Exploring Sociocultural Theory Application in Online Language Courses

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Abstract. Second language education is a necessary admission requirement for many universities across the U.S., as well as a graduation requirement for several high schools. The increasing presence of online education has increased the availability of secondary and post-secondary world language courses in online and blended formats, yet a challenge associated with online language coursework lies in addressing the sociocultural aspect of learning a language. In this type of learning format, it is critical to consider Sociocultural Theory (SCT) concepts such as self-regulation, zone of proximal development (ZPD), and scaffolding. For instance, Zhang (2013) explores teacher-student collaboration in online courses; and Cappellini (2016) has researched scaffolding and the role students assume in the learner community when learning via telecollaboration.

The SCT theoretical framework guided Brigham Young University in developing blended and fully online German courses. The courses use authentic cultural materials, unique technological resources, and social-media-style interventions (synchronous and asynchronous) to provide extensive scaffolding of learning material and a collaborative student environment. SCT-based interventions in the online courses included sentence modeling, use of discussion boards, film recitations, and conversation cafe (an online real-time speaking lab). This paper reports on the approach the university took to the course development, the sociocultural aspects of the interventions implemented, and preliminary evaluative findings regarding the effectiveness of the interventions. Preliminary findings suggest a slight improvement of student proficiency, as demonstrated in German 201 final exam scores and German 202 pre-test scores; however further research and analysis is necessary to validate these preliminary findings.

Keywords: Blended · Online · Sociocultural theory · Language learning

1 Introduction

According to Sociocultural Theory (SCT), learning is a social practice. In the early 20th century, Len Vygotsky presented a Sociocultural Theory of Cognitive Development, in which he suggested physiological development alone does not direct the development of a child's knowledge and skills. Rather, he claimed social interaction is what promotes development, that social interaction is not only a contributor but is fundamental to cognitive development. Vygotsky's model (1978) includes the notion of proximal

development: as students interact with things or people around them, they will have learning experiences that stimulate cognitive development. As opposed to behaviorist stimulus-response theories of learning, Vygotsky's model is couched in a constructivist paradigm. Language is the tool for constructing thought. It is a social construct, where the expert supports the novice. By interacting in their social environment, learners construct their knowledge of the world around them; thus, proximal development.

Another aspect of SCT is scaffolding. Scaffolding includes supports and helps that guide a student progressively toward a higher cognitive level. Gradually, scaffolding is removed, guiding the student toward greater independence in their learning.

The Zone of Proximal Development (ZPD), a significant aspect of SCT, is the area just outside of a student's comfortable ability. It's the area where students may not be immediately proficient without support or scaffolding, but accomplishing proficiency independently is within their reach. Tasks in the ZPD are not so difficult that the student gives up or refuses to try and not so easy that the student can achieve them with little to no assistance.

An instructor can, for example, couple scaffolding with awareness of a student's ZPD to provide just enough assistance to stimulate learning and development. Activities and interactions in a course can be designed with careful scaffolding to guide students to higher levels of language proficiency. Feedback and interaction from experts help novices progress beyond their level of comfort and into their ZPD. Cognitive ability is promoted through development of language and social interaction.

In fact, Vygotsky submitted that language only fully develops through practice and interactions with others. Thus the importance of linguistic interaction, feedback, and scaffolding to help a learner develop their language skills becomes paramount. Drawing on concepts of SCT, the American Council on the Teaching of Foreign Languages (ACTFL) suggests that practicing speaking/listening and having live interpersonal interaction are key to learning a second language (2006).

Traditional classroom environments are assumed to provide a wealth of opportunities to interact, fostering cognitive and linguistic development. Student who are physically close to one another will, it is assumed, naturally interact socially. Likewise, the assumption that collaborative activities and projects are facilitated by being present together physically. Can the same be said of online language learning where the transactional distance is increased?

