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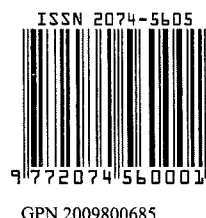
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Social Presence of Inservice Teachers in Distance Learning

Mei-Jung Wang

National Kaohsiung University of Hospitality and Tourism

Hsueh-Chu Chen

The Hong Kong Institute of Education

Abstract

Currently, various innovative uses of synchronous or asynchronous learning platforms to stretch the boundaries of traditional courses have been adopted for inservice teacher training. This paper aims to report a web-based distance learning course for teachers of secondary and primary schools in remote areas in Taiwan. Fifty-eight in-service teachers who teach different subjects participated in a four-week course on English reading strategies. Three reading texts were selected. For each text, video-based instruction was provided, followed by exercises and homework. The participants were required to participate in online discussions. The participants' social presence in the forum was investigated. Based on the findings, implications for teacher training were presented.

Key words: social presence, asynchronous interaction, distance learning, teacher training

BACKGROUND

Online professional development sounds very promising when compared with the traditional face-to-face training, due to professionals' control over the pace of their learning and the minimized limitation of physical locations (Zhou, Varnhagen, Sears, Kasprzak, and Shervey, 2007). The capacity of computer-mediated communication to support highly affective interpersonal interactions is supported by studies that focus on its use in educational settings (Angeli, Bonk, & Hara, 1998; McDonald, 1998; Kanuka & Anderson, 1998). Many scholars emphasized that teachers should be provided with training to integrate information and communication technology (ICT) with their teaching (Cho, Leung, & Oxford, 2004, Hall, Fisher, Musanti, & Halquist, 2006; Kanuka & Anderson, 1998). However, many studies on educational technology focus on the training of preservice teachers (e.g. Arnold & Ducate, 2006; Desjardins & Peters, 2007; Topcu & Ubuz, 2008). There is a need to explore the professional developments of the inservice teachers about how they learn with technology.

This paper aims to report responses of the inservice teachers to a course in an Inservice Distant Learning Program (IDL). The IDLP was provided by Ministry of Education for teachers of secondary and primary schools in the remote areas and on off-shore islands in Taiwan. This program has provided diversified inservice courses (three or four weeks) for teachers who live in remote areas to continue professional development. In this study, fifty eight participants, who taught different subjects, took part in this four-week course on English reading strategies. Social presence in the online discussions was analyzed using Rourke, Anderson, Garrison, & Archer's (1999) framework. The research question addressed in the study is "What types of social presence could be identified among inservice teachers in a distance learning program?"

LITERATURE REVIEW

The most important technological development after 1990 is the Internet (Levy, 1997). The CALL projects in this stage make use of the Internet in varied ways. The principal role of computers is to provide alternative contexts for social interaction, to facilitate access to existing discourse communities and the creation of new ones (Warschauer & Kern, 2000). Hypermedia, simulation, virtual reality and open-ended learning environments increase benefits to a learner because they allow a user to explore information more freely, to apply his own learning styles, and to use software as a resource rather than as a teacher (Alessi & Trollip, 2001). For example, social

constructivist educators regard communication, mediated by computers (CMC), of various kinds such as electronic exchange of mail, Internet chat rooms and video-conferencing, as an increasingly appropriate use of technology because they allow both asynchronous and synchronous interaction between users. This unique environment for communication has overcome traditional barriers of time, space and isolation for remote learning.

Online learning communities provide a developmental window on to the learning process, allowing fuller formative feedback as well as providing a portfolio of learner contributions (Bradshaw, Powell, & Terrell, 2002). Moreover, online asynchronous learning communities provide a particularly rich opportunity to generate collaborative dialogue, which is directly linked to increased skills in critical thinking and problem solving (Gokhale, 1995). Charalambos, Michalinos, and Chamberlain (2004) emphasized that the idea of community rests upon two sets of values: on the one hand, the idea that co-operation and shared responsibility provide the best context for effectiveness in accomplishing some goals and, on the other hand, that close ties of affiliation are beneficial and supportive for the living of a good life. Many studies reported that learner interaction in text-based CMC can increase language output, enhance motivation, and create opportunities for learner-centered interaction (Kern, 1995; Garrison, Anderson, & Archer, 2001; Meskill & Ranglova, 2000; Rovai, 2002). These benefits could result from the reduction of inhibition and sociolinguistic cues that possibly constrain interaction in face-to-face learning contexts (Peterson, 2006).

Despite the above advantages of Internet technologies to increase collaboration and knowledge construction among distance learners, Pawan, Paulus, Yalcin, and Chang (2003) emphasized that it is a great concern of a lack of clarity of what online collaboration is or should be and a lack of knowledge on how to structure and engage in it. Moreover, the lack of social context cues such as facial expressions and eye contact has been argued to make CMC a reduced register (Ferrara, Brunner, & Whittemore, 1991) and fail to support social and affective interaction (Daft & Lengel, 1986). In other words, if participants in online learning merely share their past experiences and opinions without making efforts to react to thoughts of others, knowledge construction through interaction is hard to achieve.

The availability of communication technology does not guarantee a successful online learning (Rovai, 2003; Zhou, Varnhagen, Sears, Kasprzak, & Shervey, 2007) even if online learning communities are claimed to have similar functions as offline communities and in particular, can increase participants' social presence in an online learning environment (Baym, 1998). An additional challenge to effective collaboration in online courses is that the intended outcomes of collaboration have not been clearly articulated by research and/or experienced in practice. In addition, Zhou,

Varnhagen, Sears, Kasprzak and Shervey (2007) indicated other factors that reduce the effectiveness of collaboration in online courses such as learners' low satisfaction with online learning, high attrition rate, poor quality of interaction, and heavy reliance on learners' proficiency with technology that does not always exist have dogged online learning.

Social presence is one of the key points to address the quality concern of online learning (Rourke, Anderson, Garrison, & Archer, 1999; Zhou et al, 2007). Social presence is defined as the ability of learners to project themselves socially and emotionally in a community of inquiry and refers to the affective domain as it relates to interpersonal communications (Garrison, Anderson, & Archer, 2001). Gunawardena, and Zittle (1997) pointed out that social presence was a predictor of satisfaction within a computer mediated conferencing environment. Rourke et al. pointed out that social presence can, on one hand, support cognitive objectives through its ability to instigate, sustain, and support critical thinking and, on the other hand, support affective objectives by making the group interactions appealing and engaging.

Different frameworks were used in different studies to examine the social presence of the participants (Gunawardena & Zittle, 1997; Richardson & Swan, 2003; Rourke, Anderson, Garrison, & Archer, 1999; Swan & Shih, 2005; Tu, 2000, 2002). For example, Rourke, Anderson, Garrison, and Archer (1999) identified three categories of social presence indicators—*affective responses*, *cohesive responses*, and *interactive responses*—and explored their use in online discussion. Tu (2002) also noted the relationship between perceived presence and success in online courses and distinguished three dimensions of course designs which influenced the development of social presence: *social context*, *social processes*, and *interactivity*. Swan and Shih (2005) indicated that content analyses of online interactions had identified ways in which participants made up for the lack of non-verbal and vocal cues through the use of textual social indicators. Their summarization of research on social presence showed that participants in CMC (computer-mediated communication) activities can strongly feel their social presence and that their perceptions of social presence have a strong influence on the satisfaction with online courses.

Arnold and Ducate (2006) indicated two reasons why technology should be an integral part of teacher training. On the one hand, asynchronous computer-mediated communication, among many computer applications, promotes interactive learning, which is central to the professional development of future and current educators. On the other hand, by means of collective online discussions, teachers experience the cognitive and social benefits of collaborating with their peers from the students' point of view and thereby evaluate its uses and benefits from a user perspective, which is an important step in preparing teachers for the effective use of educational technology.

Hall, Fisher, Musanti, and Halquist (2006) stated that “The lack of technology integration in classroom teaching practices would then indicate that teachers are experiencing little technology integration in their teacher preparation programs” (p. 25).

Collaborative interactions, although much touted as a means to effective, deep, and reflective learning online (Hara, Bonk, & Angeli, 2000; Hathorn & Ingram, 2002; Henri, 1992; Henri & Rigault, 1996), leave many instructors and students insecure at best and, at worst, reluctant to engage fully (Pawan, Paulus, Yalcin, & Chang, 2003). For example, it is crucial whether instructors are capable of offering guidance and information and help students employ appropriate strategies in an online learning environment. Federico (2005) suggested that instructors should have experienced what it takes to be an online student. In other words, instructors must be students themselves in an online learning environment to experience possible frustration and disappointment felt by online learners.

As noted above, there is some indication that more programs for teacher education attempt to foster collaboration among teachers in online environments with the rise of Internet technologies (Arnold & Ducate, 2006; Pawan, Paulus, Yalcin, & Chang, 2003; Terry, 2007). This paper aims to report a web-based distance learning course for teachers of secondary and primary schools in remote areas in Taiwan. The participants’ social presence in the forum was investigated to address related issues.

METHOD

58 in-service teachers participated in the course on English reading strategies. They are elementary or secondary school teachers who would like to promote their own English proficiency. Participant data are presented in Table 1. The participants are heterogeneous, with teaching experience ranging from less than five years to more than 15 years. They taught different areas including Chinese, English, history, mathematics, and so on. Their English proficiency varied to a great extent according to the scores of the pre-testing. Most of them attended this course due to interests and 90% of them have the experience of learning online before attending this course.

Table 1
Participants' profile (N=58)

Years of experience	1-5	16
	6-10	20
	11-15	12
	16-20	10
Teaching area (n>58 due to participants teaching in more than one area)	Chinese	24
	Mathematics	30
	Social science	6
	English	8
	Other (e.g. art, science, etc.)	8
Teaching level	Elementary	41
	Junior	17
Reason for taking the course (n>58 due to participants marking more than one reason)	Interested	52
	Professional development	16

The learning platform designed included two major areas: Personal Service & Public Plaza. As Figure 1 shows, platform users can see the functions listed in the left column. The second major category, Public Plaza, provide users with a variety of channels of communication so that participants are able to obtain or inquire information about the courses on the platform.

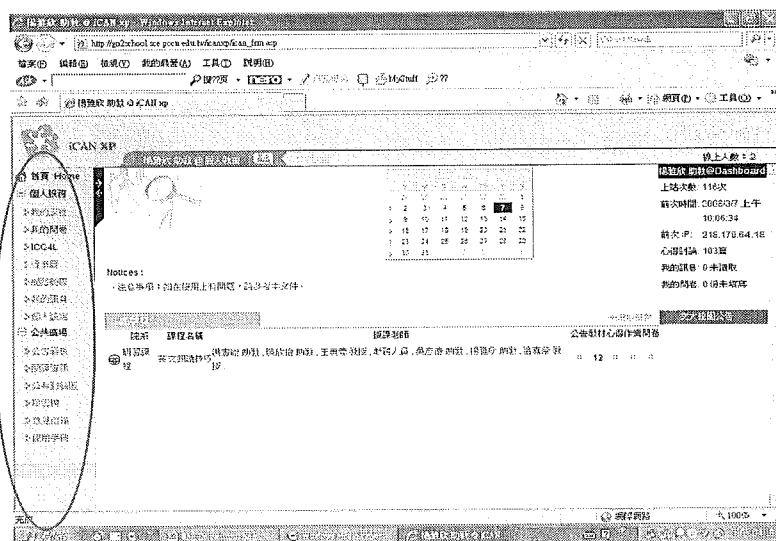


Figure 1. The homepage of the learning platform

The most frequent used links are those course subjects listed under My Courses. In this study, clicking English Reading Strategies, you will see the following page (Figure 2).

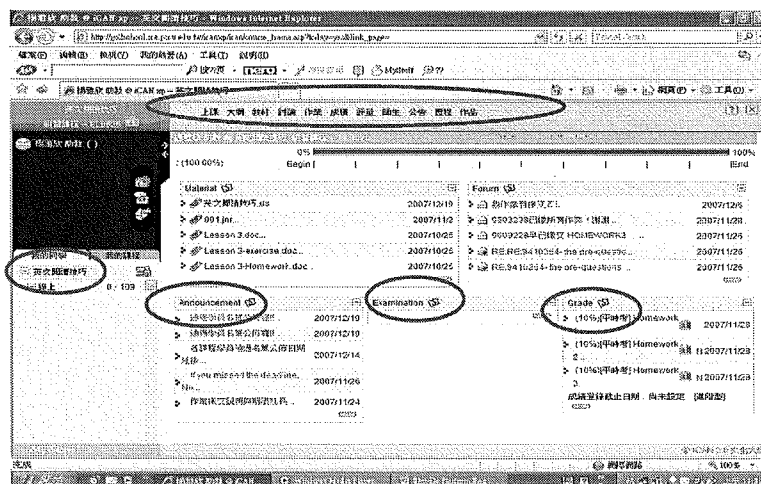


Figure 2. The page of the reading course

This page is the main entry to obtain the specific information about the certain course taken by the participant. The layout is convenient for course participants to download course materials from Material, discuss with other participants on the Forum, obtain important information from Announcement, take exams from Examination, and check the exam results from Grade. Apart from those frequent used functions, the major function of the platform is to provide participants with the online courses. Thus, English Reading Strategies course takers can see the lecturing page (Figure 3) when clicking the icon “In Class”. Participants see the lecture video on the top right with the teacher’s clear image and voice.

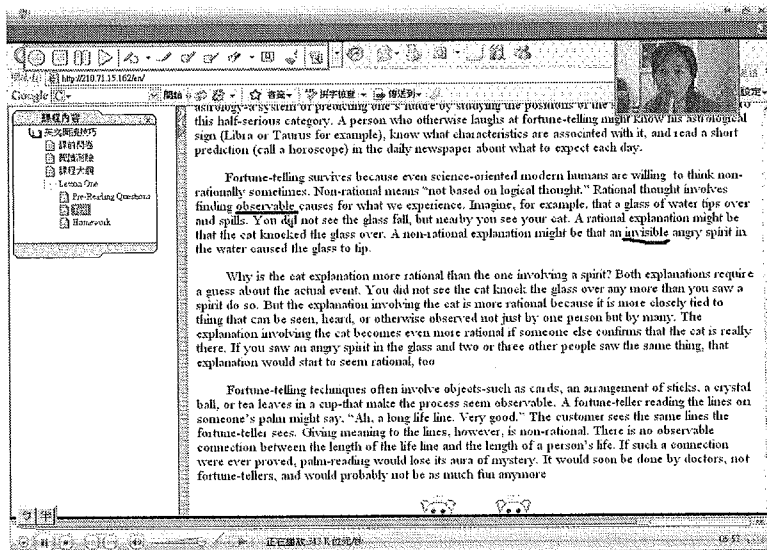


Figure 3. The sample page of the online reading instruction

This study focused on the analysis of data obtained from participants in the online forum. Content analysis is a technique often used to analyze transcripts of synchronous and asynchronous computer mediated discussions in an educational setting (Arnold & Ducate, 2006; Chen & Looi, 2007; De Wever, Schellens, Valcke, & Van Keer, 2006). We adopted the framework (Table 2) of Rourke, Anderson, Garrison, & Archer (1999) because it was designed to explore the nature of interaction in online environment. Three categories of social presence were provided, along with indicators, definitions, and examples.

In this study, “thematic unit” was employed as the unit for analyses. Budd and Donohue (1967) define thematic unit as “a single thought unit or idea unit that conveys a single item of information extracted from a segment of content” (p. 34). Thematic units, such as Henri’s (1992) and McDonald’s (1998) “meaning unit” reflect the logic of the indicators. The coding process involved iterative cycles of examination of the data, identification of key themes, and the drawing of tentative conclusions, which was consistent with Sowden and Keeves’ general framework (1988) for the analysis of qualitative data: (a) reducing data, (b) displaying and

Table 2
Model and template for assessment of social presence

Category	Indicators	Definition	Example
Affective	Expression of emotions	Conventional expressions of emotions, or unconventional expressions of emotions, includes repetitious punctuation, conspicuous capitalization, emoticons.	"I just can't stand it when ... ! ! ! !" "ANYBODY OUT THERE !"
	Use of humor	Teasing, cajoling, irony, understatements, sarcasm.	The banana crop in Edmonton is looking good this year)
	Self-disclosure	Presents details of life outside of class, or expresses vulnerability.	"Where I work, this is what we do ..." "I just don't understand this question"
Interactive	Continuing a thread	Using reply feature of software, rather than starting a new thread.	Software dependent, e.g., "Subject: Re" or "Branch from"
	Quoting from others' messages	Using software features to quote others entire message or cutting and pasting selections of others' messages.	Software dependent, e.g., "Martha writes:" or test prefaced by less-than symbol<.
	Referring explicitly to others' messages	Direct references to contents of others' posts.	"In your message, you talked about Moore's distinction between..."
	Asking questions	Students ask questions of other students or the moderator.	"Anyone else had experience with WEBCT"
	Complimenting, expressing appreciation	Complimenting others or contents of others' messages.	"I like your interpretation of the reading"
	Expressing agreement	Expressing agreement with others of content of others' messages.	"I was thinking the same thing. You really hit the nail on the head."
Cohesive	Vocatives	Addressing or referring to participants by name.	"I think John made a good point." "John what do you think?"
	Addresses or refers to the group using inclusive pronouns	Addresses the group as we, us, our, group.	"Our textbook refers to..." "I think we veered off track..."
	Phatics, salutations	Communication that serves a purely social function; greetings, closures.	"Hi all" "That's it for now" "We're having the most beautiful weather here"

examining, and (c) drawing conclusions and verifying. Afterwards, each unit from the discussion board was coded by two coders according to the social presence template designed by Rourke, Anderson, Garrison, and Archer (1999). One of the authors and the research assistant (master's degree in TESOL) coded the messages. The inter-rater reliability was evaluated using Cohen's (1960) kappa (κ), which is a chance-corrected measure of inter-rater reliability. The inter-rater reliability between the two coders was $\kappa=0.75$, which might be taken to represent substantial agreement beyond chance (Banerjee, Capozzoli, McSweeney, & Sinha, 1999). Since the threshold for reliability testing with Kappa is 0.7, the reliability of the coding in this paper is acceptable. In addition, the reliability of the questionnaire employed in the present study was 0.94 using Cronbach's alpha coefficient of internal consistency. This value reached the satisfactory level according to Nunnally and Bernstein (1994).

Procedure

The course lasted for four weeks. The requirements of the course, English Reading Strategies, included after class online discussions, three homework posts, final examination, and a questionnaire. In the course, three well-written reading texts were selected. For each text, video-based instruction was provided. For the first three weeks, the participants could log in the system (<http://go2school.sce.pccu.edu.tw/>) and follow the instruction at their own learning speed. After studying the text, there were homework and exercises for them to practice the reading strategies. The homework for each text included three questions based on the reading selecting. The participants were asked to post their homework in the discussion board (see Appendix). After reading the postings of other online classmates, the participants were encouraged to participate in the online forum. In other words, their posting did not influence their scores of the course. In addition, one research assistant participated in the discussion and answered questions relevant to the course. At the fourth week, the participants were required to complete an online final test and a questionnaire. After the course ended, the data in the online discussion forum were collected and analyzed.

RESULTS AND DISCUSSIONS

The frequency of social presence is the highest during the first week as shown in Figure 1 whereas it is the coolest during the second week (See Table 3 & Figure 4). Then, the frequency inclined during the following two weeks. This phenomenon probably results from the requirement for the participants to post self-introduction in the first week. Then the participants were engaged in the tasks and temperately

reduced the online social presence in the discussion board. In addition, among the three categories, the frequency of interactive responses ranked as the highest, followed by cohesive and affective responses. The detailed results of social presence are presented in Table 4.

