles and coping mechanisms of Chinese Students as they work and learn in North American classrooms, and recommendations for pedagogical interventions for non-native English speakers.

Differences between Chinese and Western teaching paradigms have been exemplified by comparing Confucianist and Socratic philosophies (Chan, 1999; J. Huang & Brown, 2008; J. Huang & Klinger, 2006; J. Huang, 2005, 2011; Y. Huang, 2012; Yan & Berliner, 2012). On one hand, Confucius' philosophy emphasizes hard work, behavioral reform, pragmatic knowledge, and respect for authorities, with the ultimate goal of producing a socially harmonious society. Socrates, on the other hand, "valued the questioning of his own and others' beliefs, the evaluation of others' knowledge, self-generated knowledge, and teaching by implanting doubt" (J. Huang, 2005, p. 555). The resulting diametrically opposed education systems have been concisely compared by Chan (1999). She described typical Chinese education as teacher centered and past-present oriented with a passive student in the classroom and a focus on rote learning; all with the goal of creating a loyal and literate citizenry. In sharp contrast, she represented the typical Western classroom as learner centered and present-future oriented with an active student in the classroom and a focus on application; all with the goal of developing the individual. Although a recent study showed no statistical difference between beliefs about teaching and learning among Chinese and American-born graduate students (Zhao, 2009), and an

additional study showed that Chinese students' learning style preferences did not necessarily match the traditional Confucianist teaching philosophy (Melton, 1990), challenges and stresses that Chinese students face as they study in North America continue to be framed from the perspective of the wide gap between these philosophical and cultural approaches to education.

In a qualitative study that encouraged self-reporting of struggles for Chinese graduate students studying in Canada or the U.S., Huang and Klinger (2006) reported that the students they interviewed were challenged by: inability to speak and understand English, difficulty adapting to Western teaching styles, difficulty adapting to the local culture and loneliness (among others). In a similar study, eleven newly arrived Chinese graduate students communicated that they had difficulties in adapting to active participation in American classrooms, were afraid of making mistakes, and had challenges with oral and aural English language (Zhang & Xu, 2007). Scheele, Pruitt, Johnson, and Xu (2011) identified communication and overcoming cultural differences as the largest barriers to success among Asian nursing students studying in the United States. Recent research has introduced compounding stresses of financial difficulties, job market uncertainties and stresses on relationships for Chinese people studying in North America (J. Huang, 2011; Yan & Berliner, 2012). Specific obstacles to academic learning have also been reported including: American lecturers that don't follow the textbook, a lack of detailed lecture summaries, minimal blackboard use, and constant interruption by student discussion (J. Huang, 2005). According to a subsequent study that explored self-reported challenges with academic listening in English for Chinese students, over 92% of participants experienced difficulty understanding lectures delivered in English, yet felt confident in their English reading abilities (J. Huang, 2006). This collection of studies has not only increased awareness of the many stresses and roadblocks that Chinese students face while studying within Western pedagogical frameworks, but has also brought forth suggestions for helping these students cope.

Self-reported strategies for coping with the above struggles include "talking to native Americans whenever it is possible", preparing ahead of time for class, utilizing a pragmatic "when in Rome" approach to adapting to the new cultural environment, and using English reading and writing skills to compensate for deficits in spoken language abilities (J. Huang & Klinger, 2006, p.54). Suggestions that Chinese students had for American professors to support their learning during lectures included: writing key phrases on the chalkboard, following the textbook closely, providing a list of the main points, slowing down, reducing the amount of class discussion, and providing individualized assistance for international students (J. Huang, 2005). One author suggested adopting strategies that more closely match the traditional Chinese role of the teacher by emphasizing memorization, allowing quiet listening (rather than requiring participation in discussion) and teaching self-control (Thakkar, 2010). Additional key recommendations include providing Chinese students printed material ahead of class, offering tutorials for researching literature, and providing overtly structured programs (Yeung & Fu, 2010). Recently, the focus of recommendations has shifted away from helping international students adapt to US culture and toward creating "a more supportive environment for students from different cultural backgrounds to capitalize on each other's strengths"(Y. Huang, 2012, p. 144). Huang's suggestions for Western educators for supporting multi-cultural classrooms include providing "more culturally sensitive learning clues, and more time and space for these students to become engaged in classroom activities," (2012, p.145) in addition to mentoring programs that pair more experienced international students with those who are newly arrived. Despite recommendations

to support diverse cultural backgrounds in the classroom, there is paucity of information on the pedagogical impact or meaning of providing class materials in both English and Mandarin Chinese. In particular, there are no studies that explore methods of supporting Chinese students learning to perform animal research techniques in the highly regulated field of biomedical science.