Recent discussion of transactional distance (Moore 1993), simply stated, explores the impact of teachers and learners engaging in a setting outside of the traditional classroom. "In our efforts to explore various aspects of learner autonomy in distance teaching and learning programs, we have tried to prepare a system that makes it possible to order programs according to the kind and extent of autonomy the learner is expected or permitted - to exercise" (Moore 1972). Increased prevalence of all forms of distance education, instructional methods where teaching and learning behaviors are executed apart from each other and require some means to facilitate the interaction, demands further evaluation of the theory of transactional distance. Research in the 1990's and 2000's globally analyzed the effect of transactional distance on student learning in distance and online coursework. Specifically applied to the language context, one element of transactional distance would reasonably include sociocultural interaction and dialogue. Moore points out that dialogue, a fundamental part of

language and communication, is synergistic in nature, as the comments of each person build on those of the others in the dialogue. The role of participants in a conversation may materialize based on each participant's mastery of the language; some may take on an expert role while others may take on novice roles, seeking more explanation, modeling, and feedback from the expert participants in the conversation.

Cappellini (2016) considered relations between the sociocultural and the language learning aspects of teletandem Chinese and French language learners. This study underscored the different roles students take on (expert versus novice) as they interact with each other in various language learning contexts. Clearly, there is evidence that sociocultural aspects of learning can be present in a setting other than the physical face-to-face classroom, such as in an online, blended, or teletandem setting.

Likewise, Zhang (2013) evaluated elements of SCT in a collaborative language learning setting; findings revealed that the implementation of scaffolding, ZPD, and self-regulation in online courses can affect teacher-student interactions. Zhang further mentions the critical nature of considering SCT in online and blended settings. The assumed social elements of classrooms may not be as present in online/blended settings. In the online classroom, where interaction may be limited and may not be synchronous, social linguistic development certainly needs to be carefully considered.

2   Materials and Methods

Noting the challenge of dialogue and interaction in asynchronous online language courses, Brigham Young University developed online and blended world language courses that include face-to-face/synchronous and asynchronous interactions. Online courses do not have any in-person course sessions but do have synchronous online interactions; blended courses may have one or more in-person meeting in addition to online content and activities which may be synchronous or asynchronous. Face-to-face (F2F) activities are all conducted synchronously in a classroom setting.

The online and blended courses were designed to include several types of interventions in order to provide opportunities for extended dialogue and practice speaking/listening. Special attention was paid to achieving the three communicative modes suggested by the American Council on the Teaching of Foreign Languages (2006): interpretive, interactive, and presentational.

This paper focuses on SCT-based interventions in one series of courses: intermediate German (201 and 202) in both in blended and online formats. The German department assumed elements of SCT to be naturally present in classroom versions of German 201 and 202, but the same assumptions were not held regarding online learning. A series of interventions were implemented in the blended and online courses in order to address the potential sociocultural deficiencies; this paper evaluates the sociocultural nature of these interventions, initial findings on the impact of the interventions, and student feedback regarding the social nature of the online/blended courses.

Note that while I do not have specific details of what sociocultural elements were present in face-to-face (F2F) versions of the courses, the department did indicate the

interventions added to the online and blended versions were not part of the standard F2F curriculum. Thus, the questions considered for this paper are:

Q1: What evidence of SCT is present in online/blended interventions introduced in German 201/202 courses?

Q2: What is the correlation of student scores among face-to-face, blended, and online sections?

Q3: What is the student feedback regarding interaction, feeling connected to others, or the general social nature of the blended & online courses?

2.1   Online and Blended Course Development

The following description of the course development is designed to provide brief background context. BYU's German 201 and 202 courses as administered on campus in F2F format were developed as fully online, asynchronous courses in 2013. A professor from the academic department and an instructional designer worked collaboratively to develop the courses. One year later, a blended version of the German 201 course was developed, with the intent that the blended version would replace the F2F version of the course on campus. Although the blended 201 replaced the F2F version, 202 continued to be administered on campus as a F2F for three semesters.

The department measured student proficiency gains as they exited the blended 201 course and entered the F2F 202 course via an in-house developed final exam and pre-test. They intended to compare student readiness for 202 upon exiting *201 blended* to those of students exiting *201 F2F*. After three semesters of 201 being administered in a blended format, a blended version of German 202 was developed.

2.2   Description of Interventions

German 201 and 202 (intermediate level) courses use SCT-inspired interventions, including sentence modeling, film recitations, grammar mastery quizzes, and a Conversation Café. These course elements were developed into each unit of the courses in a systematic and consistent manner. They are present in both the online and blended courses. Each intervention is described in more detail here.

