Effects of Teaching Styles on Chinese University Students' English Language Abilities

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Abstract—**Teaching styles play critical roles in students' English-as-a-second/foreign-language (ESL/EFL) learning. Yet, the relationship between teaching styles and students' English language abilities is still under-explored. The present study endeavored to explore the predictive power of teaching styles on Chinese university students' English language abilities. A total of 1,318 English learners from a university in China were recruited. Perceived teaching styles of English teachers were assessed using the Students' Perceived Teaching Styles Inventory (SPTSI), while English language abilities were measured based on the English Language Ability Self-Assessment Scale (ELASS). Findings indicated that teaching styles positively predicted English language abilities, and the predictive powers of Type I teaching styles on English language abilities were basically greater than that of Type II teaching styles. Pedagogical implications for university English teaching are discussed.**

Index Terms—**English language abilities, teaching styles, Chinese university students**

I. INTRODUCTION

Teachers are keystone species in the learning ecosystem (Lei, 2016) who play an essential role in education. Teaching styles, "a teacher's preferred way of solving problems, carrying out tasks, and making decisions in the process of teaching" (Fan & Ye, 2007, p. 256), have an impact on the effectiveness of teaching (He, 2008) as well as students' learning and development (Zhang, 2009a). However, the association between teaching styles and student achievement is under-explored (Zhang, 2017). The present study aimed to explore the effects of the Chinese university students' perceived teaching styles of their English teachers on their English language abilities.

A. Teaching Styles

Based on the theory of mental self-government (Sternberg, 1988, 1990), Grigorenko and Sternberg (1995) categorize teaching styles into seven types from the perspective of thinking styles, including legislative style, executive style, judicial style, global style, local style, liberal style, and conservative style. As can be seen in Table 1 (adapted from Grigorenko & Sternberg, 1995; Zhang & Sternberg, 2005), teachers with different teaching styles prefer different ways of processing information and dealing with tasks.

TABLE 1
TEACHING STYLES AND PREFERENCES

Teaching Styles	Preferences
Legislative	tasks requiring creative strategies; formulation of one's own activities
Executive	tasks with clear instructions and structures; implementation of activities structured by others
Judicial	tasks allowing for one's evaluation; judging others or the product of others' activities
Global	dealing with the overall picture and abstract ideas
Local	dealing with concrete details
Liberal	tasks involving novelty and ambiguity
Conservative	tasks allowing one to adhere to the traditional rules and procedures

Zhang and Sternberg (2005) propose a threefold model of intellectual styles, re-conceptualizing the 13 thinking styles (Sternberg, 1997) into three types. In terms of the above seven teaching styles, legislative style, judicial style, global style, and liberal style are labeled as Type I teaching styles, while executive style, local style and conservative style are labeled as Type II teaching styles. None of the above seven teaching styles is classified into Type III teaching styles.

Zhang (2017) claims that Type I teaching styles are superior to Type II teaching styles for the following four reasons: (1) Teachers with Type I teaching styles tend to adopt the conceptual-change teaching approach, whereas teachers with Type II teaching styles are more likely to use the information-transmission teaching approach (Prosser & Trigwell, 1997; Zhang, 2001); (2) Teachers with Type I teaching styles generally have more positive perceptions of the teaching environment, the student quality, their own teaching competence, and teaching efficacy, etc. (Henson & Chambers, 2003; Prosser & Trigwell, 1997; Zhang, 2001, 2007; Zhang & Sternberg, 2002); (3) Teachers with Type I teaching styles are more willing to embrace modern teaching technology in their teaching (Chambers et al., 2003; Purcell &

Wilcox, 2007); and (4) Teachers with Type I teaching styles pay more attention to critical thinking and creative thinking (Emir, 2013; Houtz et al., 1994). In addition, studies investigating students' preferred teaching styles have shown that students favor Type I teaching styles over Type II teaching styles (Zhang, 2006; Zhang et al., 2005; Zhang & Sternberg, 2001; Zhu, 2013). Zhang et al. (2005) found that university students in both Hong Kong and the United States preferred the legislative teaching style and liberal teaching style, both of which were Type I teaching styles. Zhang (2006) and Zhu (2013) also found that students from mainland China preferred teachers with Type I teaching styles.