Table 3

Results of the frequency of the subjects' social presence

Category	W1	W2	W3	W4	Total
Affective	69	3	29	28	129
Interactive	111	43	79	53	286
cohesive	77	9	27	47	160
Total	257	55	135	128	575

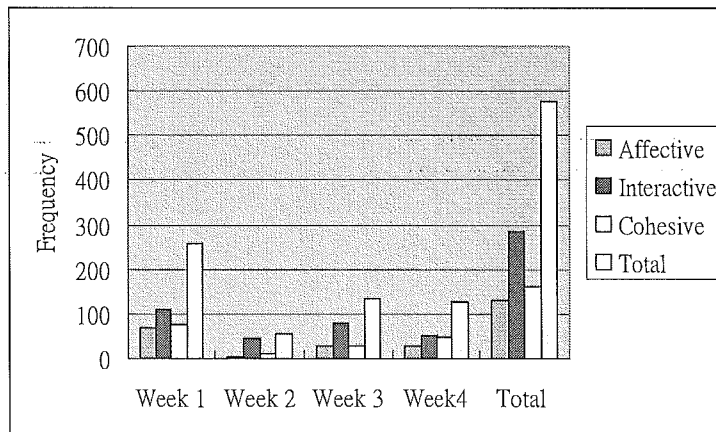


Figure 4. The weekly frequency of the subjects' social presence

Table 4

Weekly frequency of each category of the subjects' social presence

Category	Indicators	W1	W2	W3	W4	Total
Affective	Expression of emotions	49	2	25	17	93
	Use of humor	0	0	0	0	0
	Self-disclosure	20	1	4	11	36
Interactive	Continuing a thread	45	18	18	24	105
	Quoting from others' messages	5	2	0	0	7
	Referring explicitly to others' messages	4	1	0	0	5
	Asking questions	47	9	22	20	98
	Complimenting, expressing appreciation	6	7	29	7	49
Cohesive	Expressing agreement	4	6	10	2	22
	Vocatives	19	9	19	41	88
	Addresses or refers to the group using inclusive pronouns	32	0	8	6	46
	Phatics/Salutations	26	0	0	0	26
Total		257	55	135	128	575

In all discussions, affective responses accounted for 22% of the social utterances. Especially, 53% of affective expressions occurred during the first week when the participants were getting to know each other. Moreover, almost two thirds of the affective expressions were “expressing of emotions”. Below are examples of units coded under affective expression and the transcripts were translated into English by the researcher:

My English is poor. I know there's still a lot of room for me to make improvement. I believe that we can learn English together.
Learning a language takes time. This course provided me with the opportunity to learn English. I am happy that I learn some strategies and found them useful. It feels good that I can get the main ideas by guessing the word that I don't know.

At the first week, plenty of the participants expressed their nervousness about taking the course because of their English proficiency. This might result from the fact that only one sevenths of the participants teach English, so the others worried about whether they can follow the course or not. Toward the end of the course, they reflected on the experiences of the online course. The participants shared the sense of achievement with others as the second example above illustrated

In addition, the use of emoticons also occurred in this study. This is unique in the online environment. Take the following emoticons for example.

you are so sweet.... =)
It's good that you got the file~~ :)

These examples indicate that emoticons were used to express nonverbal cues in written forms (Gunawardena & Zittle, 1997) when facial expressions and vocal intonations are eliminated in text-based interaction. However, humor was not identified from the transcript, which was likely due to the fact that teachers or students in Taiwan took learning seriously. As a result, they might think humor as inappropriate in such a learning context.

The second category is interactive responses. Interactive responses accounted for 53% of social presence. Interactive responses build and sustain relationships, express a willingness to maintain and prolong contact, which helps build a community and keep each other engaged in the task. Within this category, the participants used various ways in which they created a dialogue. Two prominent functions were the “reply” function to post messages (36%) and “asking questions” (32%). In addition, expressing appreciation and encouraging were ways of communicating reinforcement used in this study. In contrast, the participants seldom referred to previous postings, incorporated others’ comments into their own postings, and built on each other’s postings. Rourke, et al. (1999) stated that the high percentage of the reply function might be due to the less labor-intensive of this function and it might be a superficial artifact of online communication rather than a defining indicator of social presence. When we looked into the data, we found that 60% of the reply function was used between the participants and the assistant mainly to check problems with techniques and homework. The following transcript is a good example.

Author : Sue
Theme : RE:RE:9410364- the pre-questions of lesson3
Hi Sandra,
I've sent you the homework 2 and 3 through email. (I've got the grade of Homework 1)
Could you please check it for me?
Thanks!!
Sue
----- Original Message -----
Author : Sandra
Date : 2007/11/26 下午 04:43:06
Theme : RE:9410364- the pre-questions of lesson3
Dear Sue
it's good to see you finish the pre-reading questions, but you didn't upload your homework1&2.
please email me the answers of homework 1 and 2. Thanks
cheers,
Sandra

Many of the messages were related to the checking of homework; consequently, the assistant used the reply function to answer those questions and then the participants, again, used reply function to express their acknowledgement. Due to the above context, the other prominent function in the discussion is asking questions. The participants either asked such technical problems as how to view the video-instruction or where to post the homework or checked whether the teacher received their homework.

Another indicator is “complimenting or expressing appreciation”. In this study, participants expressed their gratitude when they received help from others. Take the following messages for example:

You are really experienced about online learning! It took me some time to figure out how to use this learning platform.
I really appreciate the instructor's tips on English reading strategies. Based on her explanations, I can read the English article more smoothly, and have better understanding about the articles. Besides, one of the reading strategies is to find the topic sentence from the first sentence in each paragraph; such technique can benefit writing as well. So, I'm so glad that I did not only learn the reading strategies, but also the writing skills. Thanks for Wang's instruction.

The above examples reflect that the participants used different ways to interact with others and consequently created dialogues where they felt listened to and were encouraged to participate.

The last category of social presence is group cohesion. This category was the second most frequent social indicator in this study (28%). Similar to affective responses, cohesive responses occurred most frequently in the first week. Also, in the first week, inclusive pronouns such as *we* or *all* were used most frequently. But gradually when participants got to know each other better, the use of vocatives increased.

Hello, everyone:
I am Tina. It's very nice to have this opportunity to learn English with all of you. (Week 1)
Dear Sandra:
I sent my assignment-homework 3 again
Could you do me a favor to check it for me.
Thanks. (Week 3)

Vocatives, inclusive pronouns, and phatics were used in this study to facilitate social presence. This indicated that the participants attempted to establish a closer relationship with others and thus built a sense of group commitment.

CONCLUSIONS AND IMPLICATIONS

The main findings were summarized as follows. The highest frequency of social

presence occurred in the first week while the frequency of social presence dropped in the second week. Moreover, among the three categories, the frequency of interactive responses ranked as the top one, followed by cohesive and affective responses. Interactive responses accounted for 53% of social presence. Within this category, two prominent functions, “replying” and “asking questions”, were used to create a dialogue, build relationships, and maintain contact. With regard to group cohesion, vocatives, inclusive pronouns, and phatics were used in this study to facilitate social presence. When it comes to affective responses, more than half of this category occurred during the first week of ice-breaking. Moreover, “expressing of emotions” was the most used affective communication by the participants while humor was not identified in this study.

Not surprisingly, affective responses were most frequent during Week 1 when several participants included self introductions in their messages. The number of affective responses decreased as the course progressed. This might be attributed to the fact that participants felt more comfortable with each other as the week continued. By Week 4, participants knew each other well enough from class and the conference was mostly focused on the task at hand.

Based on the findings, the implications are presented. First, online learning is becoming one of the popular modes of education either for returning students and inservice teachers. As aforementioned, teachers who experience ICT have greater potential to integrate ICT into their own teaching and have better capability to handle the course. Recognizing the importance of information technology, most teachers may need more training to harness the power of modern ICT to deliver the curriculum in a more efficient manner. Take this course for example. Among the 58 participants attending the course activities, only one third frequently joined the discussions. The others just posted homework or ask some questions about the course but seldom joined the discussions on other topics. If teachers participated in distance learning in such a passive way, their capability to integrate ICT into their own classes would be doubted. Hence, teachers’ roles must radically alter. Teachers must not merely serve as teachers or knowledge delivers but also become learners themselves. Teachers’ skills with regard to the use of ICT as a means to support powerful learning environments should be fostered. Uzunboylu and Tuncay (2010) pointed out that great diversity existed in the teachers’ digital world, which may adversely affect their ability to prepare the students to become a part of the knowledge society. Therefore, mastery of technology, as part of the curriculum for teacher training is essential if students and society are to develop fully.

Second, the extensive amount of online information and communication requires teachers to reconstruct the curriculum in order to incorporate technology-enhanced

communication and project work. Technology courses may not sufficiently offered in teacher preparation courses as Kessler (2006) indicated. What the use of computers and ICT can implicitly give the students is the simultaneous, natural, and typically incidental acquisition of ICT skills necessary to handle hardware and software to fulfil tasks and to solve problems. Such kind of new curriculum promotes the learning of literacy and ICT throughout the curriculum. Opportunities to develop literacy, and to use and apply ICT, should be highlighted in each area of learning at primary or secondary school education. Overtly embedding opportunities to develop literacy skills throughout the curriculum can give the school more scope to develop these crucial skills through a broad and balanced curriculum. This could, for example, include report reading and writing not only in English or Chinese subjects, but in history, science, or even physical education. In this respect, issues on the use of ICT in curriculum differentiation and the organization of ICT to support co-operative group work are of particular importance.

Third, how to increase students' motivation for online courses is worth thorough examination. The decreased proportion of social presence at W2 to W4 was significant. As only the research assistant participated in the discussion and answered questions relevant to the course, one possible reason of de-motivation was that participants looked forward to receiving responses to their postings and were more inclined to post again if they received responses from the course instructor. Once a minimum level of participation in course discussions is initiated, the momentum is relatively easier to maintain. Participants probably placed upon the role of the course instructor as initiator, facilitator and maintainer of momentum in discussions. Providing the initial impetus and modeling, the forms of social presence that maintain momentum are the key to successful facilitation of online courses.

In fact, for those who enthusiastically took part in the online discussions, they were willing to share their opinions about the lesson content and homework discussion. They seemed to be quite familiar with the operation of the platform, so fewer questions about the platform operation were raised. Despite the issue of homework submission, more and more participants provided relevant information about the reading content and would like to give feedbacks or reply others' posts on the forum. However, there were only 500 postings on the forum given that more than 2500 times of logging records were found. Without sufficient support, those who were less competent in IT or language demonstrated their resistance and hesitation in participation. It needs further study to better explain persistence and attrition among the largely nontraditional students that enroll in online distance learning courses and the causes for student withdrawals. The existence of a relationship between learners' perceptions of social presence and their motivation for participation in online

discussions is also worth further exploration.

Last but not least, the online discussion tool can help students understand the content knowledge and learn how to interact with peers. Students, however, often discount this link by treating it as a means to complete a particular task only, rather than an opportunity to engage in rich discussion and debate with their peers and instructors. Analyses of student electronic interactions, like the study shown here, suggest that, if designed appropriately, CMC tools have the potential to become rich instructional systems and powerful learning environment.

There are several limitations for the present study. First, the span of the study is short. The establishment of community and positive learning environments takes time. A long-term study could be designed to explore the change of social presence over time. Second, only one researcher coded the data, it might be subjective. More coders could be involved in the coding process and the reliability and validity of the coding scheme could be examined. Finally, there is no accountability for the perceptions of social presence from the viewpoint of the participants. Factor such as gender or age difference, an individual's social presence in online environment, and the subject's perceived social presence are worth future exploration.

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APPENDIX

Sample Homework

Lesson 1: Fortune Telling

1. Where might you find a fortune-teller?

People can find a fortune-teller in a temple, night market, through friends 、 advertising 、 newspaper.

2. What questions do people usually ask fortune-tellers?

People usually ask fortune-tellers about their future on family matters, study, working, relationships, marriage, health and how old they are going to live.

3. Can fortune-tellers really say what will happen in the future?

I believe the fortune-tellers cannot tell us what will happen in the future. If it does happen like the fortune-tellers says, it might be coincidence.

Lesson 2: Cosmetic Surgery

1. What kinds of cosmetic surgery do you know about?

There are eyelid surgery, breast enlargement, butt augmentation, chemical peel, breast lift, ear surgery, and cheek augmentation.

2. Is cosmetic surgery socially acceptable in your country?

Yes, cosmetic surgery is socially acceptable in my country. Most people are not afraid to let others know that they have made some changes of their bodies.

3. Do you know anybody who has had cosmetic surgery?

I know many entertainers who have had cosmetic surgery. The most famous one is Michael Jackson. "Jackson's skin was a medium-brown color for the entire duration of his youth, but starting in 1982 his skin gradually became paler. This change became so noticeable that it gained widespread media coverage, with some tabloids claiming that he was bleaching his skin. The structure of his face has changed as well, and a number of surgeons claim that Jackson had undergone multiple nasal surgeries as well as a forehead lift, thinned lips and cheekbone surgery." (http://en.wikipedia.org/wiki/Michael_Jackson#Physical_appearance)

Lesson three: Witnesses

1. How good are you at remembering faces?

I have a good memory at remembering faces. I can remember students' faces quickly.

2. What is a very clear memory you have from your childhood?

I was given a shot from the nurse when I was six years old.

3. Have you ever witnessed an accident or crime? What happened?

Yes, I have witnessed a car accident. Two motorcycles hit each other and one person was sent to the hospital.

遠距教學中在職教師之社會臨場感

摘要

目前各式創新的同步及非同步學習平台被採用以延伸傳說之教師在職課程進修，使其不受時空之限制。本研究旨在報導為台灣偏遠地區之中小學教師開設之網路遠距教學課程其中一門「英語閱讀策略」中，針對學員參與線上討論之「社會臨場感」加以探討。共有58位在職教師參與此為期4週之課程。其中三課課文選讀及閱讀策略均以視訊進行教學，學員並需於非同步討論區中互動。根據研究發現，提供教師在職訓練之相關建議。

關鍵字：社會臨場感 非同步互動 遠距教學

Don DeLillo's World of Image in *Mao II*: The Crowd vs. Individuality

Chi-min Chang

Taipei Municipal University of Education

Abstract

This paper aims to explore the possibility of individuality amid the world of image depicted in Don DeLillo's *Mao II*. The image is built on the notion of the crowd as a constant threat to one's individuality. However, while the image is mostly considered transmitted via media, Don DeLillo extends the notion of the image to include the empirical and the imagined. That is, the crowd implied in the image can be perceived in the empirical, mediated, and imagined, respectively referring to the mass gathering, photography and TV watching, and the writing experience. The image suffusing life not only thwarts the recognition of reality but disturbs the certainty of self distinction. Mark Osteen contends that characters in *Mao II* are "thin-boundaried and permeable" and Mark Edmundson considers the self no more than a "conductor, a relay point . . . for currents of forces" (Osteen 1999: 656). Nonetheless, such argument merely account for part of what Don DeLillo presents in *Mao II*. His keen observation of the image-encompassing life shrewdly implies how individuality remains possible in face of the self-diminishing image. In *Mao II*, individuality emerges by both responding to and creating the image. Don DeLillo deliberately emphasizes the distinctive responses to the image to accentuate one's individuality. With such characters as the photographer and the writer, DeLillo confirms the individual creativity with their creation of images. Hence, no longer restricted to the exploration of the boundary between fiction and fact underlying the image, Don DeLillo profoundly and skillfully expresses his concern about the individuality wrapped behind the incessant and ubiquitous image.

Key words: Don DeLillo, *Mao II*, the image, the crowd, individuality

Contemporary American society is the worst enemy that the cause of human individuality and self-realization has ever had.

(Lentricchia 243)

An image is a crowd in a way, a smear of impressions. Images tend to draw people together, create mass identity.

(IC 72-73)

Don DeLillo, in *Mao II*, probes into the possibility of individuality in the world flooded with images and its subsequent self-diminishing swirl. As the postmodern age is “commonly understood being awash with images” (Campbell 99), numerous and various images prevail over such media as photography, TV, and those construed in daily life. Images here refer to those on TV, those presented on photographs as well as those people construed in daily life like those of the political or spiritual leaders evidently illustrated in the novel. That is, the media are not the major concern of the discussion of the images; instead, the focus falls on the image emitted from the media that the self responds to. DeLillo starts from the photographic images through those on TV to those conjured up in writing and daily life. His depiction of image in a sense extends from the concrete to the imagined, which makes up the major structure of the following analysis.

The dominating role of the image corresponds to Susan Sontag’s observation of the accruing historical role of images which goes from “Plato’s evoking the standard of an image-free way of apprehending the real” through “the age (the mid-nineteenth century) of unbelief strengthen[ing] the allegiances to images” to the society of the twentieth century when

society becomes “modern” because one of its chief activities is producing and consuming images, when images that have extraordinary powers to determine our demands upon reality and are themselves coveted substitutes for firsthand experience become indispensable to the health of the economy, the stability of the polity, and the pursuit of private happiness. (153)

Indispensable and unavoidable in life, images make up the *reality* we are obliged to face. However, the image, from the empirically perceived, to the technically mediated, and to the imagined, involves quite complicated facets and forceful impacts on the notion of the self. It not merely empties the substantial quality of reality but particularly poses threat to personal individuality. The self, no longer able to assert a presupposed or well-demarcated identity, is constantly challenged and even dissolved. The analysis of *Mao II* would discern if individuality is able to be retained in DeLillo’s chronicle of the image-suffused contemporary life. The discussion is mainly divided into two parts: the first concentrates on the self-diminishing confrontation

with the image and the second part centers on the exploration of individuality.

I. The Confrontation with Image

What is peculiar in *Mao II* is that the image is more than the replicated of the original object or situation. DeLillo's image is actually interwoven with the notion of the crowd, submerging the individual encompassed in the generally-recognized uniformity. That is, the sense of the crowd was permeated in every transmission and confrontation with the image. The crowd here does not only designate the concrete reality of the mass gathering but also the one duplicated on different media. More intriguing is the crowd implicated in the image, referring to how the image-consuming public flattens individual distinction. A repeated phrase in the novel—"the future belongs to the crowd"—stresses the crowd-implicated nature of the image which opens up the very variable and menace to the integrity of individuality. DeLillo observes that

[t]here is something about a crowd which suggests a sort of implicit panic even when it's a friendly crowd. There's something menacing and violent about a mass of people which makes us think of the end of individuality whether they are gathered around a military leader or around a holy man. . . . The photographic image is a kind of crowd in itself, a jumble of impressions very different from a book in which the printed lines follow one another in a linear order. There's something in the image that seems to collide with the very idea of individual identity. (CDD 110)

Focusing on the photographic image and depicting the characters' immersing themselves in the charisma of the heroic figures on TV or in real life, *Mao II* does impress the readers with the impact of the crowd *in* and *out* of the image. The crowd makes distinct DeLillo's notion of the image versus the individual. DeLillo associates the inevitable confrontation with the image as an encounter with the crowd which potentially diminishes the self.

DeLillo's notion of the crowd embedded in the image works on three levels. First, the image of the crowd is empirically perceived in various social gatherings. The second is mediated and demonstrated by photography. A more cryptic image of the crowd lies in an intriguing domain—writing, the writer's facing the image(s) of his own in writing process. That is, the image does not merely refer to the practical embodiment of an actuality or the replicated but an *imagined* entity. Hence, images are categorized as the empirical, the mediated, and the imagined in *Mao II*. The self confronts the irresistible impact of the image which stages the tension between the

individual and the crowd as the self is at once found diluted and remodulated.