Sentence modeling. Students are given an example sentence from an authentic German text which features specific grammatical structure. Students are then directed to rewrite the sentence in a specific way. The first example of this happens early in the course:

"Write your own creative sentences based on these model sentences in German. Imitate the structure and style. Submit your sentences as a "new thread." Click on the rubric button below to see how your entry will be graded." (Imitating German Sentences 1.9, n.d.)

As students develop in grammatical skills and expertise, they are instructed to write increasingly more advanced sentences. Eventually, they are instructed to craft a longer, more sophisticated passage:

Making more sophisticated paragraphs:

"Take the following paragraph (that sounds like it was written by a third-grader) and rewrite it so that it sounds elegant and sophisticated. Keep the same ideas, but connect sentences together. Add or delete words and phrases. Use adjectives or adverbs to add interest. Use word order to emphasize important parts. I suggest you copy and paste the paragraph into word, rework it, and then click open below and paste your version into the submission field." (Crafting Paragraphs, 4.5, n.d.)

Course content provides increased instruction and practice activities for students to learn and become comfortable with increasingly advanced writing. These scaffolded assignments provide modeling for students to follow, gradually removing scaffolds as students gain more experience using increasingly advanced grammar in their writing.

The instructor-provided sentence models are posted as the start of a discussion board "thread." Students reply to the thread with their versions of the sentences. Once they have posted, the posts of others who have gone before become visible. The students then have the opportunity to post their reaction and feedback to the posts of their peers.

The instructor-provided models are the scaffolds. As the scaffolds are removed, students comment on each other's posts and gradually develop more language independence. Students actively interact with their peers, both giving and receiving feedback on the sentences posted, exhibiting greater independence. Additionally, the instructor (expert) provides guidance and feedback globally to students (novice) regarding strengths and weaknesses in the sentences they posted.

Film Recitations. Students have a culminating project which integrates speaking, writing, and presentational skills. Students are assigned to choose a passage of a film and write an adaptation of the passage that they will perform. Sentence modeling assignments throughout the course become scaffolding that prepares students to complete this exercise without instructor or peer feedback and support. Their culminating project is performing the film passage they wrote and posting it to a private YouTube channel, a live media streaming forum. Students are then instructed to watch each other's performances and provide feedback (thumbs up, thumbs down, extended commentary, etc.), much as they might do in a F2F classroom session or a more traditional peer-evaluation. The activity takes on a social media flavor, as well. Students may choose to make their film presentation public on YouTube, thus giving their production a broader audience and inviting reactions from viewers not influenced by the awareness of scope and expectations for the assignment. In fact, due to the global nature of YouTube, there is a chance German speakers from anywhere in the world might discover the presentation and provide feedback or reactions.

Grammar Mastery (GM) quizzes. GM quizzes are objective quizzes designed to help students master specific aspects of German grammar. Based on the principle of self-regulation, students may take the quizzes an unlimited number of times until they feel they have achieved mastery. The quizzes are designed to be slightly above the average level of difficulty, pushing students into their ZPD. Students are required to achieve 80% or higher to move on in the course. If they immediately achieve the minimum 80%, they can move on; if they don't, they may retake the quiz as many times as they need to until they achieve 80%. Even after passing the quiz, they can go

back and re-access the quiz and retake it, if they so desire. Course data shows a small percentage of students retake the quizzes until they get 100%, even though only 80% is required. Data also indicates some students retake quizzes in the few days preceding the time they take the final exam. Each quiz focuses on grammar points presented in the unit content, practiced in the sentence modeling assignments, and emphasized in further oral and written assignments in the unit; this is another evidence of the application of careful scaffolding to guide the student's development. Although GM quizzes are not directly tied to production of language, Vygotsky sees language use as a means for self-regulation of behavior; it becomes an accelerator to understanding. This becomes evident when students apply their learning in the Conversation Café context.

Conversation Café. The Conversation Café is a live, online speaking lab where students are instructed to discuss various topics. A teaching assistant (TA) moderates the forum and helps guide conversation and dialogue among participating students. The TA is positioned as the expert, and students initially may rely heavily upon feedback and explanation from the TA. As students progress through the course, the TA increasingly directs students to answer each other's questions rather than relying on the TA's expert feedback. One goal of the café is to stimulate peer-to-peer interaction and to apply the language in unscripted, spontaneous dialogues. As peers interact, they provide feedback to one another, engage in turn-taking dialogue, and refine their communication based on responses and feedback. Scaffolding, in the form of GM quizzes and unit assignments, provides students with linguistic building blocks that allow them to apply material via oral production of language. Speaking in free dialogue and providing unscripted feedback to each other eases students into their ZPD; the TA helps guide students when they "get stuck" and helps them avoid frustration they may encounter as they tackle increasingly complex language tasks.