Methodology

This is a qualitative research study. Qualitative research explores social, relational and experiential phenomena in their natural settings, “attempting to make sense of, or interpret, phenomena in terms of the meanings people bring to them”(Denzin & Lincoln, 2005, p. 3). It seeks to understand complexity and to offer a richly textured account of social processes and human experience. “Basically, qualitative researchers are interested in *understanding the meaning people have constructed*, that is how people make sense of their world and the experiences they have in the world” (Merriam, 2009, p. 13). Because the goal of our study was to achieve an understanding of how our translated class notes impacted learning and what they meant from the participants’ perspective, we believe our research fits perfectly within the scope of qualitative research. While our findings from this study might not necessarily apply to other training programs in other contexts, the impact of globalization on higher education is a reality of modern academic life (Institute of International Education, 2014) and of great concern to others who train in the field of laboratory animal medicine.

Participant Selection

Participants were purposely chosen as a result of their involvement in the hands-on training program. Because academic proficiency in English is usually accomplished by 8 years after immersion (Scheele et al, 2011), participants who had lived in the United States for more than eight years were excluded. The criteria for inclusion were as follows:

1. Must have been enrolled in the RCULATP during the time that the translated notes were available.
2. Must have moved to the US from China within the last 8 years.
3. Must be willing to participate.

We recruited 10 participants for the study. Of those, two were excluded because they had either not received the translated notes or had lived in the United States for more than 8 years.

Data Collection

The study was conducted at a medical center of a major university in the eastern part of United States. This institution employs about 7000 people including clinical physicians. The participants selected for the study included exchange graduate students working on doctorate degrees in science, post-doctoral students performing basic science research and other visiting scientists. Semi-structured, audiotaped interviews of 30-45 minutes in duration were conducted during the lunch break. A simple traditional Chinese lunch for interviewers and participants was shared in advance of the interview in order to establish trust and rapport. The casual atmosphere that resulted allowed the participants to feel more comfortable with the interview process. Both

authors were present to allow comparison of interpretation of responses aimed at promoting dependability of information gathered during the interviews. Additionally, while the interviews were conducted mainly in English, one of the authors could speak Chinese when necessary and the other author could answer questions particular to the training program. The interviews were audio-taped and later transcribed to facilitate analysis. In order to minimize effects of misinterpretation of interview data as a result of leading questions and power dynamics during the interview, we assembled a focus group session for the participants (4 attended) to discuss our findings from the project, assure the validity of our research results and seek input on implications of our findings.

Data Analysis

Recorded interviews were transcribed using commercially available transcription software (Express Scribe Transcription Software, NCH Software, Greenwood Village, CO). As each transcribed document became available, it was initially analyzed independently by each researcher by performing open coding (Merriam, 2009).

The axial coding process continued by assigning the data to categories, focusing on Merriam's (2009) suggestions to create categories that are "sensitive to the data, exhaustive, mutually exclusive, and conceptually congruent" (p.186). This process of comparing data across categories, classifying the data and constantly refining the results, called constant comparative method, has been used for other types of qualitative studies (Merriam, 2009).

To increase the validity of our data, we employed data triangulation by using two methods: a) independent analysis of the in-depth interviews and b) follow-up focus group discussion after our data was assembled. We shared our findings with participants (n = 4) to confirm consistency between the data and our analysis. Focus group participants did not identify any inconsistencies. Additionally, authors acknowledged their biases to each other and participants during both the interviews and process of axial coding.

Findings

Themes that emerged from the findings included: a) pedagogical impacts that ranged from time-saving and content clarifying to a distraction from learning English and b) ranges in personal meaning from positive to negative, depending on English proficiency and degree of adaptation to U.S. culture. Participants suggested not only that additional formalized resources be provided (i.e. books, videos, and written protocols), but that particular attention be placed on the social aspects of teaching and learning (i.e. time for students to get to know each other and mentoring programs) in order to better support Chinese learners.