II. *Mao II*: The Crowd in the Wor(l)d of Image

A. Critique of *Mao II*

Few critics do not take note of the issue of image in *Mao II*; differences take place in the critics' perspectives regarding the antagonism between the crowd-connoted image and the self. According to Thomas Carmichael, "DeLillo began *Mao II* in response to two photos, one of J. D. Salinger being surprised by photographers, and one of a mass wedding led by Reverend Moon" (Hardack 384). The writing of the novel is ignited by DeLillo's response to these two images which are integrated as the major scenes in *Mao II*. The ubiquitous demand for response to the images is exactly what confronts characters in the novel, including Brita's seemingly intrusive and dominating manner to photograph Bill the writer and the opening image of the mass wedding. Laura Barrett considers that the images deplete individuality as the photographs do not reflect but replace the original subject—it is a claim of "the demise of the individual in the reproduction of photographs of crowds . . . reject the possibility of uniqueness" (797). The images are far from transparent representations which allow personal perspectives and interpretations. Rather, "photographs affect our notions of who we are and how we see. . . . every image we see has been shaped by someone else's vision: every image is a representation" (Barrett 803). The image substitutes and represents the original but simultaneously defies the possibility of individuality. Likewise, Joe Moran relates DeLillo's foregrounding of the demise of individuality to "the loss of a 'depth model' of human personality" in postmodern culture and contends that Bill's consent to Brita's request of taking his photograph indicates his realization of the powerlessness "to avoid the media's unrelenting glare" (142). As Barrett and Moran observe, characters in *Mao II* are helplessly and unknowingly cast and incorporated into the world of the images in which the self's individuality is highly questioned and even eroded.

Still other critics think that the invincible and consuming power of the image world leads to the divided or contingent state of the self in the postmodern ethical scenario. Jeffrey S. Bull does not take *Mao II* as the war between two polar ends—the crowd and the self. Instead, he attends to the diverse and contesting forces or discourses presented. He agrees to the ideas of David Lodge and Frank Lentricchia as the former thinks the novel "display[s] all the passions and contradictions that politics and religion engender and set conflicts between characters and ideas" and the

latter refers to DeLillo's fiction as "irredeemably heterogeneous texture" (Bull 218-19). Immersed in such a social fabric, characters in *Mao II* are "at the mercy of contingencies" (Bull 220). Fractured or provisional is the subjectivity of the self in face of image. According to Richard Hardack, "Don DeLillo stages a battle between the notion of the individual Western identity and that of a 'mass-produced' foreign conscious" (374), since "anything photographed . . . already exists in duplicate. It has joined the impersonal mass, is no longer individual . . . (It) replaces the soul of the unique original" (379). The photograph, as that of Bill, is responsible for self-divisions, shattering the supposedly pre-determined integrity. It is a remarkable observation about the self-alienating process. What's more, Hardack mentions a significant factor which undermines the individual identity—the confrontation with the crowd or mass by dint of encountering a mediated image. However, Hardack does not give much elaboration on the confrontation between the self and the duplicated image from which the notion of the crowd is implicated and hence greatly matters.

With the focus either on the loss of individual identity or on the contingency of the self, what underlies the self-substituting or self-alienating image is an antithetical relation between the self. However divergent the critique is, individuality in face of the world of image is on the verge of dissolution or dissipation. Nonetheless, the following analysis does not presuppose any universality of subjectivity but stresses how individual singularity is sustained in the image-confrontation. The individual singularity will be elaborated by Lyotard's paganism which is not founded on any prescriptive or a priori rule for interactions. It evokes new ruses or new moves as the interaction between the self and the image is compared to the game of the pagan in which "to play moves means precisely to develop ruses, to set the imagination to work. . . . Pagans are artists. . . they try to figure out new moves . . . invent new games . . . proposes new rules" (61). It features in self-imagination and creativity which are conducive to making up one's singularity. The pagan game is not based on a regulating Idea but a politics of opinions where no finality, totality and unity will be subsequently construed. That is, one's ruses could not be applied to another occasion and it is where distinctive personal responses emerge. The singularities are illustrated by the characters' ruses or moves which differ from one to another.

B. The Image: The Empirical, the Mediated, and the Imagined

DeLillo in *Mao II* apparently marks his interest in media and mediation and substantially makes unique his idea of the image, no longer restricted to the mediating language of the image since the empirical and the imagined are under prudent examination. It makes up a complicated social meshwork in which the characters could not dispense with or evade from. TV and photography are two prominent

distributors of endless images simultaneously thickening and unifying people's recognition of the world. These images have tremendous influence on the way characters perceive the world as well as themselves. As every image presented in the media is framed in a relatively specific and fixed context, it is frequently inferred that a subsequent stable meaning-designation is liable to be attained. DeLillo's characters, exposed to or thrown into the world of media, tended to apply the impressions construed in image to the empirical perception of real life. The mediated outdoes the present or the experienced in claiming reality. That is, a conscious attempt to flatten or reduce the evanescent real to something graspable and determinate in the image. Moreover, in *Mao II*, DeLillo demonstrates that the image wields its power not merely in the visual form but in the *imagined*. DeLillo demonstrates that writing is, likewise, a response to the image as the imprisoned writer in the novel survived by forging some images to respond to. To sum up, the image, from the empirical to the mediated and the imagined, on the one hand, seeps into the real life and engages the self's responses in different aspects of life. On the other, it is what is capable of solidifying self-recognition. From the image of the real to the virtual, from the mediated words to the imagined figure of the author, the flow of the image makes an inescapable social meshwork. And, it is mainly from these three aspects that DeLillo probes into the world of image. DeLillo depicts man's confrontation with the image responsible for the inevitable network of social interaction, the disturbance to self-recognition, and the striving arena for individuality in particular. What is stressed is that as the characters are socially connected or identified in the encompassing wor(l)d of image or *imagined* reality, are they completely lost or silenced or able to strive for an individual space of their own?

III. The Crowd in and out of the Image

What is worth-noting about Don DeLillo is that he does not merely conflate the crowd and the image as they are qualities to each other. Instead, characters in *Mao II* demonstrate how the notion of the crowd is implicated in the image from different angles, staging the ebb and flow of individuality.

A. From the Crowd to the Image

As mentioned above, the image of the crowd not merely demands the self's response in empirical daily life but extends itself to the world of representation, TV and photograph. By connecting the crowd with the image, DeLillo makes more explicit the image as the double-edged sword, an anchor and antagonist to the

individual. Karen first exemplifies how the image of the crowd devours or submerges one's individuality. Karen's appearance in the mass wedding hosted by Master Moon was indirectly assured by the attendance of her parents who were busy taking pictures as a record of the important moment of their daughter. However, as the individual is blended into the mass, the genuine interaction would surely become a difficulty or even a source of anxiety as Karen's daddy, Rouge, perceived that "[t]hey're one body now, an undifferentiated mass. And this makes him uneasy," whereas Karen's mother, Maureen, noticed that "there's a lot of looking back and forth. Nobody knows how to feel and they're checking around for hints" (3-4). They lost the track to handle the crowd in which the self was temporarily unbuckled from the original social girdle and was reoriented into a completely new orbit where she, seemingly willingly and expectedly, responded to it by giving herself in as if it were another force to remold her. More striking was her engagement to an assigned marriage with a person she hardly knew. The mass wedding presents an image of the crowd which shatters the autonomy of the self. Submerging oneself in the mass gathering demonstrates how the crowd engages and subsumes the individual. However, what is exactly involved in the self's response to the image of the crowd here? Gustave LeBon states:

Whoever be the individuals that compose it, however like or unlike be their mode of life, their occupations, their character, or their intelligence, the fact that they have been transformed into a crowd puts them in possession of a sort of collective mind which makes them feel, and act in a manner quite different from that in which each individual of them would feel, think, and act while he is in a state of isolation.(57)

LeBon (1841-1931), an initiative and significant contributor of the crowd theory, maintains that the crowd is non-individual since "the crowd has a 'group mind' whose workings did not follow the same laws as the workings of an individual's mind because it was unconscious" (qtd in McClelland 11). Self-consciousness, according to LeBon, is intercepted and suspended by the unconsciousness owing to the collective hypnotism of the herd-instinct. The self is then stripped from previous social designation and obligation. In contrast to LeBon's crowd theory¹, Floyd Allport rejects the idea of the non-individual or unconscious collective mind. He asserts that "individual behavior inside and outside the crowd was controlled by innate and learned tendencies that predisposed the individual to behave. . . . crowds formed because individuals with similar predispositions were compelled to converge on a common location" (qtd in McPhall xx). His argument goes against LeBon's notion of collective mind, insisting on the innate individual intension to forge the crowd. What

¹ LeBon's ideas of the crowd are well received by psychologists like William McDougall, Everett Dean Martin, Freud, and by sociologist like Robert E. Park and Ernest W. Burgess (McPhall xx).

is at stake is Allport's confirmation of the possibility of individual inclination. DeLillo's Karen straddles these two counter perspectives. On the one hand, she was almost taken in by the image of the crowd where her selfhood was subjugated to the cause of the crowd, as she constantly preached the world of peace brought up by Reverend Moon, showing her faithful belief in the doctrines. On the other hand, though she accepted the assigned marriage with a man she was barely acquainted with, she did not feel a bit hesitant or guilty in having the intimate relationship with Scott and Bill. Cognitively, she understood and knew what was instilled by the Reverend Moon and lived out the ideals of a universal and single family in her interaction with the street people. Nevertheless, her personal relation with Bill and Scott manifests that Reverend Moon's ideas were both in and out of her life. That is, the individual and the crowd are not necessarily incompatible or contradictory, since Karen's response to the crowd of the homeless did not indicate the inherent and predisposed individual tendency but still preserved certain extent of self-awareness and individual intent.

Similar intoxication with the image of the crowd took place in the TV-watching experience. One was the parade with the portrait of Mao Zedong as Karen "is mesmerized by rows and rows of jogging troops and those riot guns they carry" (189). The image incorporates her in a represented totality and unity. The other is Karen's watching the scene of Khomeini's funeral where the crowd gathered mourning over his death. "Karen felt she was among them" (189), experiencing the whole event in person. She became part of it. These "crowds" are marked by the individuals acting as bricks to "construct" the only image in every scene—the Master Moon, Mao Zedong, and Khomeini respectively. It is an identification with the collective—a duplicated identification with the same image. Submerging herself in the crowd, Karen is actually responding to the image which amalgamates and structures the group as if she were one with the Master Moon, Mao, and Khomeini. According to McClelland, Freud thinks what binds the group together is eros and the identification with the central character featuring in 'regression.' It is presented as

'substitution' where the impossibility of ever possessing a loved object leads to the introjections of the loved object into the lover's own self, as happens in romantic and selfless love where the idealized love-object becomes the lover's own 'I', the highest and purest part of himself, so that he sets out to live his life as she would want it to be. (249-50)

The account about the individual's identification with the leader of the crowd is based on the erotic ties. Yet, it does not account for Karen's immersion in the crowd since first of all Karen did not take the Master Moon or Mao or Khomeini as her own self and secondly the erotic tie was not clearly established. What is rather obvious is the absorbing and mysterious atmosphere created in the image of the crowd as the

individual could temporarily rid himself or herself of the original self-recognition and embrace a bigger identity represented by the leader in which every individual can take a part. However, it is not the complete forgetting or erasure of the self as an individual.

B. From the Image to the Crowd

The dissolving and forgetting² of the self varies in manner and extent, marking their singularity. Karen reveals little consciousness of her-self easily drifting in and out of the image of the crowd. In contrast, Scott is relatively sober about his reaction to the image and has his own way to interpret and react to the image. First of all, keeping a critical distance from the mass-produced image, Scott perceived the image's liberating force from the historical or social shackles illustrated by his reaction to the image of Chairman Mao presented in various styles. With no standard or original meaning attached to it, these images promised certain kind of emancipation which was obvious in the image-duplication. In other words, the repetitions of the image stagnating the normal flow of designation significantly initiated novel possibilities as people "repeat it, repeat it, repeat it until something new enters the world"(4). In addition to the repetitive images, Scott held that the crowd was another way to "survive as a community instead of individuals trying to master every complex life" and hence regarded the Moon system as "brave and visionary" (89). Taking shelter in the merger of the repetitive images and the crowd, he was distinct in his emancipation from the mediated image. The newness was revealed in his desperate effort to approach and identify with the real person--Bill the writer. Interestingly, while Scott was approaching the original or authentic, in reality, he treated Bill as the image he forged in his mind by reading his books, saying "[a] great man's face shows the beauty of his work" (61) and identified himself with the image of Bill as if he were the representative image of his books. Scott believed that the image, the face of the writer, epitomized the essential part of his works. Here, DeLillo indicates that words are not the only thing that makes up the reading; the image of the author counts, too. Scott's identification with Bill was marked by the intended erasure of the self, as he intended to disconnect himself from his original dogged life. He was thus able to start a new life: "[h]e was in Bill's material mesh, drawing the same air, seeing things Bill saw" (60). His identification was vividly portrayed in his relaying what Bill said and even in his being able to read what was on Bill's mind. Constant identifying and

² Here the forgetting has to be discriminated from what Nietzsche's claim of forgetting which is "the capacity to feel *unhistorically* during its duration." It is the essential element to a happy being since "*the unhistorical (forgetting) and the historical (memory) are necessary in equal measure for the health of an individual, of a people and a culture*" (Nietzsche 62-63). The forgetting of the self consciousness is caused by a response to the crowd with which the individual hardly acts as oneself.

imitating process revealed his taking Bill as his “real self,” losing himself to Bill. With Scott’s example, DeLillo shows what an important role the image of the author played in reading experience. The power of the image made more forceful imposition than that of words, paradoxically thwarting and extending what the words may designate, which foreshadowed DeLillo’s description of the writers’ losing war to the terrorists.³

The cases of Karen and Scott demonstrate that two distinct mechanisms between the interaction between the image and the self in *Mao II*: the former immersed herself in the image of the crowd, while the latter derived his sense of self from the image conjured up in the Bill’s books. However, although the process ostensibly risked the loss of individuality in confronting the self-dissolving crowd, DeLillo shrewdly called our attention to the potential individuality.

IV. Individuality in the cracks of the image

A. Responding to the image

The relation with the image was ostensibly self-diminishing and dissolving according to the ongoing analysis. However, more significant is the possibility of individuality behind the self-dissolving process, which was illustrated by a picture of refugees in the novel: there was nothing but boys crowding each other, waving urgently, and looking in the same direction. Yet, what caught the attention in the picture was a single worried adult “standing diagonally and peering in the general direction of the frame and peering over the heads and across the frame and out of the picture . . .”(147). He was and was not part of the crowd. Assuming a collective identity as he situated himself in the crowd, he marked himself by extending the vision toward an unknown domain—self-alienating from the crowd.

For Scott, as for Karen, the relation with the image, empirical, mediated or imagined seemingly dissolved the self into the image of a Big Other. Karen’s constant shift from one image to another, from the personally experienced to the represented on the media, indicates the lack of certainty. Mark Osteen regards Karen as “[t]hin-boundaried’ and permeable,” corresponding to what Mark Edmundson calls a “conductor, a relay point . . . for currents of forces” (Osteen 656). Yet, such reading of

³ While the terrorists make a forceful image, the novelists couldn’t help casting doubt on the power of the words as Bill laments that “[t] here’s a curious knot that binds novelists and terrorists. . . . Years ago I used to think it was possible for a novelist to alter the inner life of the culture. Now bomb-makers and gunmen have taken that territory.” (41) Moreover, what the terrorists do is more than a concept. They are construing inevitable haunting images as the photographer, Brita, comments that “We are giving way to terror, to news of terror, to tape recorders and cameras, to bombs stashed in radios. . . . The darker the news, the grander the narrative. News is the last addiction before—what? I don’t know” (42).

Karen may partially attest to DeLillo's recognition of the overwhelming imposition of the modulating image on the self. Karen's individuality was manifested in her distinct response to the image of the crowd. The first example was demonstrated by the news report on TV which was usually accompanied by the audio messages to guide the audience's perception and interpretation. Trying to break the bondage between the audio and the visual, Karen chose to watch the news by turning off the volume and made up her own story with the images on TV. As applied to demarcate the meaning of the mediated image, language takes a prominent and essential role in the image circulation. To revive the liberating and even vibrating power of the image, Karen silenced the dubbing and spun her own story. An expression of herself, thus, was integrated into the confrontation with the image. Another example was illustrated by her taking another angle while watching Komeini's funeral on TV. DeLillo especially singled out her individual vision, narrating:

It was possible to believe that she was the only one seeing this and everyone else tuned to this channel was watching sober-sided news analysis delivered by three men in a studio with makeup and hidden mikes. . . . She watched the body sticking out of the door and dust kicking up and that mass of black-clad mourners hanging off the skids and dragging the craft down to the ground. It was the delicate tending of the dead that was forgotten here. (190-91)

DeLillo emphasized the individual observation of the image instead of treating all the audience of the TV program as a unifying crowd "consuming and consumed by" the image. What especially distinguishes the difference lies in the subtlety of the extension of the image which contributes to the self-assertion. Karen's euphoria and devotion to the image of the crowd did not end up with a complete denial of her individuality; rather, DeLillo, as Hardack contends, portrays being in crowd as "increas[ing] one's duality under a false guise of universality Everything in this text, from photo to answering machine to Coca Cola to Mao, is rendered a secondary, hence mass, hence foreign, source of anxiety. Anything that can echo, duplicate, or join you to the mass becomes a radically foreign body" (383). The duality, referring to the self and the foreign body, represents the increased self-awareness accompanied by one's immersion to the image presented in mass media. That is, although the image does assert certain kind of unifying or self-dissolving force, it paradoxically implies a space for self-assertion.

In contrast, Scott made another example to demonstrate his self-distinction by walking out of the crowd—the face-to-face encounter with Bill. Once, "he stood before a silk screen called *Crowd*. The image was irregular, deep streaks marking the canvas, and it seemed to him that the crowd itself, the vast mesh of people, was being

riven by some fleeting media catastrophe” (21). The important message conveyed by the image of the crowd was that it did not present a totality but a body brimmed with differences, arousing disquiet and anxiety—one being part of a crowd without the sense of belonging. Scott was originally distraught with life until he came to the works of Bill Gray, who hence became the vital anchor of his life. At the moment he saw Bill, he thought that “[h]e had a life now and that’s what mattered. . . . Had to be Bill and he was coming right at me and I seemed to need oxygen” (60). Overwhelmed by Bill, he had a conscious urge to identify himself with Bill. He was not content to be merely one of the anonymous readers as being in the *crowd*. Scott tried every means to construct his own unique relation with Bill. His uniqueness emerged from his approaching, invading and even interfering Bill’s personal life. He then was granted the privilege to work with Bill’s personal stuff and even manuscripts of his books. One thing that would particularly contribute to such a distinct relation was his knowing Bill’s real name—Willard Shansey Jr. (143). The real name established Scott’s individuality, as it resembled the ultimate code to the real being of Bill, inaccessible to anyone in the reading *crowd*. Scott went from Bill as the image construed in his works to the unknown secret of Bill’s real name. It was something which would not go public like the manuscript of the new novel, or his pictures. The secret made distinct his sense of self in face of the public-accessible image of Bill. Scott had the right to Bill’s privacy to establish his individuality, as if “it was a small whole contentment, a way of working toward a new reality” (139). It was observable that Scott was breaking up the limits of his original identity.

DeLillo regards the proximity to the unknown secret or privacy of the author as a paradoxical way to reveal Scott’s individuality as Scott ostensibly served as a parasite to Bill but actually took hold of his life. From Scott’s walking out of the *crowd* to the devoted identification with Bill in person, Scott was rummaging through the so-called original materials to reestablish his sense of self. Even after Bill was on the hostage-salvaging journey, Scott insisted on guarding Bill’s things, seemingly assuming that his sense of self could only be sustained by Bill’s manuscripts and personal data despite his losing track of Bill’s whereabouts. Scott was keen on his individuality in his confrontation with the image. Under the imposing image of Bill lay Scott’s consistent striving for individuality.

