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Investigation Into the Relationship Between Positive Interdependence and Autonomous Learning Ability of College Students in a Normal University

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Abstract

Positive interdependent, one of the key elements of cooperative learning, would be inspired when study members have quest for the same goal, whose relationship with autonomous learning has received more and more attention from research to explore whether the cultivation of positive interdependent can do benefit to students' ability of autonomous learning in English learning. Meanwhile cultivating college students' autonomous learning abilities has become one of the focuses of modern teaching reform, and a deeper concern of the advancement of quality education in China. Students who have been only finishing since transition to the autonomous learning ability, could further form initiative spirit and practice ability. But autonomous learning does not mean learning alone, students' cooperation, the key element of which is positive interdependence, in autonomous learning plays an essential role in the cultivation of their learning ability, which can never be ignored.

This study is carried out to investigate the overall condition of positive interdependence and autonomous learning ability of the non-English major college students in normal university, and to explore the relationship between college students' positive interdependence and autonomous learning ability. The Positive Interdependence Questionnaire Scale and College Students' Autonomous English Learning Ability Questionnaire Scale have been administered in order to elicit 120 college students' responses. According to the results, non-English major college students perform well on positive interdependence and autonomous learning. The entire positive interdependence and autonomous learning ability are at a

medium level. Positive goal interdependence is the more frequently perceived type of positive interdependence. Besides, there exists a significant positive relationship between English majors' positive interdependence and autonomous learning ability.

Key words: Positive interdependence; Goal interdependence; Resource interdependence; Autonomous learning ability

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INTRODUCTION

Positive interdependence (PI) holds that each individual can be held individually accountable for the work of the group, and the group as a whole is responsible for the learning of each individual group member. Positive interdependence is evident when group members carry out different tasks in pursuit of one same result. Interdependence can be stimulated through tasks, resources, goals, rewards, roles, or the environment itself. Positive interdependence should be attached importance when it comes to studying the approaches to improve college students' autonomous learning ability (ALA).

Autonomous learning does not mean isolated learning. The internalization and development of autonomous learning ability is helpful to the promotion of the sense of social support and the sense of community of the students in the positive interpersonal interaction (Xiao, 2007) and the establishment of positive interdependence among students. One cannot fully develop his/her autonomous learning ability by studying alone without interpersonal interaction. The internalization and development of

autonomous learning ability depend on students promoting their sense of social support and sense of belongings during the positive interpersonal interaction, and depend on students building the relationship of positive interdependence among themselves (Xiao, 2011). The new version of "College English Curriculum and Teaching Requirements" puts forward the demand for strengthening students' autonomous learning ability, which has been regarded as the primary factor affecting the proficiency of college English teaching. The factors which affect the autonomous learning are various, not only from interior, like motivation, emotion, cognitive style and etc.(Ellis, 1985), but also from external, such as teaching model, teaching material, educational technology and etc.

The present study attempts to research on the overall condition of positive interdependence and autonomous learning ability of the non-English major college students in normal university, and the relationship between positive interdependence and autonomous learning.

1. LITERATURE REVIEW

1.1 Positive Interdependence

There are five variables mediating the effectiveness of cooperative learning: positive interdependence, individual accountability, promotive interaction, the appropriate use of social skills, and group processing (Johnson & Johnson, 1994, 2009). Positive interdependence is one of the key factors. Johnson and Johnson (1991) gave a definition that "positive interdependence is the perception that you are linked with others in a way so that you cannot succeed unless they do (vice versa), that is, their work benefits you, and your work benefits them". Holubec et al. (1998) put forward that, positive interdependence was linking students together so one cannot succeed unless all group members succeed. Group members have to know that they sink or swim together. Kirschner (2004) further pointed out that positive interdependence reflects the level to which group members are dependent upon each other for effective group performance (enhance intragroup interaction). According to Choi et al. (2011), positive interdependence is an element of cooperative and collaborative learning where members of a group who share common goals perceive that working together is individually and collectively beneficial, and success depends on the participation of all the members.

There are two kinds of positive interdependence, that is positive outcome interdependence and positive means interdependence (Johnson & Johnson, 1989). According to Johnson and Johnson(1992, 2009), positive outcome interdependence includes positive goal interdependence and positive reward interdependence, while positive means interdependence includes positive resource interdependence, positive role interdependence and positive task interdependence.

The cooperative group members share one common goal, and through the specialization of cooperative tasks and division of group members' roles, the group members share the resources within the group, forming positive goal interdependence and positive resource interdependence. Accordingly, cooperation was operationalized as two forms of positive interdependence among learners, namely positive goal interdependence and positive resource interdependence (Gaith, et al., 2007). Two ways of structuring positive interdependence within small learning groups are goal interdependence and resource interdependence (Johnson, et al., 1991).