B. Studies on Teaching Styles in the Field of ESL/EFL Education

In the field of ESL/EFL education, most previous studies on teaching styles focus on the match or mismatch between teaching styles and learning styles (e.g., Akbarzadeh & Fatemipour, 2014; Felder & Henriques, 1995; Lee, 2018; Peacock, 2001). These studies are motivated by the belief that matching teaching styles with learning styles could enhance student learning outcomes (Zhang, 2017). Felder and Henriques (1995) define several dimensions of learning styles relevant to foreign and second language education (i.e., sensing and intuitive learners, visual and verbal learners, active and reflective learners sequential and global learners, inductive and deductive learners), identify learning styles that are favored by the teaching styles of most language teachers, and suggest a multistyle approach to foreign language education. Peacock's (2001) study supported Reid's (1987) hypothesis that a mismatch between teaching and learning styles caused students' learning failure and frustration, suggesting that EFL teachers should teach in a balanced style so as to accommodate different learning styles. However, a number of studies (e.g., Saracho, 1991; Saracho & Dayton, 1980; as cited in Zhang, 2017) found that it was the level of a particular teaching style, rather than the match or mismatch between teachers' and students' styles, that mattered in students' academic performance. Zhang's (2006) study revealed that the relationship between student-teacher style match/mismatch and students' achievement was complex, and that style match/ mismatch did not always matter for students' achievement. However, what teaching styles uniquely contribute to the students' English language abilities are yet to be explored.

C. The Present Study

The present study investigated the effect of teaching styles on English language ability in a sample of university students in China. Based on the previous studies, the following hypotheses were proposed:

Hypothesis 1: Teaching styles would positively predict English language abilities.

Hypothesis 2: The predictive power of Type I teaching styles on English language abilities would be greater than that of Type II teaching styles.

II. METHOD

A. Participants

Data were collected from a convenience sample of 1381 students from a national key comprehensive university in China. Among these participants, 26.9% were male and 73.1% were female. In addition, 49.1% majored in English (365 sophomores and 282 seniors), while 50.9% were majoring in 75 other subjects (671 sophomores), e.g., philosophy, economics, engineering, agriculture, etc. Participants were all informed of the research purpose and their right to withdraw from participation in the research at any time.

B. Measures

Two self-report inventories, the Students' Perceived Teaching Styles Inventory (SPTSI) and the English Language Ability Self-Assessment Scale (ELASS) were used to measure the students' perceived teaching styles and their English language abilities respectively. Participants were asked to indicate how accurate each statement was concerning their perceived teaching styles or their English language abilities on a 7-point Likert scale, with "1" representing "extremely inaccurate" and "7" "extremely accurate". In addition, they also responded to some demographic survey questions about their ages, genders, hometowns, majors, etc.

1. Students' Perceived Teaching Styles

Students' perceived teaching styles were measured by the SPTSI which was developed based on the Thinking Styles in Teaching Inventory (TSTI, Grigorenko & Sternberg,1993). The TSTI is a 49-item inventory that is used to measure the seven styles in teaching, i.e., the legislative style, the executive style, the judicial style, the local style, the global style, the liberal style, and the conservative style.

In previous studies, the TSTI has been proved to be reliable for identifying teachers' teaching styles in the USA (Sternberg & Grigorenko, 1995), Hong Kong (Zhang, 2001; Zhang & Sternberg, 2002), Beijing (Zhang & Jing, 2014), and Shanghai (Fan & Ye, 2007). In Sternberg and Grigorenko's (1995) study, the internal consistency of the TSTI ranged from .66 (global) to .93 (judicial). In Zhang's (2001) study, the internal consistency of the TSTI ranged from .61 (global) to .81 (executive). In Zhang and Jing's (2014) study, the internal consistency of the TSTI ranged from .73 (liberal) to .81 (legislative).

In Li's (2016) study, only two Type I (i.e., the legislative and liberal) styles and two Type II (i.e., the executive and conservative) styles were measured for the purpose of obtaining findings with better interpretability and comparability,

because the legislative style was directly opposite of the executive style, and the liberal style was directly opposite of the conservative style (Zhang, 2008). For the same reason, items of the TSTI measuring these four teaching styles were selected and adapted to measure the student's perceived teaching styles.