Translated Notes as a Tool to Promote Learning

During the interviews, all of the participants reported that the translated documents promoted learning of the class content in ways that ranged from time savings to clarifying meaning. The work of translating written materials from English to Chinese is time intensive as reflected in this example of the time involved in translating a document: "If I want to understand a technique in English, I have to spend 1-2 hours. If it is in Chinese, it will take me about half hour." Saving time is especially important for graduate students who are already expected to spend long hours

in the lab. The sense of urgency with regard to this intense research schedule is further exemplified by a participant who described how the notes helped her prepare for class:

I just quick go through the notes. That's the only preparation I know so. Kind of like takes up a lot of time for me because I already have experiments going on so I don't want to be late... The notes were very clear so I could go through.

For other participants, the translated notes were used as a means to clarify meaning or double-check their understanding of the English notes. One of the participants, a post-doctoral researcher who had been in the United States for four years, reported using the notes as a sort of English-Chinese dictionary: "I usually read the English form and when I do not understand any English words I would read the Chinese form." She also used the notes to practice speaking unfamiliar English words and her comments capture the process shared by other participants: "Sometimes I first read Chinese form and then the English to learn how to speak a technique term. Sometimes I went to check the Chinese form when I did not understand the English words. It is very helpful and I understood it faster and learned quicker." While all participants found the translated documents to be helpful in some way, some also viewed the translated notes as potential obstructions to learning.

Translated Notes as a Pedagogical Roadblock

All participants used the translated notes to some capacity, however there were concerns expressed by most about the drawbacks of having the Mandarin translation available. One such concern was that the use of the translations would impede the progress of English language proficiency: "If you want to master it, you got to read original language. It is not in China, you need to know English. Because the training is in English anyway, we need to know English instead of Chinese." In addition to the message that learning conversational English is very important to this group, there was a sense of risk that some meaning would be lost during the process of translating the English documents to Mandarin Chinese.

The first participant in our study, who had only been in the United States for six months, worried about the differences between the languages during the translation process: "When you translate English into Chinese, maybe it is stretched. Sometimes I think English is exact, when you translate into Chinese, the meaning might not the same." He is reminding us here that Chinese is a contextual language where meanings change based on how they are situated within the conversation. There is indeed a risk that the translation won't capture the meaning that was initially present in the English document.

Finally, participants reminded us that the jargon in the Chinese translation was not familiar to students who had never been trained in laboratory animal techniques. This fact was pointed out to us by the participant who had attended veterinary school in China. She explained: "If the students never get any training in China and then you know that you going to give them the notes in Chinese, that is not very helpful because they didn't get any background training in China either so the Chinese words doesn't mean anything for them." Why should this be a surprise for us? The native English speakers in our classes struggle with jargon, too. These special words belong to the community of practice of laboratory animal medicine and the students have difficulty feeling included in that community until they learn its language.

Range in Personal Meaning of the Translated Notes

Each participant was asked about the emotions they experienced when they received the translated documents, to which there were limited responses about their own feelings on the matter. Some participants were able to convey meaning that they thought their Chinese colleagues might attribute to the translated notes, but declined to offer their own opinions. Despite this cultural difference, we were able to uncover meanings that ranged from surprise to confusion to shame.

Three participants expressed being surprised by the notes. Each were smiling as they recalled the moment they saw the notes and we confirmed during the interview that this was a positive feeling. The participant who had been in the United States for the least amount of time was the most enthusiastic: “I think, “Oh, Wow! It has Chinese. I think it is very good. I was not expecting it.” The participant who had only been in the US for 3 months at the time of the interview interpreted the notes as a sign of hope that help would be available to her if she needed it: “It is helpful... So you feel like if you need help, you must be able to get help. Yes, but we speak in Chinese first, and you know someone will be able to help you.” The woman who had been in the United States for 8 years also expressed surprise but this was admixed with confusion: “First, surprise... [then] I think “Why we only get the Chinese version and not the other language version?” She was not alone in her confusion.