Positive goal interdependence exists when one can achieve one's goal if, and only if, all other individuals with whom one is cooperatively linked achieve their goals. Individual success is contingent on group success. It is structured through assigning one common goal for all students to achieve. Positive resource interdependence exists when each member has only a portion of the information, resources, or materials needed to complete the task and all members' resources have to be combined in order to achieve their goal for the group. Positive resource interdependence is structured through giving group members different resources, information or equipment which they must share in order to complete their task successfully (Johnson & Johnson, 1991; Gaith, et al., 2007).

1.2 Autonomous Learning

To foster students' ability of autonomous learning has been an important target and content of English teaching. Western linguists and scholars have expounded the concept of autonomous learning from different perspectives. Dickinson (1995) define autonomous learning as either a kind of learning attitude or an ability of independent study. Littlewood (1996) think autonomous learning is learners' desire and ability to make choices independently. Benson (2007) think learners' self-access language learning can be reflected in the following three aspects: Firstly, autonomous learning is an independent study action or skill. Secondly, autonomous learning is a kind of internal psychological function to guide one's study activities. Thirdly, autonomous learning is the control of learning content. Wenden (1998) has concluded that as a matter of fact, those scholars who are successful, intelligent and equipped with special knowledge have already grasped the way to study. Besides, they have the competence to apply the knowledge confidently, flexibly and properly. From the definition described above, the main content of autonomous learning in the field of foreign language learning consists of the following aspects: 1) Attitude. Learners of their own account take a positive attitude towards study, that is to be responsible for one's learning and be actively plunging into study. 2) Capacity. Learners should cultivate such ability and strategy so as to accomplish the study tasks independently.

3) Environment. Learners should be provided with a variety of opportunities to improve their ability to take responsibility to their own learning.

1.3 Previous Studies on Positive Interdependence and Autonomous Learning

There is still a controversy about the role of illustration in the reading comprehending. Samuels (1970) who proposes the famous attentional hypothesis, states that illustrations could distract readers' attention in some degree, and increase the degree of difficulty in getting the main idea of the passage. The negative effect of illustration in the reading process is also carried out by Torcasio and Sweller (2009). Too much information provided by the text and illustrations, which causes the reading material to be too complex to identify quickly.

However, a large percentage researchers don't agree with the opinion that illustrations would have a negative effect on the reading. In the field of reading comprehending, Carney (2002) takes illustrations and reading material into consideration, argues that readers' reading ability and performance on plenty of text-dependent cognitive results could be enhanced by displaying some illustrations. In addition, he admitted that different illustrations, which have unique functions, would not work in the similar way.

Donald (1983) investigates the long-term memory between the text with illustrations and without illustrations. It is suggested that readers are capable to acquire one third more information than none-illustration text including children and adults. As Lu Jufang (2012) claims that employment of illustrations in EFL classrooms can prompt learners' understanding as well as memory, and hence facilitate students' learning ability in a effective way.

According to the above research on relationship between them, we can find that the majority believe that illustrations act as a positive role in reading and comprehending.

2. METHODOLOGY

2.1 Research Questions

This research are supposed to answer the following questions:

(a) What is the overall condition of non-English college students' positive interdependence and autonomous learning ability?

(b) Is there significant correlation between positive interdependence (goal interdependence & resource interdependence) and autonomous learning ability? If there exists significant correlation, to what degree?

2.2 Participants

In this research, the participants are composed of 133

non-English major sophomores coming from Jiangxi Normal University, whose profession background cover engineering, science, arts and management. Altogether 133 pieces of questionnaires were distributed and 120 valid responses were collected back. Specifically speaking, 47 participants are male and 73 are female. College English learning possesses distinct characteristic of interdependence. English class activities, such as group discussion, English drama, class presentation or debate, homework mutual evaluation and etc., which require undergraduates to build goal interdependence and resource interdependence. As for college students, they have more or less possess the autonomous learning ability to learn English. Besides, though few students have a clear conception of positive interdependence, they have accessed to interact with other students in English class, which means they have been influenced by the positive interdependence while learning college English.