B. Creating the image

Karen and Scott were similar in asserting the uniqueness of the self by responding to images presented, construed and even imagined. Brita and Bill took different strategies. They responded to the images and asserting their individuality by creating them. As a professional photographer, Brita was entitled to manipulating the

perspective of the public by angling her pictures. However, with the reproduction and publication of her works, the creativity and originality invested in her work were immediately consumed or even digested as the public property with which she could hardly claim her originality. The crowd consumed the images of her photographs and flattening her individuality. She then was rendered the freedom, an unavoidable necessity, to work on something original. She has no other choice but to keep shifting her topic from the street people to the secluded authors to the dictatorial terrorists, constantly reconfiguring the self. However, the situation is difficult and un-evadable as Brita's extreme topics in photographs indicated her being practically stuck in the world of image and her urgent need for a space of her own. Uniquely and somewhat deliberately, Brita responded to the image in person (her photographic material) before the image was forged. Her sense of self was incessantly remolded as the image infiltrated in her mind before being realized with her camera. "She was the person who traveled compulsively to photograph the unknown, the untranslated, the inaccessible, the politically suspect, the hunted, the silenced" (66). As expected, little did she know what might exactly be left to her. Nevertheless, it was not a journey divested of any sense of self consciousness. Brita preserved her critical distance and was especially aware of her individuality in the tug of war with the crowd of the image. On the one hand, it was done by creating her own image in framing and angling the photographs. It is the privilege of directly confronting the mystifying target and having the picture taken as intended. It echoes what Susan Sontag contends, "[t]o photograph is to appropriate the thing photographed. It means putting oneself into a certain relation to the world that feels like knowledge—and, therefore, like power." (4) The camera equipped Brita with the power to reveal what could be known about her subject as if a definite meaning had been imposed on raw material. On the other hand, photography, as a message without code in Roland Barthes's terms, could never be specified in meaning; instead, the images as well as the messages of the photography either go beyond what is real or are being the real with their autonomy. Barthes remarks that the subversion of photograph occurs "not when it frightens, repels, or even stigmatizes, but when it is *pensive*, when it thinks" (38). It means what is unexpected in photography does not lie in what is represented but in how the image *expresses* itself. The image is fraught with meanings which could not be deduced or exhausted. In addition, another facet of photography is founded on the manipulation of the mass culture in which people could consume millions of images in a few seconds. The mass consumption of the image erased her individual relation with the image strenuously forged. Moreover, the culture marked by the dissemination of various and numerous images further deprived her of the right to justify her distinct intension in the photographs. She found

everything that came into her mind lately and developed as a perception seemed at once to enter the culture, to become a painting or photograph or hairstyle or slogan. She saw the dumbest details of her private thoughts on postcards or billiards. She saw the names of writers she was scheduled to photograph, saw them in newspapers and magazines, obscure people climbing into print as if she carried some contagious glow out around the world. (165)

She was submerged in the images of the *mass* culture and became one member of the crowd with her individuality objectified and inevitably consumed. With images, she is responding to the crowd and simultaneously being incorporated. Yet, it did not mean that such a photographer as Brita could only consign herself to the massive flow of image production and circulation. DeLillo demonstrates that Brita's response to the image as the Other was not so distressing as it seemed. Her continuous search for the mysterious attests that individuality did not rely so much on what was known but on what was unknown or remained secret. Accessing certain secret was the key to the individuality of the self. Interestingly, Brita underwent a recurrent process from groping for the unknown subject to the re-presentation in photographs to the image-consumption by the public. Brita, diverting from the writers to the terrorists, lays her vision on a more enigmatic domain—the image of terror, Abu Rashid. He represented a world that was enigmatic or hadn't been appropriated by Western thinking. Brita's self-assertion in the unknown significantly designates DeLillo's unique strategy by basing individuality on the image of terror.

Terror is more an intense and haunting feeling than a clear idea. Its threat was cast in the early part of the novel with the release of the news about the kidnapped poet. The obsessive fear lingered among the characters. Not until Brita came to take Rashid's photographs was the veil of terror lifted a bit. Rashid ruled and unified a world that was counter to the West. Surprisingly, terror implied a uniformity of identification. Rashid asserted that "terror is what we use to give our people our place in the world. What used to be achieved through work, we gain through terror. Terror makes the new future possible" (235). His talk suggested terror as the resistance to the dominant Western rationalism and culture as George Haddad, a "spokesman" of the terrorists in the novel, contended that in face of the univocal Western culture, "[o]nly the terrorist stands outside. The culture hasn't figured out how to assimilate him. It's confusing when they kill the innocent. But this is precisely the language of being noticed, the only language the West understands" (157-58). DeLillo depicts how the terrorists apply the language of terror as a smart spur to the Western narrative. Walter Benn Michaels, drawing on Fukuyama's *The End of History*, claims that terror is not a threat to a political system or nation, but to the law (107). It was on the surface a kind

of behavior that goes against the rules for the world order, investing or arousing incomprehensible or extreme elements in the well-structured social body. Yet, regarding terror as more than counteraction to the laws, the basis of social mechanism, DeLillo maintains that "[t]rue terror is a language and a vision. There is a deep narrative structure to terrorist acts, and they infiltrate and alter consciousness in ways that writers used to aspire to" (Simmons 679). Terror defies the regulations as well as the laws of the world, shattering our previous recognition of the world and even the self. The way the terrorists transformed the consciousness went to certain extreme—erasing the self. Rashid transplanted his image onto each youngsters who worked for him, building up their identity by dissolving their individuality—"They are all children of Abu Rashid. All men one man. . . . The image of Rashid is their identity" (233). Hence, their future came from the creation of a language comprising an image of terror and a vision beyond appropriation. And, as Brita admitted that "I'm devoting my life to a gesture. Yes, I travel. Which means there is no moment on certain days when I'm not thinking terror. They have us in their power" (40-41), her traveling and photography were not intended merely for the representation of reality, either hidden or mysterious but meant to respond to the image of terror with *language* of her own—photography. Still, she could temporarily frame and fix it up in the camera as the image of terror presupposing her responsibility retained her presence and singularity. She preserved her individuality with her witness by abruptly taking off one of Rashid's boys' hoods and snapping a picture of him. Lifting the hood off the boy's head and looking into his face, Brita captured what was not allowed to go public by breaking into what was hidden but solidly there. Brita simultaneously asserted her individuality and restored the boy's individual identity by violating the unifying power of terror. Being a photographer who added images to the social context, Brita had the *crowd* to face—the mass culture. Nevertheless, she located the niche to demonstrate her individuality by exposing the image of the unknown or that submerged by terror.

While the photographer made her response by creating her own image, the writer had his own latent but zealous way to react to the image of the *crowd*. The writer, endowed with a certain extent of autonomy, presented another face of the image; yet, the image came in different medium—the words. Writing, according to DeLillo, is a process opening oneself to the construction of the self-image as he says in an interview with Thomas LeClair, "a writer can begin to know himself through his language. He sees someone or something reflected back at him from these constructions. Over the years it's possible for a writer to shape himself as a human being through the language he uses. . . . He not only sees himself but begins to make himself or remake himself" (CDD 7). Writing was less an automatic or authoritative

process of life representation than a response to oneself as an image which was constantly being remade. That is, writing provided an access to the grasp of the writer himself who always had room for self- *re-imagi*-nation. DeLillo foregrounds the writer's self-exploring or self-remaking experience which puts into question authorship as voiced by Bill.

Even if I could see the need for absolute authority, my work would draw me away. The experience of my own consciousness tells me how autocracy fails, how total control wrecks the spirit, how my characters deny my efforts to own them completely, how I need internal dissent, self-argument, how the world squashes me the minute I think it's mine.
(159)

Writing was never a totalistic or unitary construct, and thus, Bill as a writer was never fixed or determined by the image forged among his readers, the crowd. Similar situation occurred when Bill ambivalently reacted against his photograph which solidified but eschewed him at the same time. Writing provided him a chance to surpass or remold himself since every writing was "a democratic shout" (159). It was more than the voice of the authoritative writer that was expressed. What DeLillo presented here somewhat corresponds to Bakhtin's notion of polyphonic novelistic discourse. However, what marked their strike difference is DeLillo's emphasis on writing as a self-remaking process. Writing paradoxically reified and dissolved the image of the self at the same time, since it led the self to an ever-renewing practice in which the determinacy and dissolution of the self alternate with each other as Bill stated that "[t]he language of my books has shaped me as a man. . . . It speaks the writer's will to live. . . . I've worked the sentences of this book long and hard but not long and hard enough because I no longer see myself in the language" (48). That could account for how Bill the writer would never end his revision of the manuscript—a relatively significant message conveyed aside from the perfection of his work. Writing was a means not merely to forge but to dissolve the image of the self. To better illustrate the situation, DeLillo takes Bill's writing of another writer, the poet Jean-Claude Julien, as a demonstration of how the writer paradoxically incorporated and alienated himself in writing. On his trip to help rescue Jean-Claude abducted as a hostage, Bill engaged himself in writing about Jean-Claude in that "a writer creates a writer as a way to reveal consciousness, increase the flow of meaning" (200). Bill blended himself into his writing by making himself one of his characters. To live out the life of his character's, he personally experienced and envisioned what happened to the character by consulting the doctors about what would happen to a person with lacerated liver after he was in reality struck by a car in Athens⁴. Bill's

⁴ It is the same with DeLillo's writing experience, as the inspiration of his writing of *Mao II* came from

individuality lies in the interpenetration of his writing and real life, both of which delicately molded each other. What is especially worth noting is Bill's imagination of the hostage's extreme solitude after being cut off from everything except the hooded boy who sent him the meals and tortured him with the relentless beatings. It was described as the experience of losing the sense of time⁵, not knowing where to anchor himself. He was stuck in the stasis where not a single difference stirred the monotonous and repetitious existence. In that situation, the writer taken as hostage wanted badly "paper and something to write with, some way to sustain a thought, place in the world" (110). Ostensibly to the prisoner, but actually to Bill himself, "[t]he only way to be in the world was to write himself there. . . . Let him write ten words and he would come into being once again" (204). Writing designated his ability to imagine, to think, to react, and, most importantly, to live. It was the concrete proof of his existence as a human being. Nonetheless, writing here did not make a uni-lateral and linear presentation. Writing had the self partly dissolve and partly construe himself as if writing was composed of counter forces pulling against each other. Bill thought "the pages he'd done showed an element of conflict, the wrong kind of exertion or opposition, a stress in two directions, and he realized in the end he wasn't really thinking about the prisoner. Who is the boy It was writing that caused his life to disappear" (215). According to Mark Osteen, Bill's writing of Jean-Claude "is actually a desperate attempt to reinvent himself, and this moment again implies that characters create their authors by providing foci for thoughts and dialogue and loci for plots" (663). Incorporating himself in the characterization not only re-forged the self-image but also blurred the previous one, demonstrating the impossibility of the monolithic authority. Hence, as writing is depicted as a response to the image of the self, the self turns out to be an image perpetually reformed. The self-image was never a fixed entity. Besides, the constantly remade or renewed self-image redefined the writer who would never be appropriated or taken hold of by

his reaction to two pictures, the mass wedding and the picture of the author of *Catcher in the Rye*. They in turn became two of the most important images in the novel in which the self was construed and dissolved.

⁵ DeLillo presents how the imprisoned poet's experienced the gradual dissolution of the self while losing the sense of time. It is a depiction which conveys DeLillo's peculiar notion of time and its relation with the sense of the self. To be more specific, DeLillo does not regard time as an objective reality which moves on. Instead, time is a sense closely related to the empirical response carried out in daily confrontations. Time is first felt in his pain after being tortured by the boy as the prisoner thought to himself, "This was part of the structure of time, how time and pain became inseparable" (108). Another example shows how the sense of time is perceived as "[t]ime moved tormentingly, carried by insects, all-knowing, if we can, it moves" (108). That is, the notion of time is based on the dynamic response to objects as well as experiential perception. Besides, a redefined concept, acts as an indicator to confirm one's existence. His loss of the self is accompanied by the time sliding away from him, as he was imprisoned and exempted from any correlation and interaction with others along with feelings for the world.

the reading crowd. The writer's case indicates that individuality, though not perpetuating a fixed or assured identity, maintains the self's potential to express him- or herself.

CONCLUSION

Contrary to general understanding of the world of image, the possibility of individuality was given a subtle exploration and confirmed in *Mao II*. What was intriguing in the novel no longer focused on the exploration of the image in terms of representation or how the image was related to the real. Instead, the image implied the self-dissolving power and was stratified into the empirical, represented and imagined—the immediate life experience, photographs and TV, and the writing process. The empirical one lay in the actual body of the crowd as the one that Karen was immersed in and made responses to. Another crowd concerned with the image was related to the mass media which Brita acutely perceived as the immediate threat to her individuality and originality. A more delicate demonstration of the image was shown by Bill's confrontation with his own photograph and, more significantly, his writing.

However, although DeLillo demonstrated that the self was almost inevitably overwhelmed by the power of the crowd embedded in the image, he confirms the possibility of individuality in the confrontation with the self-submerging image. That is, DeLillo on the one hand portrayed that the image was what the characters could not dispense with and, on the other hand, worked on the possibility of individuality which varied from one character to another. Some came in responding to the empirical and mediated/represented image while the other was done in responding to the image conjured up or created by the self. Karen and Scott belong to the first camp. Yet, they were as similar as different from each other. While Karen *imagined* her unique vision and status by immersing herself in the image of the crowd, Scott walked out of the crowd and concealed the real name of Bill as a means to construe his individuality and distinguish himself from the rest of Bill's reading crowd. The other camp created image to sustain their individuality. Bill wrote to respond to the image of him-self who then was constantly being remade. Writing became the necessary process of facing and surpassing the image held by the reading crowd. Individuality was shown in writing, a self-remolding process. Brita, working for the media, was destined to seek out such unknown, hidden images as that of the terrorist. The image of the *crowd* to Brita was derived from the mass culture which was an irresistible image-(re)producing and consuming machine. That is, her photographs with which

she could claim her individuality were instantly consumed by the public. As terrorism evoked fear, the more Brita unraveled about it, the more individuality she could assert. She set her foot in the forbidden area which had not yet been regulated or appropriated. Yet, her difference from Bill is that the individuality in her image went from the experiential to the mediated whereas Bill's and Brita's was *imagined* and construed either in words or new images.

In terms of *Mao II*, DeLillo points out how the world is suffused with images and, more importantly, and how the images imply the notion of the crowd and dissolve the self's individuality. However, under the depiction of the self's confrontation with the image, DeLillo had his ultimate concern—the possibility of individuality. To be specific, as characters were ostensibly drowning in responding to the *crowd* implicated in the image, their individuality was subtly revealed. However, what is worth-noting is that the individuality did not presuppose a constant identity but a perpetually renewing process. However, contingency and evanescence were not enough to account for the self's striving for individuality since personal intention was obviously perceived. That is, DeLillo does not mean to rebuild the modern subjectivity but believes that people are able to forge one's individuality amidst the self-dissolving *crowd* of the images.

Abbreviations for the works of Don DeLillo

CDD Conversation with Don DeLillo

IC "The Image and the Crowd"

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唐·迪立羅《毛二》的影像世界： 群眾 vs. 自我獨特性

摘要

本論文旨在探討唐·迪立羅在《毛二》所勾勒的影像世界中的自我獨特性。迪立羅的影像建構在群眾的概念上，呈現其不斷消蝕、瓦解自我獨特性的特質。而不同於一般將影像侷限在媒體再現上，迪立羅將這個概念延伸至生活經驗和想像的範疇，影像中所蘊含的群眾概念也就包括親身經驗的、媒介的和想像的，分別指涉群眾聚集、攝影和電視、及寫作經驗。由於影像不僅顛覆大眾對現實的認知也強烈干擾自我認同，自我獨特性更顯得模糊、不可能。一般評論認為迪立羅所呈現的自我具有濃厚的後現代色彩，馬克·歐斯丁認為《毛二》中的角色彼此間的「界線十分薄弱，是可以被穿透的。」馬克·艾德馬桑甚至認為自我在《毛二》中只不過是「一個導體、一個轉接點 …乘載不同力量的流動。」然而，如此的評論只說明《毛二》中自我的部份輪廓，迪立羅藉由細微巧妙的觀察和書寫，意圖呈現自我在面對影像時，自我獨特性的可能路徑，其分別表現在對影像的回應和創造上。對迪立羅來說，隱含著群眾概念的影像確實對自我產生相當的消融作用，但他並不認為自我將淪為隨機的、稍縱即逝的結果，反而在自我對影像的不同回應中，凸顯其獨特性。攝影師和作者的角色安排更顯示自我並非只是被動地回應，更能主動創造影像，強調自我創造的可能。因此，迪立羅在《毛二》中所深入的影像世界，描繪的不再是現實和虛擬的辨證，而是包裹在層層影像下的自我獨特性。

關鍵字：唐·迪立羅 《毛二》 影像 群眾 自我獨特性

The Effect of Exposure to Rhyming Words on the L2 Word Learning

Li-Ning Guo Chieh-Fang Hu

Taipei Municipal University of Education

Abstract

Two experimental word-learning tasks were used to investigate the effect of exposure to rhyming words on L2 word learning among 120 fourth-grade Chinese-speaking children. The children were divided into four groups. Two groups were randomly assigned to a pre-exposure word-learning task and the other two a direct word-learning task. In the pre-exposure word-learning task, one group of children were told a story containing words which rhymed with the target words to be learned whereas the other group heard a story containing words that did not rhyme with the target words. In the direct word-learning task, one group directly learned three rhyming words without pre-exposure to rhyming words in a story and some directly learned three non-rhyming words. The results revealed that pre-exposure to rhyming words embedded in a story did not affect children's new word learning. However, learning rhyming words together facilitated free recall and word-referent association in a production task. These results suggest that phonological manipulation in the rime unit of the new words provides a cue to the phonological shape of the new words, which facilitates the construction of phonological representations as well as the mapping of the representations to referents.

Key words: rhyming words, phonological priming, phonological similarity, vocabulary learning, second language acquisition

INTRODUCTION

The ability to learn new words plays a crucial role in second and foreign language learning (Lewis, 1993; Nattinger & DeCarrico, 1992). When learning a new word, a learner has to encode the phonological representation of the word, identify the appropriate referent or meaning of the word and generalize that word to other appropriate referents (Demke, Graham, & Siakaluk, 2002). Much of the literature examining L2 vocabulary learning focuses on how to help language learners remember the meanings of a new word such as using drama, semantic mapping, key words, morphological knowledge, and context (Anderson-Inman, Knox-Quinn, & Horney, 1996; Foil & Alber, 2002; Moore & Surber, 1992; Ranger, 1995; Shostak, 2002; Slattery & Willis, 2001). Few studies have focused on the phonological component of vocabulary acquisition, the very initial step of vocabulary learning in most cases. A concept cannot be lexicalized unless the word form which carries the meaning is “remembered” or “recognized” in the first place. The present study explored the potential ways in instruction which involves the manipulation of the phonological aspect of words to be learned and examined the effects of the instruction on L2 word learning.

LITERATURE REVIEW

Rhyming and the Phonological Priming Effect

Teaching vocabulary by manipulating the phonological components of new words is not commonly seen in an L2 classroom. The most popular but contentious method perhaps is the keyword method, such as associating *geography* with *ji-fei-gou-tiao* “chicken-fly-dog-jump,” a phonologically similar idiomatic expression in Chinese. The memory of the mapping between the meaning and the pronunciation of the word *geography* can be enhanced by conjuring a mental image with chickens and dogs jumping and flying on a map. While the keyword method can be effective in facilitating memory of certain words, it is often difficult to find a suitable mediating word which relates to the target word both in form and meaning.