Different from previous studies in which the TSTI was used to measure teachers' perception of their own styles, the present study aimed to measure students' perception of their teachers' teaching styles. Hence, 16 items (4 items for each subscale) selected were reworded, and examples are listed in Table 2.

TABLE 2
SAMPLE ITEMS OF THE TSTI AND THE SPTSI

Subscales	Samples Items of the TSTI	Reworded Version for the SPTSI
Legislative	I want my students to develop their own ways of solving problems.	Our English teachers lay stress on developing our ability to solve problems in our own ways.
Executive	A good student always listens carefully to directions.	Our English teachers always require us to listen carefully to directions.
Liberal	I am glad when a student expresses disagreement with an opinion I present and explains why.	Our English teachers are glad when we express disagreement with their opinions.
Conservative	I like teaching according to established rules and procedures.	Our English teachers always teach according to established rules and procedures.

2. English Language Abilities

The students' English language abilities were measured by the ELASS which was developed based on the Self-Assessment Grids of China's Standards of English Language Ability (SCE). The SCE was developed for the purposes of defining the English language abilities of Chinese English learners and users, describing the features of their English abilities at each level, and providing reference for English learning and teaching (Liu, 2019). Zhou (2021) validated the Self-Assessment Grids of the SCE, finding that the Self-Assessment Grids could reliably distinguish students' English proficiency levels. The present ELCSS consists of five subscales: (1) listening ability (5 items, e.g., "I can understand puns or metaphors used by fast English speakers"); (2) speaking ability (4 items, e.g., "I can express my ideas clearly on social issues in English without preparation"); (3) reading ability (5 items, e.g., "I can understand key information when reading English scientific and technical articles"); (4) writing ability (5 items, e.g., "I can use rhetorical devices to make my English writing more effective"); and (5) pragmatic ability (4 items, e.g., "I can express gratitude and sympathy appropriately in English on formal occasions").

C. Data Analysis

Estimates of internal consistency and factor analysis were conducted to validate the two inventories used in this study. Before conducting factor analysis, the data collected were divided randomly but evenly into two groups. Group A data (n=659) were used for exploratory factor analysis (EFA), whereas Group B data (n=659) were used for confirmatory factor analysis (CFA) via Amos 21.0. Correlations were conducted to examine the relationships between students' perceived teaching styles and their English language abilities. Multiple regressions were conducted to predict English language abilities from teaching styles with demographic factors (i.e., gender, hometown, grade, and major) being controlled.

III. RESULTS

A. Preliminary Data Analysis

1. Psychometric Properties of the Students' Perceived Teaching Styles Inventory

In the present study, the alpha coefficients of the four-scale SPTSI ranged from .80 (conservative) to .88 (legislative). However, should Item 3 in the scale for conservative teaching style be deleted, the alpha coefficient of this scale would raise from .80 to .82. Hence, this item was deleted before conducting EFA using Group A data (n=659). The PCA with varimax rotation was performed with the number of factors extracted a priori set to be four. The KMO value reached .89 while Bartlett's test of sphericity was significant (df=105; p＜.001), indicating that the data set was suitable for factor analysis. However, one item of liberal teaching style cross-loaded on two factors with factor loadings values being .45 and .62. After deleting this item, EFA was conducted again. The KMO value was .87 while Bartlett's test of sphericity was significant (df=91; p＜.001), indicating that the data set was still suitable for factor analysis. All the remaining 14 items loaded on factors as theoretically expected. The four factors accounted for 73.18% of the variance in students' perceived teaching styles. CFA was conducted on the Group B data (n=659) via Amos 21.0. Results of the CFA indicated that model fit indices were basically in the acceptable range, x2/df =2.43, GFI=.97, AGFI=.95, CFI=.98, RMR=.07, RMSEA=.05.

2. Psychometric Properties of the English Language Ability Self-assessment Scale

Alpha coefficients of the five-scale ELASS ranged from .89 (pragmatic ability) to .91 (speaking ability). However, the alpha coefficient of the scale for listening ability would raise from .90 to .91 if Item 1 in this scale was deleted.