2.3 Instruments

This study is going to use two kinds of questionnaires. The first questionnaire is the Positive Interdependence Questionnaire Scale, adopting the questionnaire designed by Ghazi, Ghaith in 2007. This study employed the Chinese translated version of the positive interdependence questionnaire scale and made some adjustments. The scale consists of 10 items, which has two dimensions. The first 5 items are used to measure the positive goal interdependence and the rest 5 items measure the positive resource interdependence. The second is College Students' Autonomous English Learning Ability Scale. The questionnaire is composed of two parts. The first part is the background information of the subjects, for example, the name, gender, major. The second part is the main part, college students' autonomous English learning ability survey, which was revised by Xu Jinfen in 2004. There are 34 items in all in this questionnaire, being made up of five dimensions, namely defining teaching requirements, making learning plans, use of learning strategies, monitoring the use of learning strategies and evaluating the learning process respectively. Both two questionnaires' responses will be formatted using a 5-point Likert scale and range from "strongly agree" to "strongly disagree", the higher the score is, the better performance of the autonomous learning ability or positive interdependence is.

And through the analysis of reliability, the Cronbach's Alphas are respectively $0.876 > 0.7$ and $0.824 > 0.7$, which implies both questionnaires possess good reliability.

Reliability Statistics		
	Cronbach's Alpha	N of Items
CEALS	.876	120
CLMS	.824	120

Note: CEALS- College Students' Autonomous English Learning Ability Scale
CLMS- Classroom Life Measure Scale

2.4 Data Collection and Analysis

Data collected from the above two questionnaires are analyzed by SPSS software. Statistical analysis methods include descriptive statistics, bivariate correlations in order to answer the questions raised in the study.

3. RESULTS AND DISCUSSION OF THE RESEARCH

3.1 The Current Situation of College Students' PI and ALA

3.1.1 The Status Quo Analysis of College Students' PI

Table 1 reveals the condition of the college students' overall performance on positive interdependence in a normal university. The descriptive statistics include the number of the questionnaire, the means, the ranges and the standard deviations of positive interdependence and its two dimensions (positive goal interdependence and positive resource interdependence).

Table 1
Scores of College Students' Positive Interdependence and Its Two Dimensions

	N	Range	Mean	Std. Deviation
Positive goal interdependence	120	11-25	19.55	2.80
Positive resource interdependence	120	12-25	20.47	2.82
Positive interdependence	120	26-50	40.00	5.2

Note: the positive interdependence cut-off score is 30; the two dimensions cut-off score is 15

From Table 1, we can find out that the mean score of positive interdependence is 40, more than its cut-off score 30, the lowest score is 26, the highest is 50, and the standard deviation is 5.2, which suggest that college students are of fine positive interdependence. The mean score of positive resource interdependence is greater than that of positive goal interdependence ($20.47 > 19.55$), indicating that college students perceived more positive resource interdependence than positive goal interdependence. The standard deviation score of positive resource interdependence is also greater than that of positive goal interdependence ($2.82 > 2.80$). It shows that the difference among college students in the aspect of positive resource interdependence is more than positive goal interdependence. Some students have perceived higher positive resource interdependence while others have perceived lower positive resource interdependence. Compared with positive resource interdependence, college students' difference in the aspect of positive goal interdependence is relatively smaller.

3.1.2 The Status Quo Analysis of College Students' ALA

This part will report the participants' autonomous learning ability in the project-based language learning

classes, including the ability in general and their ability in each subcategory of autonomous learning ability. The college students' autonomous English learning ability questionnaire has five dimensions and 34 items in all, namely defining teaching requirements (5 items), making learning plans (5 items), use of learning strategies (5 items), monitoring the use of learning strategies (7 items) and evaluating the learning process (11 items). Then, through the descriptive statistics of SPSS, a mean score and standard deviation of autonomous learning ability are calculated.

Table 2
Scores of College Students' Autonomous Learning Ability

	Mean	Std. Deviation
Defining teaching requirements	3.85	0.44
Making learning plans	3.63	0.57
Use of learning strategies	3.71	0.38
Monitoring the use of learning strategies	3.55	0.42
Evaluating the learning process	3.46	0.55
Autonomous learning ability	3.61	0.60

The mean of college students' autonomous learning ability is 3.61, suggesting the entire autonomous learning ability is at a medium level. In other words, college students are able to conduct the autonomous learning to a certain degree. The mean of defining teaching requirements is greater than use of learning strategies and making learning plans ($3.85 > 3.71 > 3.63$), followed by the mean of monitoring the use of learning strategies, which is more than the mean of evaluating the learning process ($3.55 > 3.46$). The defining teaching requirements has the highest mean score ($M=3.85$), suggesting during the English learning process, college students are aware of the teachers' requirements. It is likely to have a lot to do with the announcement of the teachers when the learners attend to the first lesson.

Among the five dimensions of college students' autonomous learning ability, defining teaching requirements is the ability that college students in China can most easily obtain. Besides, use of learning strategies has the second highest mean score ($M=3.71$), which means that through more than 10 years of English learning and college entrance examination, college students have naturally possessed relatively good ability to use these kinds of learning strategies. Students with strong autonomous learning ability can systematically use learning strategies (Scharle & Szabo, 2000). The mean score of evaluating the learning process is the lowest ($M=3.46$). That is to say, learners don't know how to evaluate their English learning process clearly compared with other respects of autonomous learning ability.