Both versions of the notes were electronically sent to all of the participants in the hands-on training program. While the availability was announced in order to recognize the efforts of those who worked on the documents, the reason for supplying the notes was not provided initially. This was confusing for two of the respondents, one of whom thought that it meant that there would be a Chinese instructor: “I think maybe because a lot of Chinese students were from China here and maybe there is a Chinese teacher in the class.” Another woman spoke for her Chinese colleagues when she said “I don't know for the Chinese at least they confused they don't know why you only send me the Chinese version and English version”. Some respondents found explanation in a pragmatic approach to the situation; others were insulted by being singled out for this service.

For those who had a pragmatic approach to the translated notes, they reasoned that the translation was nothing more than a necessity or a reality of global life. One gentleman imagined that the translated documents meant the same thing as an international traffic sign: “Just like you go to some different places to travel, they will give you something to read. If you know Chinese, you read Chinese. If you know English, you read English. I think it is ok.” Another participant likened the situation to cities with multicultural populations: “I understand because sometimes they have newspapers with Spanish and English it's because they have lots of Spanish people but over here we have Chinese version because a lot of Chinese people attend the training.”

The pragmatic approach described above was most common, but there were two participants who felt that the translated notes would be offensive to other Chinese people, depending on their English proficiency and time spent in the United States. The participant who had been in the United States the longest believed that other Chinese people would be offended at the receipt of the Chinese notes, especially since the notes were not translated into any other language. She describes this sensation of feeling singled out in this response: “maybe because Chinese is not

good enough so you noticed that... you noticed that you need to translate into Chinese only for the Chinese people". She went on to explain that the level of insult would be different, depending on the length of time the person had lived in the United States: "If they just came here the notes would be really helpful... For the people if they stay here quite a long time, they have both language so it doesn't matter for them they would feel offended". When we asked what we could do to prevent offending students in the future, it was suggested that we explain why the notes were only translated into Mandarin: "I think you're OK as long as you explained when you send out the class notes you explain that right now we only have the service to translate into Chinese we don't have other language yet, people will understand..." This participant, the same one who had felt singled out, also recommended soliciting requests for volunteers to translate the notes into other languages via a group wide e-mail so that students from any one nationality wouldn't feel isolated. This is just one example of the powerful suggestions we received for improving our training program for Chinese students (and for all students).

Suggested Resources for Supporting Chinese Learners

When asked for additional resources that might be of help for future Chinese students, all the participants offered suggestions ranging from increased visually-oriented class materials to changes that accommodated social needs. The following exemplify suggestions that were made to support Chinese researchers in our hands-on training sessions.

Visual resources. A visiting scholar who had been in the United States for three months captured the essence of her need for additional visual resources in this way: "Just listening to something is hard. Maybe my English is not good. Just listening I cannot understand and learn well. I need vision." Multiple similar suggestions were made that ranged from books with illustrations to PowerPoint presentations to videos. While the hands-on approach during the classes was helpful, it was recommended that additional visually-oriented resources be provided in advance of the classes to allow students time to prepare.

Addressing social isolation. The theme of social isolation emerged from all the participants regardless of the length of time they have been here. While language was identified as a cause of social isolation, one of the participants felt that this could be managed since the classroom environment was friendly: "Especially so if the students have problem of the express themselves in English but have the social interactive environment is really nice and the student maybe is encouraged to express themselves and if they have maybe they have a problem but if their language is the barrier they will not ask but however if the environment is truly welcome the questions and even hard for them to tell to ask the question, but they will ask."

The greater obstacle seemed to be the inability to connect with other students. The following are examples of the many ways that our participants described their sense of social isolation:

"You know in China, there are a lot of place to go and play together. Here, sometimes I feel lonely."

"In fact I do not connect to American people that much. I have one American lab member. My roommate is not a American and she is a Pakistan who does not know much American culture."

“American people are more individual. In China, many students will get together, to eat lunch together, to sing and other activities. Americans have parties too but not as many.”

Participants shared their suggestions for ways to be included in the community and they ranged from pairing up the Chinese student with a willing US student, to creating international social events to get to know other people around them. The following comment reflects the growing movement toward building multi-cultural communities of learning:

I think that maybe for example Chinese student introduce to an American student. The American student can help the Chinese student with the language and the Chinese student can help the American students to understand Chinese culture and food. They can help each other.