2.3   Participants and Measures

All students exiting German 201 and 202 on campus take a final exam. Likewise, upon entering 202, all students take a diagnostic pre-test, used to identify student readiness and potential areas of focus for language review. Data collected for this paper comprised the enrollments in German 201 and 202 over a set period of time; sample size was 43 students, of which 15 were male and 28 female. The dispersion of students in each course type was 17 classroom students, 14 blended students, and 12 online students.

The 201 final exam is proficiency based and consists of selected response and short response items. The 202 pre-test is diagnostic in nature, also consisting of objective selected and short response items. It is used to assist faculty in identifying student needs and adapting coursework to address those needs. Neither assessment has been externally validated, nor have they been evaluated for reliability and objectiveness. Nonetheless, the department does value the scores from these exams for proficiency and diagnostic applications.

This study revealed several opportunities for future research, which are discussed further in the conclusions section of this paper.

3   Results

Various sources of information were used to answer the questions for this study. The sample was purposive, pulling information from students enrolled in German 201 and 202 during the time of introducing the specific online/blended interventions.

Q1: What evidence of SCT is present in online/blended interventions introduced in German 201/202 courses? The source for this information came from instructional designers who isolated the interventions in the blended and online sections that did not exist in the F2F versions of the courses. As described in the methods section of this paper, I found each of these interventions were clearly couched in sociocultural theory.

Q2: What is the correlation of student scores among face-to-face and blended/online sections? The source of this information was student scores from the German 201 final exam and German 202 pre-test. The final exam and pre-test assessments were not externally validated nor reviewed for reliability; based on pre-liminary observations, future research with controlled variables and validated assessment would be merited.

Despite the validity factor, scores were compiled and evaluated, as this is the measure the department currently uses to assess student proficiency in each course type (F2F, online, blended). Prior to introducing German 201 in its blended format, the average student score on the pre-test for German 202 in the classroom was 83.2. The average final score in German 201 was 81.1 (see Fig. 1). Once the blended and fully online versions of the courses were launched, the average final grade for German 201 was slightly lower than the previous classroom average score (78.3 blended and 79.6 online). The pre-test in German 202 was higher than the previous average classroom score in the blended section (mean score of 85.1) and slightly lower in the online section (mean score 82.9).
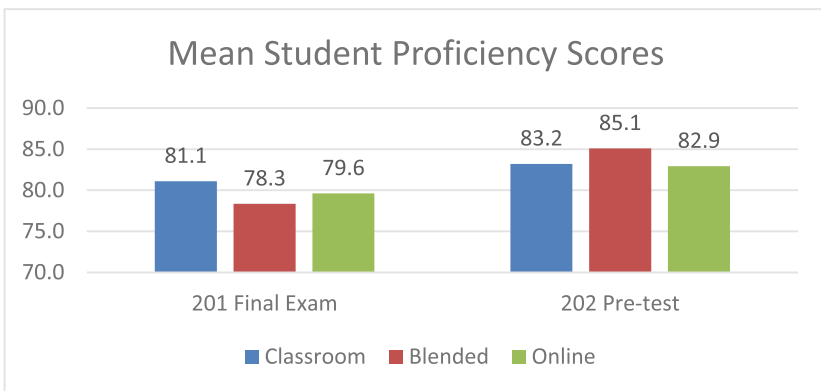
Fig. 1. Student proficiency scores (mean raw scores) from German 201 final grade and German 202 pre-test, compared across classroom, blended and online formats; N = 43.

An Analysis of Variance between all three groups on each test as a separate tests revealed no significant differences (p = .760 on German 201 final, and p = .748 on German 202 pre-test). See Table 1.