Another way to facilitate the phonological aspect of L2 word learning is to manipulate the phonological components of the target words and ignore the semantic relation between the words. L1 research has demonstrated that presenting a set of similar-sounding words (e.g., *snake*, *make*, *lake*) prior to the introduction of a target word (e.g., *hake*) facilitates the learning process of the target word (Bowles & Poon, 1985; Collins & Ellis, 1992; Lupker & Williams, 1989; McEvoy, 1988; Merriman & Marazita, 1995; Slowiaczek, Nusbaum, & Pisoni, 1987; Wilshire & Saffran, 2005).

This facilitative effect is usually termed as a phonological priming effect. In a study examining the effect of pre-exposure to similar-sounding words on two-year-olds' word learning, Merriman and Marazita (1995) found that pre-exposure to similar-sounding words helped the children map the novel word onto an unfamiliar picture instead of a familiar one more easily. It is believed that the shared phonological features (i.e., /ek/) between the prime word (e.g., *snake*, *make*, *lake*) and the target word (i.e., *hake*) make the target word more accessible and at the same time make the non-shared component (i.e., *sn-*, *m-*, and *l-* in *snake*, *make*, and *lake* vs. *h-* in *hake*) more distinct, leading to enhanced word learning. However, not all studies found that pre-exposure to rhyming words facilitated new word learning (Demke et al., 2002). For example, in Demke et al.'s (2002) study, they used rhyming primes and embedded them in a story as the exposure. Four-year-old children were told a story containing words that either rhymed with the target word or did not rhyme with the target word. Immediately after being read the story, the child was taught a new label for a new object. It was found that pre-exposure to the rhyming words did not facilitate the naming of the object. The mixed findings may result from the differences in task demands between studies. In Merriman and Marazita (1995), children picked up the picture named by the test giver. In Demke et al. (2002), children were required to name the object. It is possible that the phonological priming effect is sustainable to the extent where no verbal production is required.

Rhyming and the Phonological Similarity Effect

One may argue that presenting a set of similar-sounding words may impede rather than facilitate new word learning, due to the phonological similarity effect that is often observed in memory tasks. A phonological similarity effect is a confusion effect, in which phonologically similar words (e.g., *cat*, *mat*, and *rat*) are found to be harder to recall than those that are phonologically distinct (e.g., *man*, *egg*, and *boat*) (Conrad, 1964; Conrad & Hull, 1964; Gathercole & Baddeley, 1993). More recently, however, L1 research has indicated that the information that is disrupted by phonological similarity is the *order* information (i.e., the sequential order in which the items are presented) rather than the *item* information (i.e., the phonological, lexical, and semantic content of the verbal items presented) in the memory task (Fallon, Groves, & Tehan, 1999; Gupta, Lipinski, & Aktunc, 2005; Nairne & Kelley, 1999; Nimmo & Roodenrys, 2004, 2005; Poirier & Saint-Aubin, 1996; Watkins, Watkins, & Crowder, 1974; Wickelgren, 1965). When only item information is taken into account irrespective of the correctness of the serial order of the items in the sequence, phonological similarity among the items to be recalled sometimes results in an opposite effect, i.e., a facilitative effect where more items are recalled correctly. For

example, some researchers have found that though item recall is impeded when the items in the list share the CV_ body such as *mace*, *maim*, and *mate*, which share the initial consonant and the vowel, or the C_C component such as *bide*, *beard*, and *bird*, which share the initial and the final consonants, item recall is actually facilitated when the items rhyme such as *came*, *name*, and *maim* (Gupta et al., 2005; Fallon et al., 1999; Nimmo & Roodenrys, 2004). According to Hartley and Houghton (1996), the shared rime unit is the sonority peak of a syllable and thus provides a strong phonological cue to the phonological shape of the new words in the list, leading to a better recall of rhyming items than non-rhyming items.

Most of the studies investigating the phonological similarity effect were conducted by using tasks of short-term memory, such as serial recall and recognition. Nevertheless, we expect that the findings from those studies have some implications for L2 word learning as literature supports a connection between phonological short-term memory and word learning (Baddeley, Gathercole, & Papagno, 1998; Baddeley, Papagno, & Vallar, 1988; Gathercole, Hitch, Service, & Martin, 1997; Michas & Henry, 1994; Papagno, Valentine, & Baddeley, 1991). Based on the findings, it is suggested that learning a list of words that are phonologically similar at the rime unit may facilitate L2 word learning, as the memory load for encoding and constructing multiple, parallel phonological units of a word can be substantially reduced by recurrence of the rimes in the input.

The Current Study

The current study presents an initial attempt to find a potential way to facilitate L2 word learning by drawing on two lines of research, phonological priming and phonological similarity. Two experimental word-learning tasks were conducted to examine the interaction between the phonological priming effect and the phonological similarity effect on L2 word learning respectively. In the first task, we aimed to replicate the studies conducted by Merriman and Marazita (1995) and Demke et al (2002) to see whether pre-exposure to rhyming words embedded in a story influences children's new word learning. With the task, we were able to see whether new word learning would be affected by phonological priming in our L2 context. In the second task, the children learned a list of new words that rhymed with each other or a list of new words that did not rhyme. The children learned the words directly without being pre-exposed to the rhyming words. With the task, we were able to see whether learning a list of rhyming words would be affected by phonological similarity. As the children were not pre-exposed to other rhyming words, any facilitation or inhibition effect could not be attributed to the phonological priming effect.

METHOD

Participants

The study recruited 120 fourth-grade Chinese-speaking children aged nine to ten. The participants were put into four groups, 30 per group. The grouping procedure began with randomly assigning the participants to one of two word-learning tasks: Pre-Exposure or Direct. The participants assigned to each word learning task were then randomly assigned to one of two rhyming conditions: Matched or Mismatched. Thus, four orthogonal groups were formed. These four groups did not differ in phonological short-term memory as measured by a Chinese nonword repetition test ($F(3, 116) = 0.19, p > .05$) or English vocabulary as indexed by their performances in an English vocabulary test ($F(3, 116) = 0.03, p > .05$). After grouping, the participants were given a questionnaire to obtain information about their English learning background and to make sure that the four groups did not differ in any significant way in terms of English learning background. See the following section for the details of the grouping tests.

Participant Grouping Tests

Questionnaire of background information. The questionnaire, designed by the first author, was used to gather information about the participants' English learning background. Questions included when the children started to learn English, how long they had been learning English, and whether they had attended to a cram school. See Appendix A for the items in the questionnaire. The questionnaires were taken home by the children and were completed by their parents. Children of the four groups were matched as closely as possible for their background information of learning English.

Chinese nonword repetition test. The test, developed by Hu and Schuele (2005), measured children's phonological short-term memory capacity. There were six trials. The child listened to three Chinese disyllabic nonsense words in each trial read by the test giver. The test giver read the stimuli in each trial as if there were three disyllabic words, with pause in between the words. Right after the test giver read the nonsense words, the child had to repeat them as they were presented. The score was the sum of the number of the syllables the child repeated correctly across the trials (Max = 6 trials \times 6 syllables = 36).

English vocabulary test. The test, adopted from Hu and Schuele (2005) which reported a satisfactory reliability of .90, measured children's current English vocabulary. It consisted of two practice trials and a series of 40 plates, each containing four line drawings of objects or actions. For each plate, the child heard an English word spoken by the test giver and then circled one of the four drawings which

best illustrated the spoken stimuli (Max = 40).

Pre-tests of Word Familiarity

Prior to the word-learning task, each child was first tested on his or her prior knowledge of the English words employed in the task. There were two pre-tests of word familiarity: rhyming word familiarity and target word familiarity. Children assigned to the Pre-Exposure word-learning task took both of the tests. Children assigned to the Direct word-learning task took only the target word familiarity test.

Rhyming word familiarity. The purpose of the test was to know whether the child was familiar with the rhyming words used in each story in the Pre-Exposure task. The child was shown a group of four pictures, in which three pictures illustrated the rhyming words used in the story and one picture served as a distracter illustrating an irrelevant object. The test giver named one of the pictures and the child had to point to the picture named by the test giver. There was a total of 14 rhyming words in the stories.

Target word familiarity. The test assessed whether the child had an existing label for the target words to be learned. The child was shown a picture illustrating one of the target words and asked “What is this?” The child had to orally produce the English label for the picture presented (Max = 3 sets \times 3 words = 9).

Pre-Exposure Word-learning Task

Materials

Stories. Children assigned to the Pre-Exposure task were told stories before they were taught new words. Three stories were created. Each story contained a number of words (e.g., *Dane*, *train*, *rain*, *brain*, and *plane*) which rhymed with the target words to be learned (e.g., *crane*, *pane*, and *vane*). The rhyming words were mostly selected from the basic 1200 words for elementary and junior high school students published by the Ministry of Education in 2004. The token of the recurring rhyming words in each story was ten, which was identical to the number of the occurrence of the rhyming words in the story used in Demke et al.’s (2002) study.

Target words. Three sets of target words were formed for children to learn. Each set contained three rhyming words (*crane*, *pane*, *vane*; *vat*, *mat*, *tat*; *stake*, *rake*, *sake*), which rhymed with the rhyming words in the stories. Earlier work on L1 phonological memory usually gave the participants five or six words to recall. The present study required the participants to learn three words as a set each time because the target words were new and nonnative to the participants. All the target words were picturable to minimize the effect of concreteness and imaginability in the learning of the words. The words were grouped in different ways according to the rhyming

conditions. In the Matched condition, each set of rhyming words were learned as a set. In the Mismatched condition, one word was randomly selected from each set and the three selected were learned as a set (e.g., *crane*, *vat*, and *stake*). The same pool of target words was also used in the Direct word-learning task. See Appendix B for the stimuli.

Procedure

Matched condition. The participants were seen individually in a quiet room in school. In the matched condition, each child was told stories containing the words that rhymed with the target words to be learned. For each set of target words, there were two learning trials. A trial consisted of a learning phase followed by a test phase. In the learning phase, the rhyming words in the story (e.g., *Dane*, *train*, *rain*, *brain*, and *plane*) were first introduced with pictures to the child. No printed forms were presented to the child. The test giver named each of the pictures twice and the child repeated each of the rhyming words following the model given by the test giver. After introducing the rhyming words, the test giver told the child the corresponding story with pictures (e.g., *Dane has a very beautiful train. But his train is broken in the rain. He is very sad. Someone tells him to buy a new train. So he thinks in his brain: should I take a train or a plane to buy a new train? Then he decides to take a plane*). Upon the completion of the story, the test giver taught the child the three rhyming target words (e.g., *crane*, *pane*, and *vane*). The three target words were introduced by three pictures, each of which illustrated one of the target words. The test giver named the three target pictures one by one three times. The child was required to repeat after the test giver three times. If the child mispronounced the target word, the test giver corrected the child only once. Accuracy of immediate repetition of the target words was recorded.

The test phase began immediately after the child had repeated the target words. Three outcome measures were administered in the test phase: an item recall test, a word production test, and a word recognition test, in that order. See outcome measures for details of the tests. After taking the three outcome measures, the child was asked two questions which probed into his or her understanding of the factual information of the story, such as ‘What beautiful thing does Dane have?’ and ‘Does Dane take a train or a plane finally?’ The questions were orally given in Chinese by the test giver and the child was encouraged to answer the question either in English or in Chinese. The story comprehension test was given only to make sure that the child paid attention to the stories; it was not put into analysis in the present study.

After two learning trials of the first set of target words, the test giver introduced the second set and the third set of target words following the same format.

Mismatched condition. The procedure for the mismatched condition was the same

as in the previous condition, except that each child was taught the words that neither rhymed among themselves nor rhymed with the words in the story. Each story began with an introduction of the rhyming words in the story (e.g., *Dane, train, rain, brain,* and *plane*), followed by the presentation of the story (e.g., *Dane has a very beautiful train...*). Then the test giver taught the child three target words. The three target words were randomly selected from each of the three sets of rhyming target words (e.g., *crane, vat,* and *stake*). Thus, the three target words learned as a set did not rhyme with each other. Only one (i.e., *crane* in this case) rhymed with the rhyming words presented in the story. In this spirit, children assigned to the Mismatched condition listened to the same stories and learned the same pool of target words used in the Matched condition, but there was a mismatch between the rhyming words in the story and the target words subsequently learned.

Direct Word-learning Task

Materials

The same pool of target words created for the Pre-exposure word learning task was used in the Direct word-learning task.

Procedure

In this task, the participants learned the same pool of new words but they learned the words directly, without being pre-exposed to a story. Again, there were two rhyming conditions: Matched and Mismatched.

Matched condition. For each set of target rhyming words, there were two learning trials. A trial consisted of a learning phase followed by a test phase. In the learning phase, the test giver taught the child the first set of rhyming target words (e.g., *crane, pane,* and *vane*), which were introduced by three pictures illustrating the three target words. The test giver named the three pictures one by one consecutively for three times, pointing to their corresponding pictures. The child was required to repeat each word three times following the model given by the test giver. If the child mispronounced the target word, the test giver corrected the child only once. The test phase began immediately after the child had repeated the target words. Three outcome measures were administered in the test phase: an item recall test, a word production test, and a word recognition test. The second and the third sets of target words were taught and tested following the same format.

Mismatched condition. The procedure was the same as that for the Matched condition, except that the words learned as a set did not rhyme with each other (e.g., *crane, vat,* and *stake*).

Outcome Measures

There were three outcome measures in the two word-learning tasks. The item recall test measured the child's item memory of the target words, which could be achieved without aligning word forms with meanings. The word production test assessed the child's word learning performances by eliciting overt articulatory responses from the child, which involved aligning word forms with meanings and thus tapped order memory of the target words. The word recognition test also measured the child's order memory of the target words, but it did not require oral production of the label.

Item recall. Each child was asked to freely recall the targets he or she had just learned. One point was awarded to each word that was correctly recalled. If the child failed to recall the target word or gave a wrong answer, the test giver did not give the child corrective feedback but said "okay" and proceeded to the next trial (Max = 3 sets \times 3 words \times 2 trials = 18).

Word production. Each child was shown a picture illustrating a target word and was asked "What is this?" The child had to orally produce the label for the corresponding picture. Given that the child had to line up verbal responses with their corresponding pictures, this test tapped the child's ability to hold information sequentially (i.e., order memory) (Max = 3 sets \times 3 words \times 2 trials = 18).

Word recognition. Each child was given three pictures illustrating the three target words at a time and was asked to point to the picture named by the test giver. The test was included to avoid the possibility that some children might have acquired the order information of the target words but were unable to produce the target words correctly (Max = 3 sets \times 3 words \times 2 trials = 18).

RESULTS

Preliminary Analysis

Accuracy of immediately repeating the target words following the model given by the test giver was first securitized to see whether there was noticeable deviance in the pronunciations of the target words. The accuracy of immediate repetition of the target words was high (ranging from 96% to 100%), indicating that most children did not have difficulty articulating the target words following an immediate model given by the test giver. Next, children's performances in the two pre-tests were examined to see whether there were group differences. The results of a one-way ANOVA indicated that there were no significant differences across the four groups of the participants on the scores of the target word familiarity test ($F(3, 116) = 0.73, p > .05$). Similarly,

children who were assigned to the Matched condition in the Pre-exposure word-learning task and those who were assigned to the Mismatched condition did not differ significantly in their prior knowledge of the rhyming words used in the stories ($t(58) = 0.23, p > .05$).

Effects of Rhyming on L2 Word Learning

Table 1 presents the descriptive statistics of the three outcome measures as a function of word-learning task and rhyming condition.

Table 1
Descriptive Statistics for the Outcome Measures

		<u>Pre-Exposure</u>		<u>Direct</u>	
		Matched	Mismatched	Matched	Mismatched
Item recall	<i>M</i>	12.43	10.07	12.80	10.33
	<i>SD</i>	2.30	2.21	2.54	2.47
Word production	<i>M</i>	8.50	7.27	9.27	6.53
	<i>SD</i>	3.58	3.03	3.97	2.80
Word recognition	<i>M</i>	12.87	14.03	12.60	13.40
	<i>SD</i>	3.94	3.32	3.91	3.54

To understand the overall effect of rhyming on children's word learning performances, three sets of 2 Task (Pre-Exposure vs. Direct) \times 2 Rhyming (Matched vs. Mismatched) ANOVAs with Task and Rhyming as between-subjects factors were conducted separately for the three outcome measures, i.e., item recall, word production, and word recognition. The results showed that there were no significant effects of interaction between Task and Rhyming for the three outcome measures ($F(1, 116) = 0.01$ for item recall, $F(1, 116) = 1.48$ for word production, and $F(1, 116) = 0.07$ for word recognition, all $ps > .05$). There were also no significant effects of Task, indicating that pre-exposure to rhyming words did not affect item recall, production or recognition of the target words ($F(1, 116) = 0.53$ for item recall, $F(1, 116) = 0.00$ for word production, and $F(1, 116) = 0.45$ for word recognition, all $ps > .05$). In contrast, there was a significant main effect of Rhyming for item recall ($F(1, 116) = 30.86, p < .05$) and for word production ($F(1, 116) = 10.37, p < .05$), with better performances observed in the Matched condition than in the Mismatched condition. For word recognition, the rhyming effect was not significant ($F(1, 116) = 2.14, p > .05$).

To sum up, the results from the ANOVAs revealed that Rhyming had an effect in item recall and word production, indicating that phonological manipulation in the

rime components of the new words facilitated L2 new word learning, particularly when the task demanded the production of the target words (i.e., item recall and word production). The Task effect was not significant in any of the outcome measures, indicating that pre-exposure to rhyming words did not enhance L2 word learning.

To further examine the unexpected finding that pre-exposure to the stories had no effect on word learning, we conducted post-hoc *t*-tests. As mentioned earlier, children in the Mismatched condition of the Pre-Exposure task learned three target words, one of which rhymed with the rhyming words embedded in the story though the other two did not. If pre-exposure to the rhyming words facilitated subsequent word learning, then children should perform better in the learning of the rhyming target word than in the learning of the other two. We compared children's scores of the rhyming target word with the average scores of the two non-rhyming target words for each of the outcome measures. The results of the *t*-tests revealed that there was no significant difference between the rhyming target word and the two non-rhyming target words in item recall ($t(58) = -0.18, p > .05$), word production ($t(58) = -0.53, p > .05$), or word recognition ($t(58) = -0.42, p > .05$).

One may argue that the lack of the Pre-Exposure effect might be due to unfamiliarity with the rhyming words embedded in the story among some children. Thus, we compared children with high scores in the rhyming word familiarity test (those who scored 10 or more than 10 out of 14) in the Matched condition of the Pre-Exposure task with children in the Matched condition of the Direct task. The *t*-test allowed for an examination of whether children who were pre-exposed to *familiar* rhyming words would learn new words better than children who learned the same set of new words but who were not pre-exposed to the rhyming words. The results of the *t*-test indicated that children in the Matched condition of the Pre-Exposure task and children in the Matched condition of the Direct task did not differ significantly in item recall ($t(37) = -0.20, p > .05$), word production ($t(37) = -0.29, p > .05$), or word recognition ($t(37) = -1.29, p > .05$). The results suggested that the lack of phonological priming was not attributable to the unfamiliarity with the rhyming prime words.

DISCUSSION

This study investigated the effect of exposure to rhyming words on new word learning. The results revealed that pre-exposure to rhyming words embedded in a story did not affect children's subsequent new word learning. However, learning rhyming words together facilitated item recall and word-referent association whether

there was pre-exposure to the rhyming words or not. But the beneficial effect on order memory, that is, mapping a word onto its corresponding referent, was limited to tasks requiring oral production.