Hence, before conducting EFA using Group A data (n=659), this item was deleted. An EFA using PCA via varimax rotation was performed to extract five factors. The KMO value reached .96 while Bartlett's test of sphericity was significant (df=210; p＜.001), indicating that the data set was suitable for factor analysis. However, there were cross-loaded items. One item deleted at a time, a series of EFA tests were conducted using the same method until all the remaining items loaded on factors as theoretically expected. A total of five items were deleted. In the final round of the EFA test, the KMO value was .96 while Bartlett's test of sphericity was significant (df=136; p＜.001), indicating that the data set was still suitable for factor analysis. Approximately 78.41% of the variance in students' perceived English language abilities was explained by this factor structure. CFA was conducted on the Group B data (n=659). Results indicated that model fit indices were acceptable, x2/df =2.26, GFI=.95, AGFI=.93, CFI=.98, RMR=.05, RMSEA=.05. Because some items were deleted, estimates of internal consistency were calculated again. Alpha coefficients of the 17-item ELASS ranged from .85 (pragmatic ability) to .91 (speaking ability).

3. Intercorrelations among Teaching Styles and English Language Abilities

Table 3 reports the intercorrelations among students' perceived teaching styles and the English language abilities. As can be seen, three dimensions of the teaching styles (i.e., legislative, executive, and liberal) were found to be significantly and positively correlated with all the English abilities (all ps＜.001), with correlation coefficients ranging from .12 to .27. The conservative teaching style was significantly and positively correlated with the listening ability (r=.12, p＜.001), the speaking ability (r=.08, p＜.01), and the writing ability (r=.10, p＜.001). The correlations between the conservative teaching and the other two English language abilities (i.e., reading ability and pragmatic ability) were not significant.

TABLE 3
INTERCORRELATIONS AMONG TEACHING STYLES AND ENGLISH LANGUAGE ABILITIES

	1	2	3	4	5	6	7	8	9
1. Legislative	1								
2. Executive	.32***	1							
3. Liberal	.70***	.31***	1						
4. Conservative	-.28***	.19***	-.31***	1					
5. Listening	.19***	.15***	.16***	.12***	1				
6. Reading	.27***	.16***	.27***	.01	.65***	1			
7. Speaking	.25***	.16***	.20***	.08**	.73***	.70***	1		
8. Writing	.19***	.14***	.13***	.10***	.68***	.63***	.75***	1	
9. Pragmatic	.25***	.12***	.24***	-.03	.59***	.63***	.66***	.62***	1

* P＜.05， ** P＜.01， *** P＜.001

B. Effects of Teaching Styles on English Language Abilities

Four demographic variables (i.e., gender, hometown, grade, and major) were controlled for in multiple regressions of English language abilities on students' perceived teaching styles. Results from multiple regressions showed that students' perceived teaching styles were significantly contributory to their English language abilities in a statistical sense (Table 4). The amount of variance in English language abilities that was explained by teaching styles ranged from 5% (listening ability and writing ability) to 8% (reading ability). These results supported Hypothesis 1 that teaching styles would positively predict English language abilities.

Specifically, significant predictive relationships were identified as follows. First, the legislative teaching style (Type I) statistically predicted all the five English language abilities. Compared with the other three teaching styles, its predictive power for the speaking ability (β=.15, p＜.001), and writing ability (β=.16, p＜.001), were the greatest. Second, the liberal teaching style (Type I) statistically predicted four of the English language abilities, and its predictive power for the reading ability (β=.15, p＜.001) and the pragmatic ability (β=.13, p＜.001) were comparatively great than other teaching styles. Third, executive teaching style (Type II) statistically predicted four of the English language abilities. However, its predictive powers were comparatively weaker. Fourth, conservative teaching style (Type II) statistically predicted three of the English language abilities. Its predictive power for the listening ability was the greatest. These results partly supported Hypothesis 2 that the predictive powers of Type I teaching styles on English language abilities would be greater than that of Type II teaching styles, with the exception of the predictive power of the conservative teaching style on the listening ability.