Table 1. ANOVA

|		Sum of squares	df	Mean square	F	Sig.
Score_Pre	Between groups	38.362	2	19.181	.292	.748
	Within groups	2625.167	40	65.629		
	Total	2663.529	42			
Score_Final	Between groups	58.986	2	29.493	.277	.760
	Within groups	4264.623	40	106.616		
	Total	4323.609	42			

A Tukey post-hoc test running multiple comparisons evaluated 201 final exam and 202 pre-test scores for each group of students (classroom, blended, and online). Findings again revealed no statistically significant difference in student scores across each course type (see Table 2). On the 201 final exam, comparing classroom to blended yielded a p value of .741; comparing classroom to online yielded a .922 p value. Comparing classroom to blended and online scores on the 202 pre-test yielded p values of .796 and .995, respectively.

Table 2. Post-hoc test; Multiple comparisons

Post hoc tests; Multiple comparisons; Tukey HSD							
Dependent variable	(I) Section_Type	(J) Section_Type	Mean difference (I–J)	Std. error	Sig.	95% confidence interval	
						Lower bound	Upper bound
Score_Pre	Classroom	Blended	−1.88672	2.92375	.796	−9.0029	5.2295
		Online	.27721	3.05445	.995	−7.1571	7.7115
	Blended	Classroom	1.88672	2.92375	.796	−5.2295	9.0029
		Online	2.16393	3.18699	.777	−5.5929	9.9208
	Online	Classroom	−.27721	3.05445	.995	−7.7115	7.1571
		Blended	−2.16393	3.18699	.777	−9.9208	5.5929
Score_Final	Classroom	Blended	2.75950	3.72651	.741	−6.3105	11.8295
		Online	1.49235	3.89309	.922	−7.9831	10.9678
	Blended	Classroom	−2.75950	3.72651	.741	−11.8295	6.3105
		Online	−1.26714	4.06202	.948	−11.1538	8.6195
	Online	Classroom	−1.49235	3.89309	.922	−10.9678	7.9831
		Blended	1.26714	4.06202	.948	−8.6195	11.1538

Q3: What is the student feedback regarding interaction, feeling connected to others, or the general social nature of the blended & online courses? Student open-ended responses on end of course surveys were compiled in aggregate form and were the source for this information. The open-ended question asked students to provide any further comment on how connected they felt regarding their interaction and connection with other students, the TA, and the instructor (in the blended and online courses). Of the 43 students in the sample, only 19 completed the open-ended responses in the end of course survey. Student feedback was categorized and quantified (Fig. 2).
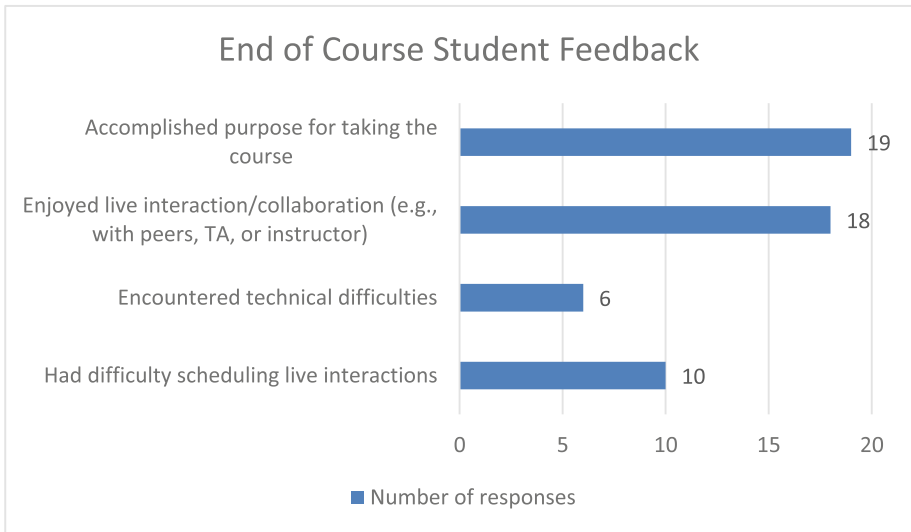
Fig. 2. Open-ended responses to end-of-course surveys were compiled and categorized into four main groups.

Nineteen students filled out open-ended responses on the end of course survey; there was significant favorable response regarding social/interactive elements of the courses, although difficulties with scheduling and technical aspects were cited. Technical glitches can fluster students who are already nervous to speak in a public setting (online or in the classroom). While the purpose of this paper is not to focus on reasons why students may or may not have had a positive experience in regard to the socio-cultural elements of the German courses, this survey feedback was noted and impact on students' affective filter will be pursued in more detail in future studies. Additionally, response rate on the open-ended questions was low; over half of total sample size left the open-ended questions blank or entered a response of "not applicable."