3.2 The Relationship Between College Students' Pi and Five Dimensions of ALA

Table 3
Correlation Analysis Between Positive Interdependence and Autonomous Learning

	DR	MP	US	MS	E	overall capacity
GI	.597**	.497**	.448**	.438**	.327**	.495**
RI	.536**	.333**	.415**	.368**	.401**	.461**
PI	.617**	.452**	.470**	.439**	.397**	.473**

Note: GI: goal interdependence
 RI: resource interdependence
 PI: positive interdependence\

As the table 3. shows, there is significant correlation between autonomous learning and positive interdependence ($r=0.473$, $p<0.05$). Autonomous English learning ability positively correlates with the two subcategories of positive interdependence: positive goal interdependence ($r=0.495$, $p<0.05$) and positive resource interdependence ($r=0.461$, $p<0.05$) at a medium level. The correlation significance of positive goal interdependence is higher than of positive resource interdependence, that is to say, autonomous English learning ability has a more significant correlation with positive goal interdependence. This is consistent with the research results of Ghaith et al. (2007), Xiao and Xu (2012), Ghaith et al. (2007) have speculated that positive goal interdependence plays a more significant role in improving learners' learning efficiency and performance than positive resource interdependence. Likewise, Xiao and Xu (2012) also hold that positive resource interdependence is driven by positive goal interdependence and positive goal interdependence is more important to the development of autonomous learning ability.

As Ortiz et al. (1996) have pointed that, when students need to acquire other people's resources but fail to achieve their goals, the consequences may be that individuals are only willing to ask for resources but not to share them, which will have a negative effect on learning efficiency and academic achievement. Resource interdependence can play a positive role under the promotion of goal interdependence. Positive goal interdependence is more important to the development of autonomous learning ability than positive resource interdependence is.

The five subcategories of autonomous English learning ability also have significantly positive correlations with the two subcategories of positive interdependence respectively. The correlation scores between positive goal interdependence and defining teaching requirements, making learning plans, use of learning strategies, monitoring the use of learning strategies, evaluating the learning process are .597, .497, .448, .438 and .327 respectively. The correlation scores between positive resource interdependence and the above

five dimensions are .536, .333, .415, .368 and .401. However, it should be noted that the correlation between positive resource interdependence and defining teaching requirements ($r=0.579$, $p<0.05$), and the correlation between positive resource interdependence and defining teaching requirements ($r=0.536$, $p<0.05$) are merely at a low level.

CONCLUSIONS

In general, Chinese college students perform well on positive interdependence, as well as the two dimensions positive goal interdependence and positive resource interdependence. Most of college students' perceived positive interdependence is at the average level. Among the two subcategories of positive interdependence, students have perceived higher positive goal interdependence than positive resource interdependence.

On the whole, college students work well on autonomous learning ability and the entire autonomous learning ability is at a medium level. Among the five subcategories of autonomous learning ability, college students have the highest ability in defining teaching requirements and the lowest ability in evaluating the learning process. Among the other three dimensions of college students' autonomous learning ability, they do better in use of learning strategies than in making learning plans and monitoring the use of learning strategies.

There exists a significant positive relationship between college students' positive interdependence and autonomous learning ability. Significant positive correlation also exists between positive interdependence and five dimensions of autonomous English learning ability. All of the bivariate correlation is at a medium level.

In summary, the present study conducts the thorough research among college students which explores their positive interdependence and autonomous learning ability in English learning class. It aims to help teachers and learners realize the importance of positive interdependence and autonomous learning ability. In the process of learning English, learners should pay more attention to cultivating the consciousness of autonomous learning by themselves and share one common goal and mastered resource to accomplish the common task successfully in English class. Learners need to cultivate their ability to complete their own assigned task by themselves and cooperate with other members of the same learning group. Teachers are expected to carry out the explicit cooperative learning strategy teaching in order to ensure the positive interaction. Learning strategies are the key variables that influence the development of learner autonomy, while college students' awareness of using learning strategies and actual behavior of using learning strategies are still relatively weak (Xu, 2014).

The fostering of learners' ability to use learning strategies still depends on the teachers who act as the trainers of the learning strategies (Gaith, 2007, Xiao & Xu, 2012). It also means that teachers should carry out explicit learning strategies training and gradually improve the ability of defining teaching requirements, making learning plans, use of learning strategies, monitoring the use of learning strategies and evaluating the learning process, further improve learners' autonomous learning ability.

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