Discussion and Conclusions

There is currently a dearth of evidence for effective pedagogical methods of supporting Chinese researchers learning animal care and use techniques in the United States, particularly whether having the class notes translated into Mandarin Chinese is meaningful or helpful. This study, the first to address this question, showed that the translated notes were utilized by all participants to some extent, but that the meaning of having the translation available was not necessarily positive for all participants. While the intentions of the individuals who worked on the translation project were to provide additional pedagogical resources and to assure Chinese visiting scholars that assistance was available, these efforts may appear to have been undertaken with a limited understanding of reported strengths and weaknesses of English language proficiency of Chinese visiting scholars.

The participants in this study reported that the translated documents fulfilled a pedagogical need by saving time or clarifying meanings. This finding is not reflective of the literature, which suggests that in general English reading proficiency is high for this population. In a study of seventy-eight Chinese students studying in the United States, reading in English was rated as a skill that participants felt confident performing (Huang, 2006). Although Chinese students who major in biomedical science have studied English for many years in school, English teachers in China have historically focused on reading, writing and grammar. The listening and speaking skills that are critical for the Chinese students living in the United States have been rarely emphasized in English classes taught in China. Providing written translations of class notes in Mandarin Chinese overlooks the fact that English reading skills have not been reported as a major roadblock to learning for Chinese scholars studying in the United States. Furthermore, the notion of translating documents does not address the pedagogical challenges that have been reported: difficulty understanding lectures, difficulty following and participating in class discussions, and difficulty adapting to Western teaching styles (J. Huang & Klinger, 2006; J. Huang, 2005, 2006; Scheele, et al., 2011; Zhang & Xu, 2007). Despite this failure to address reported pedagogical challenges, most of the participants in our study, especially those new to the United States, associated positive meaning with the documents.

Most participants in this study reported a positive or at least pragmatic feeling as the result of receiving the translated notes. Those students who were newest to the United States were most likely to be pleased and to feel supported. Participants who were concerned about other Chinese students being offended were more likely to have been in the United States longer and were more

proficient in English. Again, the goal of the translations were to provide a positive and welcoming message for Chinese students studying at our institution, but ultimately this message was not plainly stated and was, as a result, misinterpreted by some as unfairly singling out a minority. The translated documents did not support the more meaningful roadblocks to being welcomed into a Western classroom: social isolation, loneliness, fear of making mistakes and cultural differences (J. Huang & Klinger, 2006; Scheele et al., 2011.; Zhang & Xu, 2007). While it is possible that some participants might falsely report positive meaning for the translated documents out of respect for the interviewer who also served as the teacher for the training program, it may also be that the familiarity of reading ones native language might help to dampen the culture shock that newly arrived Chinese students are experiencing.

In summary, while the translated class notes did not address pedagogical needs of Chinese scholars that are specifically reported in the literature, they were welcomed by most as a mechanism of timesavings and understanding of the content. Although the positive meaning ascribed to the notes by most was the hope and intent of the team that performed the translations, this study drew attention to more pressing needs to make changes to interactions within the classroom, as suggested by our participants, that would support international students in general: providing additional visually-based materials, slowing down the conversation during class, providing opportunities for students to interact socially, providing mentorship for international students, and preparing teachers to be more culturally competent.

Implications

Several important changes have been made to our hands-on training program as a result of this study. First of all, each time the translated notes are sent to class participants, an explanation is provided to all participants about the initiative to translate notes into Mandarin Chinese. Students are invited to help with translations into additional languages in order to support all visiting international scholars and to clarify that Chinese scholars are not being singled out. Additional resources including links to videos and other presentations have been made available to all students in advance of the classes. Quarterly workshops for teachers, which previously focused on content, have shifted toward the theme of cultural intelligence. A total of three such workshops have been provided to date during which teachers have explored what it is like to speak in a non-native language, learned about the experiences of students studying in China, and have reflected on the importance of relationship building in the classroom. The authors are in the process of creating a social organization designed to provide opportunities for international students to connect with Americans and one another. These changes stand to benefit students of all cultural backgrounds.

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