The Effect of Pre-Exposure to Rhyming Words

The lack of the phonological priming effect was inconsistent with the studies which have reported a facilitative priming effect in new word learning (Merriman & Marazita, 1995), though it was consistent with the findings reported by Demke et al. (2002). In Merriman and Marazita's study, the effect of hearing similar-sounding words was examined on young 2-year-olds' disambiguation of novel noun reference. The children were pre-exposed to a story which contained some words sharing the initial phoneme (e.g., *little*) and the rime unit (e.g., *cat*) with the target word to be learned (e.g., *lat*). Children pre-exposed to the similar-sounding words were more likely to select an unfamiliar rather than a familiar object as the target word's referent. But this was not the case in Demke et al.'s study, where children were asked to name the new object verbally. According to Demke et al., the lack of priming in their study might be attributable to insufficient pre-exposure to the rhyming words. However, this did not seem to be the case in the current study. In Demke et al.'s study, children were pre-exposed to 10 tokens of rhyming words before they learned the new word. In the current study, the children first repeated the rhyming words twice before listening to the stories, where the rhyming words were presented again. In total, the children were pre-exposed to at least 30 tokens of rhyming words before learning the new words. However, we still found no evidence of phonological priming.

One may argue that the lack of phonological priming in the present study might result from children's unfamiliarity with the rhyming words used in the stories. As has been pointed out by Slowiaczek et al. (1987), pseudoword or unfamiliar primes yield a smaller priming effect than word primes. To assess the effect of prime word familiarity on the priming effect, we selected a subgroup of participants who were assigned to the Matched condition in the Pre-Exposure task and who obtained high scores in the rhyming word familiarity test. Their performances in the three outcome measures were compared with the performances of children who were assigned to the Matched condition in the Direct task. The two groups of children learned the same set of rhyming target words but differed in whether they were pre-exposed to the rhyming words embedded in the stories. Still, there was no evidence that pre-exposure to familiar, known rhyming words affected word learning. Thus, the lack of priming effect in the current study did not seem to be attributable to children's unfamiliarity with the rhyming words embedded in the stories.

A close comparison of the present study with Merriman and Marazita's indicated

that the lack of phonological priming might be attributable to task demands. In Merriman and Marazita's study, the child was asked to select a picture upon hearing a new word after hearing similar-sounding words in a story context. The child chose the picture depicting a new, unfamiliar object more often than the ones depicting old objects, indicating that pre-exposure to rhyming words facilitated the disambiguation of noun references. However, the results should be interpreted with caution. Numerous studies have shown that young children tend to map a new word onto a new, unfamiliar object whether they are pre-exposed to rhyming words or not, a principle which is often dubbed as novel-name-to-nameless-category principle (e.g., Golinkoff, Hirsh-Pasek, Bailey, & Wenger, 1992). It is possible that the phonological priming effect obtained in Merriman and Marazita's study is an artifact of this tendency to choose a new, unfamiliar object upon hearing a new label.

In addition, the child participants in the present study had to orally produce the label (as in item recall and word production) or hold multiple new phonological forms distinct in memory while mapping them onto their appropriate referents (as in recognition and production). These tasks apparently put heavier demands on phonological representations than the one used in Merriman and Marazita's study. It seems that phonological priming, if any, sustains only to the extent of facilitating the disambiguation of the objects. It is not sufficient to support word learning in a task like the one employed in the current study and the one employed in Demke et al. (2002), where a highly-specified phonological representation was required for overt production or for disambiguating among multiple word forms (rather than word referents).

The Effect of Rhyming among the Target Words

Do children learn a set of rhyming words better than a set of non-rhyming words? The results of the item recall test and the production test indicated that when children learned rhyming words together, they freely recalled more novel words and mapped more novel words onto their corresponding referents than when they learned words that did not rhyme. However, the facilitative effect of rhyming is not evident in the recognition test.

When item memory of new words is considered, our finding that learning rhyming words together facilitated free recall and production of the new words is consistent with memory studies, which revealed an item recall advantage in memory of rhyming words (Fallon et al., 1999; Gupta et al., 2005; Nimmo & Roodenrys, 2004). The facilitative effect of rhyming in item recall reflects the special status of rimes in English. In English, the most salient psycholinguistic boundary within a syllable is the boundary between the onset and the rime (e.g., Hartley & Houghton,

1996; Kessler & Treiman, 1997; Treiman & Kessler, 1995). The onset-rime units have been found to play a significant role in a wide range of linguistic operations, such as phonological awareness (Treiman & Kessler, 1995), memory errors (Treiman, 1995), and lexical organization (de Cara & Goswami, 2002; Foy & Mann, 2009). Acoustically, the rime unit is even more salient than the onset because it contains the vowel, the peak of sonority in a syllable. Accordingly, the facilitative effect of rhyming in word learning might be attributed to the repeated activation of the sonority peak in the words to be learned, which functions as a salient category cue for the construction of the phonological representations of the target words during the process of encoding and recalling.

When the order memory of the new words is considered, the results of the word production test indicated that learning rhyming words together helped the learner map the target words onto their corresponding referents in an orderly manner. On the first sight, our finding did not seem to be in accordance with the results of previous studies which have revealed a confusion effect of phonological similarity on order memory (Nairne & Kelley, 1999; Nimmo & Roodenrys, 2004, 2005; Poirier & Saint-Aubin, 1996). What has offset the potential confusion effect of phonological similarity on the processing of order information? As described earlier, the confusion effect was mostly documented in a word recall task of L1 words. The subjects in those studies are required to recall a list of old familiar words. They do not have to construct new phonological forms in memory when performing the word recall task. Rhyming does not seem to have an additional advantage for order memory in recalling a list of old familiar words. Instead, it produces a confusion effect because it reduces the overall distinctiveness of the already-known rhyming words in the list. But in L2 word learning context, the learners have to encode new phonological forms and map the forms onto their corresponding referents. Constructing phonological forms for new words may be less demanding when the new words share the same phonological components than when the new words have various phonological components. Research have shown that nonwords or foreign language words are easier to repeat and to recall when they contain familiar sound sequences than when they are composed of unfamiliar sound sequences (Gathercole, 1995; Service & Craik, 1993; Speciale, Ellis, & Bywater, 2004). The repetition of the rime unit in a list of new words increases redundancy between the phonological forms; the familiarity of the sound sequences within the words accumulates as the encoding process proceeds. As the construction of sounds becomes less demanding with the cue provided by the rhyming list, the lining up of the sounds with their referents becomes less demanding as well.

There is another reason that the phonological similarity among the rhyming

words in the present study did not impair order learning of the new words as would be predicted by the findings in the previous studies. In the previous studies which reported a detrimental similarity effect on the process of order information, the participants were given a list of five or six words for word recall. In the present study, the participants were given three words for new word learning. Thus, the number of the items to be ordered and lined up with the referents in the present study was relatively small when compared to that used in the previous studies. The smaller number of words to be recalled was expected to reduce memory load and thus might have reduced the potential confusion effect of phonological similarity on order memory.

One aspect of finding is worth mentioning. The shared rime unit among the target words appeared to have a specific beneficial effect on the productive aspect of word learning. The rhyming effect is evident in item recall and word production but not in word recognition. This is not surprising for beginning L2 learners, whose execution of articulators for foreign-sounding syllable has not reached automaticity. When rhyming words are learned together, the articulatory planning is executed for the one rime unit. The same planning can be readily used for the rime unit in another new word, making the production of the word easier. Thus, the advantage for constructing phonological representations for each of the individual rhyming items (i.e., the advantage of item memory) as well as the advantage for repeating the same articulatory plans might have masked and even overridden the potential detrimental effect of rhyming on order memory.

Summary and Future Directions

The results of the present study confirm the facilitative effect of rhyming on L2 word learning, though the evidence for phonological priming is not conclusive. Theoretically, the results help us understand how phonological priming and phonological similarity work in L2 learning context. Phonological priming may not sustain to the extent when the word learning task involves production of the new words or when there are multiple words to be learned. The confusion effect of phonological similarity commonly observed in the traditional memory task can be offset in L2 word learning context if the similarity is cast upon the rime unit. The repetition of the units of high sonority in words appears to support L2 new word learning, where phonological representations have to be constructed from scratch and the redundancy in the salient units of target words may help reduce the demands in the construction of phonological representations. Pedagogically, the results point to a potential way by which new L2 vocabulary items can be introduced. If possible and appropriate, the teacher may consider to present words which share the same rime

units as a group to assist the construction and memory of stable and detailed phonological forms for the new words. Introducing rhyming words together can be viewed as a mnemonic alternative to the keyword method. However, the number of the rhyming words taught at a time has to be limited as too many rhyming words may cause an undesirable confusion effect.

As in all statistical analyses, it is always hard to interpret null effects. It is unclear whether the null effect of phonological priming in the present study represents a genuine null effect or an artifact of insensitive primes. Future studies may maximize the similarities between the prime and the target, for example, by employing primes sharing the onset and the rime unit with the target words at the same time. Additionally, future studies may take the children's L1 into consideration in the investigation of the phonological priming effect. In Chinese, the predominant syllable structure is CV. There are some CVC syllables, but the coda consonant in the CVC syllables must be the alveo-dental nasal [n] or the velar nasal [ŋ] (Tseng, 2005). Mandarin Chinese does not have any consonant clusters and has a relatively simple coda structure when compared with English, suggesting the dominant role of the CV_ unit in Chinese than the rime unit. Given that how a language is processed is influenced by how the speaker's L1 is organized (e.g., Ben-Dror, Frost, & Bentin, 1995; Caravolas & Bruck, 1993; Cheung, Chen, Lai, Wong, & Hills, 2001), it is possible that Chinese children are more sensitive to the CV_ unit than the rime unit and thus pre-exposure to words sharing the CV_ unit with the target words may result in a greater priming effect than pre-exposure to words sharing the rime unit. Thus, future studies may also use primes sharing the CV_ unit with the target words to further examine the potential role of phonological priming on L2 new word learning.

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APPENDIX A

Questionnaire of Background Information

班級: _____ 年 _____ 班

姓名: _____

生日: 民國 _____ 年 _____ 月 _____ 日

小朋友你好，下面有幾個關於學習英文的問題，請根據你學習英文的狀況，勾選出最符合自己的情況，謝謝你的合作。

1. 請問你從什麼時候開始學英文?

- ☐ 幼稚園之前 ☐ 幼稚園小班 ☐ 幼稚園中班 ☐ 幼稚園大班
☐ 一年級 ☐ 二年級 ☐ 三年級 ☐ 四年級

2. 有沒有跟外國老師學過英文?

- ☐ 有 ☐ 沒有 (勾選有的請繼續回答問題 3)
(勾選沒有的請回答問題 4)

3. 跟外國老師學英文學了多久?

- ☐ 不到一年 ☐ 一 至 二年 ☐ 二 至 三年 ☐ 三年以上

4. 現在有沒有參加課外英文補習?

- ☐ 有 ☐ 沒有 (勾選有的請繼續回答問題 5)

5. 課外英文補習一個星期上課幾次? _____ 次

一次上課多久? _____ 小時

6. 有沒有曾經在講英語的國家居住過 (例如: 英國, 美國, 澳...等)?

- ☐ 有 ☐ 沒有 (勾選有的請繼續回答問題 7)

7. 居住了多久?

- ☐ 不到一年 ☐ 一 至 二年 ☐ 二 至 三年 ☐ 三年以上

APPENDIX B

Stimuli for the Matched Condition of the Pre-exposure Word Learning Task

	Target words	Stories
Set 1	crane, pane, vane	<i>Dane</i> has a very beautiful <i>train</i> . But his <i>train</i> is broken in the <i>rain</i> . He is very sad. Someone tells him to buy a new <i>train</i> . So he thinks in his <i>brain</i> : should I take a <i>train</i> or a <i>plane</i> to buy a new <i>train</i> ? Then he decides to take a <i>plane</i> .
Set 2	vat, mat, tat	A long time ago, there is a <i>fat cat</i> . His name is <i>Pat</i> . <i>Pat</i> wears a <i>hat</i> all the time and he likes to <i>chat</i> with his friends. His favorite food is <i>rat</i> and <i>bat</i> . He likes to eat <i>rat</i> and <i>bat</i> very much!
Set 3	stake, rake, sake	<i>Pake</i> likes to play with his friends. <i>Pake</i> also likes to eat <i>cake</i> , especially when she <i>wakes</i> up in the morning. Every morning, <i>Pake</i> likes to go to the <i>lake</i> and <i>bake</i> the <i>cake</i> with his friends. They all like to <i>bake</i> and eat <i>cakes</i> .

押韻字對台灣學童學習英語新字的影響

摘要

本研究探討押韻字對台灣學童學習英語新字的影響，一百二十位國小四年級學童隨機分配至兩種新字學習情境。第一個情境探討先聽押韻字是否促發後續新字的學習。學童先聽一個故事，聽完故事後，學習三個新字，一半的學童所學的新字和故事中的許多單字互相押韻，另一半學童所學的新字和故事中的單字不互相押韻。第二個情境探討將押韻字直接放在一起學對新字學習的影響。在此情境中，學童沒先聽故事，而是直接學習三個新的單字，一組學童學習三個互相押韻的字，另一組學童學習三個彼此不押韻的字。結果發現有無先聽押韻字不會影響學童後續的新字學習，但將押韻字放在一起學能有效加強學童對新字的自由回憶量（free recall）與再製量（production）。上述的結果顯示：當新字彼此互相押韻時，反覆出現的韻能提供有效的音韻線索，幫助學習者建構音韻表徵，並將字的音韻表徵與相對應的物品連結。

關鍵詞：押韻字 語音觸發 語音混淆效應 詞彙學習 第二語言習得

Thomas Jefferson's Natural History Writings and the Construction of American National Culture

Li-Ru Lu

Huafan University

Abstract

Thomas Jefferson (1743-1826) is a late-eighteenth-century and early-nineteenth-century American writer who is the principal author of The Declaration of Independence (1776) and who composes many works about political philosophy and statesmanship. In the twentieth and twenty-first centuries, most critics regard Jefferson as one of the great philosopher-statesmen because his writings often advocate the ideas of democracy, human rights, liberty, and political independence. Completely different from this perspective, this essay focuses its emphasis on Jefferson's effectiveness as a natural history writer. The aim of this essay is to point out that through his natural historical discourse in Notes on the State of Virginia (1787) and letters, Jefferson describes and studies the flora, fauna, geography of America, helping ground American national culture upon the land, thereby constructing a distinctive national culture for early America. In this way, this essay hopes to refer the readers interested in an alternative view to the writings of Jefferson.

Key words: Thomas Jefferson, natural history writing, the construction of American national culture, Notes on the State of Virginia, "Instructions to Captain Lewis"

I. Prologue

Thomas Jefferson (1743-1826) is a late-eighteenth-century and early-nineteenth-century American writer who composes *The Declaration of Independence* (1776) and many works about law, political philosophy, and statesmanship. He is generally considered as one of the great philosopher-statesmen because his writings often advocate the ideas of democracy, human rights, liberty, and so forth.¹ In the twentieth and twenty-first centuries, most critics regard Jefferson as a writer of political philosophy who concerns himself with theories of government, human rights, or political independence, because of his “lifelong passion to liberate the human mind from tyranny” (Baym 649). True, Jefferson is famous for his declaration that “all men are created equal; that they are endowed . . . with certain inherent rights; that among these are life, liberty, and the pursuit of happiness” (D 235).² Such an emphasis is understandable, indeed nearly inevitable. Nevertheless, to think of Jefferson as -- in Skipp’s words -- “the greatest of philosopher-statesmen” is to miss the crucial aspects of environmental awareness in his writings (20).

In effect, Jefferson is not merely a writer of political philosophy; he is also a natural history writer. Although Jefferson’s writings are best known for formulating sound theories of government, his works are also a detailed study and an exploration of American natural environment that frequently invokes natural history. On the whole, Jefferson’s *Notes on the State of Virginia* (1787) and letters are a comprehensive look at America; these works contain prosaic accounts of his state’s geology, geography, flora, fauna, and landscape. Natural history, in other words, is the primary intellectual orientation of Jefferson’s works. However, the formal and intellectual debt to natural history in Jefferson’s writings is rarely acknowledged and

¹ In *Thomas Jefferson and His World* (1965), Malone asserts that Jefferson is one of the greatest political philosophers and champions of human liberty in American history (5), establishing him as a writer of political philosophy. In his introduction to *The Portable Jefferson* (1977), Peterson states that “Jefferson embodied the new nation’s aspiration for freedom” and that “Jefferson earned his place in literary history primarily as a statesman identified with the revolutionary experiment in America” (xi). In *Columbia Literary History of the United States* (1988), Elliott maintains that Jefferson’s works exhibit “the freedom and equality of all selves” (132); in *American Literature: A Prentice Hall Anthology* (1991), she contends that Jefferson’s works chiefly intend to offer “the best hope for establishing a society based upon mankind’s natural, inalienable rights” (431); and in *the Cambridge Introduction to Early American Literature* (2002), she maintains that Jefferson’s *Notes on the State of Virginia* belongs to the categories of political and philosophical essay and document (160).¹ In *A History of American Literature* (2004), Gray argues that the general thrust of Jefferson’s books is toward “celebration of the rights of all people” (76).

² In this paper, the following abbreviations will be used throughout to refer to sources of quotations from Jefferson’s natural history writings:

D: “The Declaration of Independence”

I: “Instructions to Captain Lewis”

W: *Thomas Jefferson: Writings*

NV: *Notes on the State of Virginia*

analyzed.³

Completely different from the readings of most critics, this essay will focus its emphasis on Jefferson's effectiveness as a natural history writer. The aim of this essay is to explore the construction of American national culture in Jefferson's natural history writings and to point out that through his natural historical discourse in *Notes on the State of Virginia* and letters (such as "Instructions to Captain Lewis," and so forth), Jefferson studies and celebrates the flora, fauna, geography of America, helping ground American national culture upon the vast terrain and the natural resources in his homeland, thereby constructing a distinctive national culture for early America. In this way, this essay hopes to refer the readers interested in an alternative view to the writings of Jefferson.

II. Early American Natural History Writings and Cultural Nationalism

Natural history is generally used to refer to all descriptive aspects of the study of nature; in late-eighteenth and early-nineteenth-century America, natural history became a flourishing discipline (Branch 1996: 1059). The writers of natural history (also called natural historians or natural history writers) take for their subject matter all of what they call the Creation. Any object within the natural world -- such as rocks, mountains, plants, animals -- is a proper subject of natural historical inquiry. Natural history is a broad area of scientific and literary inquiry; it records the information and fact relating to all natural productions, such as earth's flora and fauna; it represents a picture of untouched nature; and it documents a world captured by human observers in a particular cultural frame. The writing about natural history (also called natural history writing or literary natural history) draws on scientific information and knowledge about the natural world, but at the same time, it is frequently written in the first person and incorporates personal observations of nature. Natural history writing, in other words, combines the qualities of scientific objectivity and literary subjectivity. In an essay entitled "Writing about Nature in Early America: From Discovery to 1850," Johnson and Patterson define natural history writings as "texts in which authors, in representing the natural world in language, deliberately bring together science and literature . . . in order to effect some artful end" (3). Natural history, in brief, is viewed as both science and belles lettres.

³ For instance, in Thomas J. Lyon's *This Incomparable Land: A Book of American Nature Writing* (1989) and John Elder's *American Nature Writers* (1996), two anthologies of nature writing, Jefferson's name and works are not included. In another anthology entitled *Nature Writing: The Tradition in English* (2002; the previous edition of this book was published as *The Norton Anthology of Nature Writing* in 1990), for another example, Jefferson's writings and name are not mentioned, either.