TABLE 4
PREDICTING ENGLISH LANGUAGE ABILITIES FROM STUDENTS' PERCEIVED TEACHING STYLES (N=1318)

	Listening	Reading	Speaking	Writing	Pragmatic
R^2_{total}	.26	.22	.29	.26	.23
$R^2_{demographics}$	.21	.14	.23	.21	.17
$R^2_{teaching\ styles}$	.05	.08	.06	.05	.06
F	56.51***	51.60***	68.03***	57.15***	55.33***
df	8,1309	7,1310	8,1309	8,1309	7,1310
$\beta_{legislative}$	.11**	.11**	.15***	.16***	.11**
$\beta_{executive}$	.07*	.09***	.08**	.07*	
$\beta_{liberal}$	.10**	.15***	.09*		.13***
$\beta_{conservative}$	.12***		.09***	.09***	

* P < .05,   ** P < .01,   *** P < .001

IV. DISCUSSION

Results from multiple regressions indicated that students' perceived teaching styles positively predicted their English language abilities (Hypothesis 1) and that the predictive powers of Type I teaching styles on English language abilities were basically greater than that of Type II teaching styles (Hypothesis 2). These findings are in line with results obtained from studies on the relationship between teachers' intellectual styles and their students' performance on tests of basic skills (e.g., Saracho & Dayton, 1980; as cited in Zhang, 2017). In addition, this finding supported Zhang's (2017) claim that Type I intellectual styles are superior to Type II intellectual styles.

Teachers with Type I teaching styles were found to prefer adopting the conceptual-change teaching approach while those with Type II teaching styles tended to adopt the information-transmission teaching approach (Prosser & Trigwell, 1997; Zhang, 2001, 2009b). Conceptual change is a learning process that changes an existing conception, for instance, belief, idea, or ways of thinking (Davis, 2001). Teachers adopting the conceptual-change teaching hold that learning takes place when students change, develop or reconstruct their original concepts (Yuan, 2003). Hence, they tend to encourage their students to develop their intellectual autonomy, evaluate different viewpoints, and focus on the bigger picture of the issues encountered in their learning tasks (Zhang, 2001). On the contrary, teachers adopting the information-transmission teaching approach value the transmission of information to their students. Teachers in favor of this teaching approach tend to lecture about facts and require their students to reproduce what they have learned in detail (Zhang, 2001). In other words, teachers with Type I teaching styles are more likely to conduct student-centered teaching, whereas teachers with Type II teaching styles tend to teach in a teacher-centered way (Zhang, 2017). Compared with teacher-centered teaching, student-centered teaching usually brings about better learning results (Preston, 2007). In the Chinese ESL/EFL teaching context, studies investigating the effects of teaching models advocating student-centered learning also yielded findings supporting the effectiveness of student-centered approaches (e.g., Lei, 2018; Lv, 2016; Wang et al., 2018).

However, unlike what was expected, the conservative teaching style (Type II) was found to have the greatest predicted power on listening ability. This result suggests that some traditional teaching approaches or tasks are by no means without merit. For example, dictation is a typical traditional task requiring students to write down exactly what teachers/ recordings say, which is generally followed by accuracy checking and error correction. Labeled though as old-fashioned or teacher-centered, dictation was found to be an effective way of enhancing students' listening ability (Liu, 1994; Yang, 2009).

V. CONCLUSIONS

Two major conclusions can be drawn. First, Chinese university students' English language abilities can be predicted by their perceived teaching styles. Second, the predictive powers of Type I teaching styles on English language abilities were basically greater than that of Type II teaching styles. The theoretical contribution of the present study is the exploration of the relationship between the teachers' teaching styles perceived by their students and the students' English language abilities. This study has also validated two inventories (the SPTSI and the ELASS) that can be used to measure students' perceptions of their teachers' teaching styles and their self-assessed English language abilities.

The findings of the present study bear practical implications. First, since teaching styles play an important role in teaching, teachers are advised to gain more knowledge about teaching styles and identify their own teaching styles. As indicated by He (2008) that many teachers are not aware of their own teaching styles, teachers are suggested to measure their own teaching styles using established inventories of teaching styles. Second, because of the greater positive effects of Type I teachings styles on the students' English language abilities, English teachers can adopt the following strategies suggested by Zhang and Sternberg (2002) to exhibit Type I teaching styles: (1) using more group projects to assess students' academic achievement; (2) using more new teaching materials; (3) taking an active role in deciding what to teach; (4) showing more confidence in students; and (5) expanding experiences beyond the school setting.

Despite its contributions, the present study has several limitations. First of all, the sample of the present study was from one key comprehensive university in China. Therefore, data had better be collected from more universities of different levels in future studies. Second, this study only assessed students' perceptions of their teachers' teaching styles

and their self-assessments of their English language abilities, so the data collected are thus subjective. Hence, in future studies, data should also be collected from interviews, classroom observations and English language tests.

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