4   Limitations

Some key limitations exist in this study. The primary intent of the study was to examine the sociocultural elements of the interventions used in the blended and online courses, to evaluate preliminary findings regarding effectiveness, and to collect student feedback regarding the social nature of the course. The limitations exist notably in the evaluation of preliminary findings and the student feedback. First, this was not a controlled experimental study nor were validated assessments used, thus initial statistical analyses pertaining to student proficiency scores are not valid measures to inform further action. Additionally, student feedback in the open-ended response sections of the final course survey was limited; less than half of the sample size responded. Larger sampling of respondents would be necessary to validate student feedback conclusions.

5   Conclusions and Recommendations

My evaluation of the development and deployment blended and online German 201 and 202 courses was that the interventions were indeed grounded in SCT theoretical framework. There was evidence of sociocultural theory including scaffolding, social-collaborative content and learning activities, self-regulated quizzes, and awareness of ZPD in each of the interventions.

Course learning materials and activities which are scaffolded to gradually increase in difficulty and require incrementally more from students with incrementally less support from the course content, TA, or instructor. The learning material designed to foster a collaborative student environment includes discussion board activity, film recitations, and Conversation Café. Consideration of ZPD and guiding students' linguistic development is evident in GM quizzes, which ultimately prepare students for Conversation Café interactions. It's also evident in sentence modeling, which eventually evolves into making sophisticated paragraphs and ultimately a script for the film presentational assignment.

Preliminary findings of student proficiency scores, as demonstrated in German 201 final exam scores and German 202 pre-test scores, did not reveal a statistically significant difference from 201 to 202, nor across delivery types. Because this was not a controlled experimental study, further research and analysis are necessary to validate the assessments and to isolate extraneous variables.

End of course student surveys revealed largely positive feedback regarding live interaction and collaboration; however, I recommend further research into causes for the negative feedback and potential impact of technical issues on student performance. For instance, what impact did technical difficulties while engaging in collaborative activities have on the affective dimensions of language learning? Likewise, when classroom teachers encounter technical difficulties with group activities, is there an impact on affective dimensions of student learning?

This study revealed several areas for potential research. For instance, one could evaluate the impact of each intervention (sentence modeling, discussion boards, film recitations, grammar mastery quizzes, and conversation café) on student proficiency.

Future research might also identify correlation between delivery type (classroom, blended, or online) and proficiency, using validated assessments, larger samples, and controlled variables.

In summary, despite the assumption that SCT elements are present in F2F instruction, this is not necessarily an assumption in blended and online coursework. This study revealed significant evidence of SCT in the online and blended German 201 and 202 courses, tied directly to specific interventions implemented in the courses, and suggested evidence worthy of further research regarding intervention and effect on student language proficiency.

References

American Council on the Teaching of Foreign Language Education Project: Standards for foreign language learning in the 21st century. ACTFL, Alexandria (2006)

Cappellini, M.: Roles and scaffolding in teletandem interactions: a study of the relations between the sociocultural and the language learning dimensions in a French-Chinese teletandem. Innov. Lang. Learn. Teach. **10**(1), 6–20 (2016)

German 201 Imitating German Sentences 1.9. https://byuis.next.agilixbuzz.com/admin/828/courses/24843650/activity/DUQKN. Accessed 28 Dec 2017

German 201 Crafting Paragraphs 5.10. https://byuis.next.agilixbuzz.com/admin/828/courses/24843650/activity/5255B. Accessed 28 Dec 2017

Moore, M.G.: Learner autonomy: the second dimension of independent learning. Convergence **5**(2), 76–88 (1972)

Moore, M.G.: Theory of transactional distance. In: Theoretical Principles of Distance Education, vol. 1, pp. 22–38 (1993)

Vygotsky, L.S., Cole, M., Stein, S., Sekula, A.: Mind in Society: The Development of Higher Psychological Processes. Harvard University Press, Cambridge (1978)

Zhang, D., Fan, Y., Du, W.: Sociocultural theory applied to second language learning: collaborative learning with reference to the Chinese context. Int. Educ. Stud. **6**(9), 165 (2013)