Around the turn of the nineteenth century, natural history writing had become a well-established genre and discipline in America; it encompassed “the aggregate of facts relating to the natural objects, etc. of a place, or the characteristics of a class of persons or things” (Regis 5) and it presented natural historians’ observations, perceptions, reflections, and descriptions of the natural world. In their activities to explore the world of nature, natural historians primarily employed two basic procedures: observing and describing. Through these two procedures, natural historians described and recorded what they saw in the world of nature. For the natural historians in early America, observable phenomena included land-forms, bodies of water, minerals, plants, mammals, birds, reptiles, fishes, amphibians, invertebrates -- all the expected and unexpected flora and fauna -- as well as weather, trees, landscapes, woods, forests, and so forth. Early American naturalists exemplified the practice of natural history as expressed in descriptive and analytic essays. Such texts introduced generations of American readers to the life and physical character of America’s wild landscapes, communicated scientific knowledge about nature accessibly and eloquently, and celebrated the beauty and power of nature in America. Early natural history literature, as eco-critic Michael P. Branch suggests, turned “American attention toward the cultural possibilities of the land” (1996: 1059).

In early America, natural history writers -- including Jefferson, William Bartram (1739-1823),⁴ Hector St. John de Crèvecoeur (1735-1813),⁵ Charles Willson Peale (1741-1827),⁶ and so forth -- frequently described the impressive natural resources of America. They described nature’s wonders and beauty, expressing their feeling of great liking and fervent admiration for the primeval and magnificent scenes of the New World. Also, these naturalists believed that indigenous species should be studied and housed in America and that “funding for conducting surveys, creating permanent collections, and publishing natural history at home were essential to nurturing the

⁴ William Bartram is the son of John Bartram (1699-1777) -- a notable natural historian in the eighteenth century; he is famous for his botanical and ornithological drawings and for his book entitled *Travels through North and South Carolina, Georgia, East and West Florida, the Cherokee Country, etc.*, which was considered at the time to be one of the foremost writings on American natural history (Irmscher 37).

⁵ Crèvecoeur is an eighteenth-century American naturalist who composes two works of natural history: *Letters from an American Farmer* (1782) and *Sketches of Eighteenth-Century America: More Letters from an American Farmer* (written between 1770 and 1778, yet published together in the twentieth century). These works offer comprehensive look at America, constructed around a natural historical core that took characteristic forms of the manners-and-customs account and the natural history essay on a single kind of flora and fauna.

⁶ Peale is a zealous naturalist in late-eighteenth-century and early-nineteenth-century America. In his lifetime, his great dream was to open a public museum of natural history in the United States -- an ideal that was “quite radical at a time when collections of natural history were quite modest” and were generally restricted to the “cabinets of curiosity” kept by wealthy gentlemen (Branch 2004: 197). Later on, Peale established the internationally famous museum of natural history in Philadelphia. His “American Museum” was a major public attraction in early America (Branch 2004: 197).

emergence of American culture" (Branch 1996: 1063).⁷ Efforts to establish American natural history, in this way, were successfully carried forward on a wave of cultural nationalism, and the opinion that the American wilderness environment and its inhabitants were both natural and cultural resources gradually took root in the literary imagination of the young republic. Celebrating the beauty and notable features of the terrain in New England and introducing American readers to scientific information about nature, early American naturalists introduced a fit subject for American national literature -- the vast and unexplored wilderness of the American continent and its nonhuman inhabitants. In other words, late-eighteenth- and early-nineteenth-century natural history writings helped nurture awareness of an emergent American culture's unique dependency upon the land. Jefferson's works of natural history (especially his *Notes on the State of Virginia*) displayed one of the important contributions made by early American natural historians. Delineating the impressive geography, flora, and fauna of the young nation and claiming that the species of America were unique and distinct from European counterparts, Jefferson's natural history writings helped define a uniquely American subject and construct distinctively American culture.

III. The Construction of National Culture in Jefferson's Natural History Writings

Although Jefferson's importance as an early American writer who advocated the ideas of liberty, equality, or political independence was widely acknowledged, his significance as a natural history writer had been overlooked. In effect, many of Jefferson's important achievements were in the field of natural history: he composed *Notes on the State of Virginia*, which is an important contribution to American natural history writings; it was Jefferson who articulated the belief that contact with the land -- whether scientific or literary -- was an ennobling pursuit that would help unify the nation. As president, Jefferson also effected the Louisiana Purchase in part because he recognized the scientific and cultural value of the acquisition (Branch 1996: 1069). In addition, the expedition of Meriwether Lewis (1774-1809) and William Clark (1770-1838) was conducted at Jefferson's direction.⁸ What is more, Jefferson was a

⁷ During the Revolutionary era and early-nineteenth-century, natural history writing in America did not shy away from political engagement; some important works of natural history during this period of time were related to politics. Part of the agenda of natural historians -- such as Jefferson and Peale -- was to forward their program of cultural nationalism and celebrated the natural world and its wild inhabitants in New England.

⁸ Both Lewis and Clark were natural history writers in early-nineteenth-century America. When Jefferson became president in 1801, the territory between the Mississippi and the Rockies was little-known. To explore this *terra incognita* west to the Pacific, Jefferson chose Lewis and Clark to lead the expedition of the Corps of Discovery and to document the natural history of the American

member of the American Philosophical Society and, in recognition of his contributions to natural history, he was installed as the president of the American Philosophical Society (Patterson 207).

A patriotic natural historian, Jefferson was in contact with the intellectual circle of natural history in America. He made close contact with the members of natural history circle, such as Crèvecoeur, Peale, and Bartram. In 1785, Jefferson wrote a letter to Crèvecoeur, his one-time neighbor in New York, giving him helpful advice about plants (Regis 112). Also, Jefferson and Peale were good friends; he was a powerful advocate for the establishment of permanent collections of natural history in America and an early supporter of Peale's Philadelphia Museum, the first museum of natural history in the United States (Branch 1996: 1069).⁹ In addition, Jefferson carried on an active correspondence with the Bartrams -- both John Bartram and William Bartram, who established one of America's first botanical gardens (Regis 112).¹⁰

Jefferson is an ardent natural history writer; his devotion to natural history writing is evident in his study of American landscape and its vital relationship to American national culture. In 1800, Jefferson's election for president revived his interest in exploring the natural history of American West. After the Louisiana Purchase in 1803 had doubled the territory of the United States,¹¹ Jefferson appointed Lewis and Clark as the leaders of an exploratory expedition to the West, and sent Lewis a set of specific "Instructions" for the expedition on June 20, 1803.¹² The majority of Jefferson's "Instructions to Captain Lewis" reflected his interest of natural history. According to Jefferson's "Instructions," Lewis and Clark must keep the sort of thorough, daily, and descriptive diary that Jefferson had specifically requested of them; Jefferson wrote:

Your observations are to be taken with great pains & accuracy, to be entered distinctly, & intelligibly for others as well as yourself, to comprehend all the elements necessary, with the aid of the usual tables, to

West. And many of the specimens sent back from the journey were maintained at Jefferson's Poplar Forest estate and in Peale's Museum (Branch 1996: 1069).

⁹ The correspondence between Jefferson and Peale can be found in *The Selected Papers of Charles Willson Peale and His Family* (New Haven: Yale UP, 1988). In their correspondence, Jefferson and Peale often discuss the importance of establishing permanent collections of natural history in America.

¹⁰ Jefferson was one of the Bartrams' allies in American natural history (Regis 83). The last footnote in this essay displays a short passage of Jefferson's letter to William Bartram.

¹¹ The Louisiana Purchase sparked Jefferson's enthusiasm about the commercial, scientific, and literary possibilities of the American West.

¹² Jefferson hoped that Lewis and Clark would closely record the natural history of the West, chart precisely the geographical locations of all rivers, mountains, and other landmarks, and thus, map a territory that had so far existed only in the imagination of most Americans. In fact, Jefferson's choice of naturalist Lewis to lead the exploring party with Clark across the American frontier was an immense boon to the literature of early American natural history.

fix the latitude and longitude of the places at which they were taken, . . . (I 482)

Mentioning that Lewis' observations should "be taken "with great pains & accuracy" and "with the aid of the usual tables" in these lines (I 482), Jefferson emphasized the use of natural historical methods to document the unknown land of the American West. Through this famous letter ("Instructions to Captain Lewis"), Jefferson not only created the planet's first government-funded scientific expedition and set in motion the first transcontinental exploration of the regions west of the Mississippi, but also ordered the first of what would become many written accounts of the vastly fascinating American West through all the decades of the nineteenth century.

In his "Instructions to Captain Lewis," Jefferson also specified the study of soil, topography, animals, forests, minerals, traces of volcanic activities, and climate. He further asked Lewis to seek out scientific novelties such as plants and animals "not known in the U. S." and "the remains or accounts of any which may be deemed rare or extinct" (I 483). Lewis, according to Jefferson's "Instructions," should assess the climate according to temperatures, "the portion of rainy, cloudy, & clear days, by lighting, hail, snow, ice, by the access & recess of frost, by the winds prevailing at different seasons, the dates at which particular plants put forth or lose their flowers, or leaf, times of appearance of particular birds, reptiles or insects" (I 482-83). At their return, finding about 300 miles of mountainous terrain separating the headwaters of the Missouri and Columbia, Lewis and Clark brought back knowledge of hitherto unknown animal and plant species. The result, *The Journals of Lewis and Clark*, is a great narrative of natural history that portrays hundreds of species (such as the bighorn sheep, coyote, prairie dog, and so forth) new to science and documents the unknown prairies, mountains, rivers, desert wilderness of the American West.

In addition to his notable "Instructions to Captain Lewis," Jefferson's *Notes on the State of Virginia* (1787) is a significant contribution to American natural history writing. This book is "an admirably researched and constructed monograph on the natural history, climate, resources, and geography of his native state" (Kastner 121), and it is motivated largely by Jefferson's desire to help ground American national literature upon American landscape. In *Notes on the State of Virginia*, Jefferson closely records the intricate lives and habits of the flora and fauna, the landscape features, and the beauty of American natural environment; through his descriptive essays, Jefferson exemplifies the practice of natural history. Simply stated, introducing generations of American readers to the life and physical character of America's wild landscape, communicating scientific knowledge about nature accessibly and eloquently, and celebrating the beauty and power of nature in America, Jefferson's natural history writings turn American attention toward the cultural and

literary possibilities of the land.

In addition, Jefferson's works of natural history introduce the scientific facts about New England's geography, climate, wild landscape and its nonhuman inhabitants into American prose writing, and thereby help define a uniquely American subject. *Notes on the State of Virginia* becomes one of the first comprehensive works of literary natural history published on the subjects of Virginia's "Rivers," "Sea-ports," "Mountains," "Cascades," "Productions mineral, Vegetable and Animal" (NV ix); in this book, Jefferson intends to construct an independent and distinctive national culture for early America. He sees the publication of this book as a deeply American venture, an act of patriotism that asserts the greatness and scope of his new country's cultural and literary resources.

Of the contributions that *Notes on the State of Virginia* makes to American natural history, the most important is Jefferson's justly emendation of French naturalist Count Georges-Louis Leclerc de Buffon's theories concerning nature in the New World.¹³ In "Query VI," the longest chapter of *Notes on the State of Virginia*, Jefferson joins a larger eighteenth-century discussion known as "the dispute of the new world" (Patterson 203). In the eighteenth century, European scientists established a theory of the degeneration (also called "degeneracy theory") of nature in New England.¹⁴ They argued that the American "wilderness" was evidence of the land's ongoing decline. Only cultivation could maintain a standard of fertility and health. The most well-respected proponent of this theory was Buffon. Count Buffon had advanced the specific argument that New World animals were smaller than their Old World counterparts, that the animal species in Europe were larger, stronger, more diverse, and greater in number than their American counterparts, and that domestic animals introduced to America declined in size and weight because of the continent's supposedly cold and humid climate. For Jefferson, who knew the huge bison, bear, and elk living in the fecund wilds of his home country, the idea that American animals were enfeebled was a national insult as well as simply bad science.

Jefferson found Buffon's degeneracy theory repellent. What most offended him was the European imputation that American animals had degenerated over time from European prototypes. The proposition outraged both Jefferson's patriotism and his admiration for the creatures he studied. In *Notes on the State of Virginia*, Jefferson asserts:

¹³ As court naturalist to Louis XV in France, Comte de Buffon (1707-88) is the premier natural historian of the eighteenth century. The forty-four volumes of Buffon's *Histoire naturelle générale et particulière* (1787-1804) have given him nearly unassailable authority in the field of natural history.

¹⁴ Engaging in one of the most hotly debated natural history issues of the century, Jefferson wrote his *Notes* to encounter Buffon, de Pauw, and other French *philosophes* who asserted chauvinistically that New World animals were weak and degenerate relatives of more powerful European species.

It does not appear that Messrs. de Buffon and D'Aubenton have measured, weighed, or seen those of America. It is said of some of them, by some travelers, that they are smaller than the European. But who were these travelers? Have they not been men of a different description from those who have laid open to us the other three quarters of the world? Was natural history the objects of their travels? Did they measure or weigh the animals they speak of? Or did they not judge of them by sight, or perhaps even from report only? Were they acquainted with the animals of their own country, with which they undertake to compare them? Have they not been so ignorant as often to mistake the species? A true answer to these questions would probably lighten their authority, so as to render it insufficient for the foundation of a hypothesis. (54)

In response to the degeneracy theory, Jefferson in his *Notes* reasons that "So far the Count de Buffon has carried this new theory of the tendency of nature to belittle her [America's] productions," that the American naturalists have "to make a firm comparison between the two countries," and that Buffon's "candor in this [his theory of degeneracy] can never be too much praised" (NV54, 56, and 65). In this way, Jefferson's natural history writing conveys his essential belief that the writings about nature can be counted on to help Americans recognize the literary and cultural possibilities of the natural environment in New England. For Jefferson, America's wild landscape with its flora and fauna can be the cultural resources requisite for constructing national identity. As a matter of fact, during the early national period of New England, the discourse of the wilderness environment constituted not only a specifically American *nature*, but also a distinct concept of an American *nation* (Mazel xviii). Wild nature, as William Cronon points out in his *Uncommon Ground* (1995), is both a "self-conscious cultural construction" and "thoroughly contested terrain" (39 and 51). For Jefferson, representing the natural environment and the creatures in America is a conscious discursive construction indeed.

In his representative natural history writing -- *Notes on the State of Virginia*, Jefferson uses the method of natural history to refute Buffon in his own discipline and to celebrate nature as the greatest endowment of the American nation. He finds Buffon's claim that animals are doomed to inferiority by residence in the inhospitable climate of the New World to be ridiculous and astonishing. In *Notes*, Jefferson assembles three tables containing data on the number and weight of quadrupeds in North America and Europe (NV 50-52), and these tables and charts undermine the very methodological and philosophical underpinnings of Buffon's argument.¹⁵ Buffon lacks data in support of his claims, and this deficiency discredits

¹⁵ In *Notes on the State of Virginia*, Jefferson carefully constructs a series of tables comparing the

his entire work. Jefferson, in contrast, flaunts long lists of specific measurements. In *Notes on the State of Virginia*, Jefferson mainly relies on three different sources -- his own observations, information from a circle of friends, and books by earlier naturalists such as John Bartram, Peter Kalm (1716-79), and Mark Catesby (1682-1749), who, unlike Buffon, actually have firsthand experience of nature in the New World.¹⁶

What is more, in his *Notes on the State of Virginia*, Jefferson describes such large animals as the elk to disprove Buffon's charge and to redress the offense Buffon had given to New World nature. In "Query VI" of *Notes on the State of Virginia*, by drawing upon his knowledge of paleontology, Jefferson challenges Buffon's misidentification of mastodon bones as those of the elephant, thus suggesting that America had been home to the world's largest quadruped mammal. When he wrote his *Notes*, Jefferson himself was already an accomplished naturalist with his own "cabinet of curiosity," which included many fossils and bones items which Jefferson described as "the most desirable objects in natural history" (qtd. in Semonin 13). Among the specimens of most interest to him were the yet unidentified bones from an enormous animal which had been found in North America near the Ohio River, which Jefferson called a "mammoth" (qtd. in Semonin 13). Jefferson's interest in the bones stemmed from his desire to refute the theory of degeneracy propounded by Buffon, who had argued in his epic *Histoire Naturelle* that all flora and fauna in America were inferior to Europe's owing to the deleterious effects of climatic conditions. While acknowledging his own debt to Buffon's natural history, Jefferson proceeded to discredit his theory of degeneracy through a systematic listing of the sizes and weights of North American animals compared to those in Europe. With Jefferson's reply to Buffon, the "mammoth," later to be identified as a mastodon, became inextricably linked with the national honor of the new nation, as did many other animals unique to North America like the buffalo and the bald eagle (Semonin 13-14). In Jefferson's and most early natural historians' eyes, the mastodon represented America's missing ancient history. Through the appropriation of natural history, American cultural nationalism made itself a universal creed, creating in the process the myth of a transcendent America, a nation, in Perry Miller's apt words, that was "Nature's Nation."¹⁷

In addition, in "Query IV" of *Notes on the State of Virginia*, "'Productions Mineral, Vegetable, and Animal,'" Jefferson also records the natural history of the

weights of Old and New World quadrupeds, thereby decisively refuting Buffon's theory and in fact subtly suggesting that fauna were actually larger and more numerous in New England.

¹⁶ Jefferson bolstered the credibility of his data on the natural world in America with references to John and William Bartram, Kalm, and Catesby, New World naturalists whose work he had studied with care.

¹⁷ In 1967, Perry Miller composes a famous work entitled *Nature's Nation*.

magnificent and beautiful scenes in New England, such as the confluence of the Shenandoah and "Patowmac" Rivers (NV 43-72). He uses these primitive, wild landscapes as examples of the scenic magnificence in which Americans live and his voice conveys a genuine enthusiasm and a sense of appreciative involvement:

The passage of the Patowmac through the Blue Ridge is perhaps one of the most stupendous scenes in nature. You stand on a very high point of land. On your right comes up the Shenandoah, having ranged along the foot of the mountain an hundred miles to seek a vent. On your left approaches the Patowmac, in quest of a passage also. In the moment of their junction they rush together against the mountain, rend it asunder, and pass off to the sea. The first glance of this scene hurries our senses into the opinion, that this earth has been created in time, that the mountains were formed first, that the rivers began to flow afterwards, that in this place particularly they have been dammed up by the Blue ridge of mountains, and have formed an ocean which filled the whole valley; that continuing to rise they at length broken over at this spot, and have torn the mountain down from its summit to its base. (NV 19)

Closely and objectively presenting the features of the American landscape in these lines, Jefferson imbues American nature with a sense of national pride. His description of the passage of the Potomac River through the Blue Ridge Mountains promotes a natural spectacle that helps introduce into American letters a new and distinctive subject. Jefferson's descriptions of the confluence of the Shenandoah and "Patowmac" Rivers reflect the culture's reading for natural history to become national literary art.

In his writings of natural history, Jefferson frequently describes nature's wonders and expresses his feeling of great liking and intense admiration for the distinctive, primeval and magnificent scenes of the United States. The following passage is another example:

The piles of rock on each hand, but particularly on the Shenandoah, the evident marks of their disrapture and avulsion from their beds by the most powerful agents of nature, corroborate the impression. . . . It is as placid and delightful, as that is wild and tremendous. For the mountain being cloven asunder, she presents to your eye, through the cleft, a small catch of smooth blue horizon, at an infinite distance in the plain country, inviting you, as it were, from the riot roaring around, to pass through the breach and participate of the calm below. Here the eye ultimately composes itself; and that way too the road happens actually to lead. You cross the Patowmac above the junction, pass along its side through the base of the

mountain for three miles, its terrible precipices hanging in fragments over you. (NV 19)

This passage blooms upon the stalk of the most exacting natural history. Jefferson's exhilaration at the spectacle of the Potomac's passage is yoked to speculation about the formation of mountains, the probable existence of ancient inland seas, and the erosive force of rivers. *Notes on the State of Virginia* exists on the cusp of a new era in the American understanding of nature, for it is at once a work of late-eighteenth-century science and early-nineteenth-century paean to the beauty of nature in America. In this passage, Jefferson conveys his great admiration for the wild nature and expresses his love for the pristine environment in his country.¹⁸ Such admiration and love encourage him to compose works of natural history; his natural history writings play an important role in American cultural achievements.

In a long and significant letter entitled "Dialogue between My Head and My Heart,"¹⁹ Jefferson also expresses his sense of appreciation toward the original, wild condition of America; he declares that "the Falling Spring, the Cascade of Niagara, the Passage of the Potowmac through the Blue Mountains, the Natural Bridge" are all "worth a voyage across the Atlantic" (W 870). This letter is significant because Jefferson expresses his great appreciation of the beautiful natural scenes in America, especially in Virginia:

The Falling Spring, the Cascade of Niagara, the Passage of the Potowmac through the Blue Mountains, the Natural Bridge. It is worth a voyage across the Atlantic to see these objects . . . and make them, & thereby ourselves, known to all ages. And our own dear Monticello [Jefferson's Virginia estate], where has nature spread so rich a mantle under the eye? mountains, forests, rocks, rivers. With what majesty do we there ride above the storms! How sublime to look down into the workhouse of nature, to see her clouds, hail, snow, rain, thunder, all fabricated at our feet! And the glorious Sun, when rising as if out of distant water, just gliding the tops of the mountains, and giving life to all nature! (W 870)

These lines display Jefferson's appreciation for the American landscape, showing his genuine love of wild nature. To be with nature and to study all the productions of Nature are the greatest pleasure in Jefferson's life (W 1203). Expressing his great admiration for the wild domain of primeval nature -- including "mountains, forests, rocks, rivers" (W 1203) -- and portraying the pristine and magnificent quality of the American landscape he observes, Jefferson's natural history writings play a significant

¹⁸ Jefferson's *Notes* prefigures the love of nature that would inform nineteenth- and twentieth-century nature writing in America.

¹⁹ Collected in *Thomas Jefferson: Writing*, this letter was written by Jefferson on October 12, 1786 to a friend, Maria Cosway.

role in American national literature.

IV. Epilogue

On March 2, 1809, two days before retiring from his second term as President of the United States, Jefferson wrote a letter to a friend, expressing his elation over returning his estate in rural Virginia and his delight of studying natural history:²⁰

Never did a prisoner, released from his chain, feel such relief as I shall on shaking off the shackles of power. Nature intended me for the tranquil pursuits of science, by rendering them my supreme delight. (W 1203)

In this letter, claiming that “the enormities of the times in which I have lived, have forced me to . . . commit myself on the boisterous ocean of political passions (W 1203), Jefferson asserted that to be with nature and “the tranquil pursuits of science” (the science of nature history) are his “supreme delight” (W 1203). Indeed, Jefferson frequently yearned to leave behind his public obligations and dedicated himself to the study and writing of natural history.²¹

Today, Jefferson is still remembered as the author of *The Declaration of Independence* and is mostly regarded as a public figure who primarily cares about the issues of liberty, equality, democracy, or political independence. This essay, however, focuses its emphasis on Jefferson's effectiveness as a natural history writer. In actuality, Jefferson was well versed not only in law, political philosophy, or statesmanship, but also in natural history. He is an enthusiastic natural history writer in early America. His *Notes on the State of Virginia* and many letters (such as “Instructions to Captain Lewis” and “Dialogue between My Head and My Heart”) represent his attempt to write natural history for New England and to record the environmental features in America. Through his natural history writings, Jefferson introduces a subject endemic to the United States, one that Europe lacks and can never procure; the subject is the vast, pristine, and unexplored wilderness of the American continent.

In his natural history writings, Jefferson presents the scientific knowledge and objective information about the American animals, birds, geography, climates, and plants in loving details and advertises the promise and grandeur of America to refute Buffon's degeneracy theory, thus establishing an essential link between American

²⁰ Collected in *Thomas Jefferson: Writing*, this letter was written by Jefferson to a friend, P. S. Dupont de Nemours (W 1203-1204).

²¹ In a letter to William Bartram about some experiments he was conducting on flies for the American Philosophical Society, Jefferson confessed, “I long to be free for pursuits of this kind instead of the detestable ones in which I am now laboring” (qtd. in Kastner 120).

nature and the new American nation. In his works of natural history, Jefferson also expresses his intense appreciation and conveys his great admiration for America's pristine landscapes and its nonhuman inhabitants, thus turning American attention toward the cultural possibilities of the land and introducing a fit subject for American national literature. Jefferson is unquestionably a patriotic natural history writer in early America.

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傑佛遜的自然史書寫與美國國族文化建構

摘要

在十八世紀末與十九世紀初這個美國建國早期的時空底下，傑佛遜是一位舉足輕重的作家。他為美國的《獨立宣言》起草，並書寫了許多有關政治哲學、法律、政府等議題的作品。在這些著作中，傑佛遜不時鼓吹人權、自由平等、與政治獨立，因此批評家多半將傑佛遜定位為一位提倡民主、自由、與人權的政治哲學作家。本文完全不同上述解讀。此文試圖指出，傑佛遜不只是一位主張政治獨立、自由和人權的作家，他其實更是一位為美國大地景物書寫本土自然史的早期作家，他的自然史作品包括了《維吉尼亞州的札記》及書信（例如「給路易斯將官的指示」等書信）。透過其自然史書寫，傑佛遜為美國的地理風貌及許多本土物種做了詳實的觀察、描述、與記錄，進而為建國初期的美國建構一套獨特而獨立的國族文化。

關鍵字： 傑佛遜 自然史書寫 美國國族文化建構 《維吉尼亞州的札記》 「給路易斯將官的指示」

《北市大語文學報》稿約

內容範圍

本學報每年出版兩期（六月及十二月），園地公開。所收學術論文分為「中國語文領域」與「外國語文領域」兩部份，刊載以下稿件，歡迎海內外學界人士投稿：

- 一、「中國語文領域」登載有關中國文學、語言學、文字學、中國語文教育、華語文教育等學術論文。本領域之學術論文於每年十二月發行，來稿之審查統一於每期截稿（九月底）後處理。
- 二、「外國語文領域」刊載英美文學、語言學、外語教學（含文學教學）與文化研究等學術論文或國內外相關書籍與教材之評論。本領域之學術論文於每年六月發行，來稿審查統一於每期截稿（三月底）後處理。

投稿須知

一、稿則

1. 來稿以未發表者為限（會議論文請確認未參與該會議後經審查通過所出版之正式論文集者）。凡發現一稿兩投者，一律不予刊登。
 2. 稿件內涉及版權部分（如圖片及較長篇之引文），請事先取得原作者同意，或出版者書面同意。本學報不負版權責任。
 3. 來稿經本學報接受刊登後，作者同意將著作財產權讓與本學報，作者享有著作人格權；日後除作者本人將其個人著作集結出版外，凡任何人任何目的之重製、轉載（包括網路）、翻譯等皆須事先徵得本學報同意，始得為之。
 4. 來稿請勿發生侵害第三人權利之情事。發表人須簽具聲明書，如有抄襲、重製或侵害等情形發生時，概由投稿者負擔法律責任，與本學報無關。
 5. 本學報編輯對擬刊登之文稿有權做編輯上之修正。
 6. 凡論文經採用刊登者，每一撰稿人致送本學報二本、抽印本二十份，不另致酬。
- 來稿請使用以電腦打字印出的稿件。請避免用特殊字體及複雜編輯方式，並請詳細註明使用軟體名稱及版本。英文 Times New Roman 12 號字，中文以細明體 12 字打在 A4 紙上，並以 Word 原始格式（上下留 2.54 公分，左右各 3.17 公分）排版（請勿做任何特殊排版，以一般文字檔儲存即可）。

二、審查與退稿

1. 本學報所有投稿文章均送審，審查完畢後，編輯小組會將審查意見寄給作者。
2. 本學報來稿一律送請兩位學者專家審查，審查採雙匿名制，文稿中請避免留下作者相關資訊，以利審查作業。
3. 編輯委員會得就審查意見綜合討論議決，要求撰稿人對其稿件作適當之修訂。本學報責任校對亦得根據「撰稿格式」作適當之校正。
4. 來稿未獲刊登，一律密退。本學報將通知作者，但不退還文稿，請作者於投稿前自行留存底稿。

三、文稿內容

「中國語文領域」

1. 著者：來稿請附個人簡介（註明最高學歷及畢業學校、所屬學校機構及職稱、學術專長），並附通訊地址、電話、傳真或電子郵件等聯絡資料。
2. 標題：請附中英標題，文字力求精簡；若加副標題，亦以簡要為尚。
3. 摘要、關鍵字：來稿請附中英文摘要（中文摘要限五百字以內；英文摘要以一頁為限）、中英文關鍵詞（五個為限）。
4. 字數：以中英文稿件為限，中文稿以 10,000 字至 30,000 字（以電腦字元計，並含空白及註解）為原則，英文稿以 15 頁至 30 頁打字稿（隔行打字）為原則。特約稿件則不在此限。譯稿以學術名著為限，並須附考釋及註解。所有來稿務請按本學報「中國語文領域撰稿格式」寫作，以利作業。
5. 撰稿格式：本學報「中國語文領域」論文之撰寫，請依照《漢學研究》所定之寫作格式，內容參見 <http://ccs.ncl.edu.tw/ccs/TW/doc1.doc>。

「外國語文領域」

1. 著者：來稿請附個人簡介（註明最高學歷及畢業學校、所屬學校機構及職稱、學術專長），並附通訊地址、電話、傳真或電子郵件等聯絡資料。
2. 標題：請附中英文標題，文字力求精簡；若加副標題，亦以簡要為尚。
3. 摘要、關鍵字：來稿請附中英文摘要（中英文各一頁），各約 500 字；中、英文關鍵字，各 3-5 個。
4. 字數：中文稿，請維持在 8,000-15,000 字，英文稿則為 10,000-16,000 字，含中英文摘要、參考書目與圖表。
5. 撰寫格式：本學報「外國語文領域」參考資料登錄方式主要依據 APA 或 MLA（APA 格式請參後），中文排列方式以作者姓名筆劃由少到多排列。

四、文稿交寄

來稿（包括文件稿三份、姓名資料（另紙書寫）及前述內容之電子檔）請寄：

「中國語文領域」來稿（文稿三份連同磁片）請寄：

臺北市愛國西路一號
臺北市立教育大學中國語文學系
《北市大語文學報》編輯委員會

「外國語文領域」來稿（文稿三份連同磁片）請寄：

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臺北市立教育大學英語教學系
《北市大語文學報》編輯委員會

※APA 格式請參考以下範例：

在內文中使用格式：姓氏 (出版或發表年代)... 或... (姓氏, 出版或發表年代, 頁碼)

- 同作者在同一段中重複被引用時，第一次須寫出日期，第二次以後則日期可省略。
- 在正文中引用多位作者時，以 and 連接，但正文之引用若為圓括弧形式，則使用 & (3 人以上在 & 前要加,) 符號連接。

範例：

1 位作者→Porter (2001)...或...(Porter, 2001)/

吳清山 (2001) ...或... (吳清山, 2001)

2 位作者→作者為兩人時，兩人的姓氏 (名) 全列

Wassertein and Rosen (1994)...或... (Wassertein & Rosen, 1994) /

吳清山與林天祐 (2001) ...或... (吳清山、林天祐, 2001)

3-5 位作者→作者為三至五人時，第一次所有作者均列出，第二次以後僅寫出第一位作者並加 et al. (等人)

[第一次出現] Wasserstein, Zappula, Rosen, Gerstman, and Rock (1994) found...或(Wasserstein, Zappula, Rosen, Gerstman, & Rock, 1994)...

[第二次出現] Wasserstein et al. (1994)...或... (Wasserstein et al., 1994)

6 位作者以上→作者為六人以上時，每次僅列第一位作者並加 et al. (等人)，但在參考文獻中要列出所有作者姓名。(Rubin et al., 1989)

- 作者為組織、團體或單位時，易生混淆之單位，每次均用全名。簡單且廣為人知的單位，第一次加註其縮寫方式，第二次以後可用縮寫，但在參考文獻中一律要寫出全名。

[第一次出現] National Institute of Mental Health[NIMH] (1999) 或(National Institute of Mental Health [NIMH], 1999)。

[第二次以後] NIMH (1999)...或 (NIMH, 1999)...

參考文獻格式：

- 第一行靠左，第二行起向右縮排四個字母。
- 外文之書名採斜體格式，中文之書名採粗體格式。
- 外文作者姓名以倒置形式出現，名字部份均以縮寫方式表示。若所引用之著作包含多位作者時，在正文中六位以內均需全部列出，六位以上才可以第一作者代表，但在參考書目中則不計作者人數多寡，均需全部列出。在正文中引用多位作者時，在參考書目中則一律使用 & 符號連接。
- 外文期刊一律採斜體方式處理。

(一) 期刊、雜誌、新聞、摘要文獻：

中文期刊：作者(年代)。文章名稱。期刊名稱，期別，頁別。

外文期刊：Author, A. A., Author, B. B., & Author, C. C. (1999). Title of article. *Title of Periodical*, xx(xx), xxx-xxx.

例如：沈嫻嫻 (1996)。教育選擇與控制理念的另類思考。**教育資料與研究**，4，14-15。

Powers, J. M., & Cookson, P. W. Jr. (1999). The politics of school choice research. *Educational Policy*, 13(1), 104-122.

中文雜誌：作者(年月日)。文章名稱。雜誌名稱，期別，頁別。

外文雜誌：Author, A. A., & Author, B. B. (2000, November 10). Article title. *Magazine Title*, xxx, xx-xx.

中文報紙：記者或作者(年月日)。文章名稱。報紙名稱，版別。

推動知識經濟發展須腳踏實地【社論】(2000年9月5日)。中國時報，第2版。

英文報紙：Author, A. A. (1993, September 30). Article title. *Newspaper Title*, pp. xx-xx.

(二) 書籍、手冊：

中文書籍：作者 (年代)。書名 (版別)。出版地點：出版商。

作者 (主編) (年代)。書名 (第#版, 第#冊)。出版地點：出版商。

外文書籍：Author, A. A. (1993). *Book title* (2nd ed.). Location: Publisher.

Author, A. A. (Ed.). (1991). *Book title*. Location: Publisher.

Author, A. A., & Author, B. B. (Eds.). (1991). *Book title*. Location: Publisher.

中文翻譯：A：有原作者出版年代

譯者(譯)(譯本出版年代)。書名(原作者：M. H. McCormack)。譯本出版地點：

譯本出版商。(原著出版年：1996)

例如：吳美麗(譯)(1998)。管理其實很 Easy(原作者：M. H. McCormack)。臺北市：天下文化。(原著出版年：1996)

B：無原著出版年代

譯者(譯)(譯本出版年代)。書名(原作者：R. G. Owens)。譯本出版地點：譯本出版商。

例如：林明地、楊振昇、汪芳盛(譯)(2000)。教育組織行為。(原作者：R. G. Owens)。臺北市：揚智文化。

英文翻譯：Author, A. A. (1951). *Book title* (B. Author, Trans.). Location: Publisher. (Original work published ####)

例如：Llappce, P. S. (1951). *A philosophical essay on probabilities* (F. W. Truscott & F. L. Emory, Trans.). New York: Dover. (Original work published 1814)

中文文集：作者 (年代)。篇名。載於編者 (主編)，書名 (頁碼)。地點：出版商。

例如：鍾才元(2001)。生涯規劃：新手老師的就業準備與甄試須知。載於黃政傑、張芬芬(主編)，學為良師-在教育實習中成長(425-457頁)。臺北市：師大書苑。

外文文集：Author, A. A. (1993). Article title. In B. B. Author (Ed.), *Book title* (pp.xx-xx). Location: Publisher.

例如：Bjork, R.A. (1989). Retrieval inhibition as an adaptive mechanism in human memory. In H. L. Roediger III & F. I. M. Craik (Eds.), *Varieties of memory & consciousness* (pp.309-330). Hillsdale, NJ: Erlbaum.

(三) ERIC 報告格式：

Author, A. A. (1995). *Report title* (Report No. xxxx-xxxxxxxxxx). Location: Research Center. (ERIC Document Reproduction Service No. ED xxxxxx)

(四) 會議專刊或專題研討會論文：

作者 (年月)。論文名稱。研討會主持人 (主持人)，研討會主題。研討會名稱，舉行地點。

Author, A. A. (1995, April). *Paper title*. Paper presented at the Meeting of Title, Place.

(五) 學位論文：

作者 (年代)。論文名稱。○○大學○○研究所碩士或博士論文，未出版，大學地點。

Author, A. A. (1986). *Dissertation title*. Unpublished doctoral dissertation, University Name, Place.

(六) 網路等電子化資料引用及參考文獻的寫法

Email 的引用：在文章中如以 Email 當作參考資料，比照個人通訊 (personal communications) 格式，僅在文中註明不列入參考文獻中。

例如：(L. A. Chafez, personal communication, March, 1997)/ 吳清山 (個人通訊，2001 年 2 月 19 日)

網頁的引用：

1. 如不直接引用網路資料，但建議讀者直接上網查詢相關資料，此時，可以直接寫出網頁名稱，並註明網址，此種引用方式也僅在文中註明不列入參考文獻中。

例如：從柴爾德的黑皮窩網頁中，可以獲得幼兒教育的重要訊息

(<http://www.tmue.edu.tw/~kidcen>)。

Please refer to APA Web site(<http://www.apa.org/journals/webref.html>).

2. 在文章中引用到網路資料時，其寫作方式與一般參考資料的寫法一致，一般引用時寫出作者及年代，全文引用時須加註頁碼。網路資料參考文獻的寫法大致與一般格

式相同，必須指出作者、時間、文章名稱或書名、雜誌名稱等基本資料，另以 Retrieved from 取代[On-line]以及 Available 等字，如無日期可查括弧內的時間英文文獻需註明 (n.d.) 中文文獻需註明 (無日期)。但網頁的內容會不斷的修正，有的網址甚至會變動，因此必須特別寫出上網的日期，以利參考。

例如：林天祐 (無日期)。**日本公立中小學不適任教師的處理構想**。2001 年 2 月 20 日，取自：<http://www.tmu.edu.tw/~primary>

Greater New Milford(n.d.). *Who has time for a family meal? You do!*

Retrieved October 5, 2000, from <http://www.familymealtime.org>

3. 電子資料庫參考文獻的寫法：電子資料庫參考文獻的寫法，主要的改變包括以 Retrieved from 取代 Available、註明搜尋的日期以及文字敘述方式，格式包括 CD-ROM 資料庫、網路資料庫、線上資料庫三類。

(1)CD-ROM 資料庫：

Federal Bureau of Investigation. (1998, March). *Encryption: Impact on law enforcement*. Washington, DC: Author. Retrieved from SIRS database (SIRS Government Reporter, CD-ROM, Fall 1998 release)

(2)網路資料庫：

Schneiderman, R. A. (1997). Librarians can make sense of the Net. *San Antonio Business Journal*, 11(31), pp. 58+. Retrieved January 27, 1999, from database (Masterfile) on the World Wide Web: <http://www.ebsco.com>

(3)線上資料庫：

Davis, T. (1992). Examining educational malpractice jurisprudence : Should a cause of action be created for student-athletes? *Denver University Law Journal*, 69, 57+. Retrieved January 27, 1999, from WESTLAW on-line database (69 DENULR 57)

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主編：楊麗中、葉鍵得

編輯委員：(依姓氏筆劃為序)

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封面題字：施隆民教授

發行者：臺北市立教育大學人文藝術學院

地址：10048臺北市中正區愛國西路1號

電話：(02) 23113040-4613

傳真：(02) 23812202

印刷所：九茹印刷有限公司

地址：臺北縣板橋市府中路175號1樓

