Multiple Intelligences-Related Projects and EFL University Students' Autonomy

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Abstract

This experimental research investigates the relationship between multiple intelligences (MI)-related projects and EFL learners' autonomy. The experiment was conducted at Vinh University, involving 59 non-English majored students. Autonomy tests, project rubrics, and project questionnaires were employed to collect the data for analysis. The findings showed that after fifteen weeks of treatment with five projects the students involved in MI projects were more self-controlled in exploiting information sources, learning process and language learning than students in the control groups. The experiment groups also showed students' significant increased motivation in MI projects.

Keywords: multiple intelligences, projects, autonomy, motivation

1. Introduction

In language teaching, learner autonomy has attracted a great deal of attention from researchers and practitioners who believe that it can enhance students' chance for the success in learning a language in general and foreign/second language learning in particular (Benson, 2001; Chan; 2001, Nguyen & Gu, 2013). However, this trait has not been effectively utilized in Vietnam due to the fact that lecture-style instruction still dominates the classroom in many educational contexts. Nguyen Van Loi (2016) reported that Vietnamese university students' passive learning habit "previously required in primary and secondary education" (p. 16). According to Quynh (2013), there are two main obstacles that prevent Vietnamese learners from being more autonomous: (1) contextual constraints with the exam oriented education, limited time and stringent syllabus; (2) cultural traits with teacher reliance and authoritarian view of teachers' roles. Meanwhile, a life-long learning is more than preparing for exams and training students to be more responsible for their own learning is a crucial role for any teacher. However, another finding from Nguyen Van Loi (2016) is that Vietnamese teachers, beside the contextual constraints, lacked of confidence in their students' abilities, which led to the limited number of teaching activities applied to improve students' autonomous learning. Recently, Multiple Intelligences (MI) Theory by Gardner (1983), with an innovative lens to human potentials, has opened doors to reach more learners with different abilities. It also provides students opportunities to make optimal use of their potentials in numerous ways. MI theory offers eight ways of teaching and learning. In this regard, armed with the knowledge and application of the MI theory, teachers can ensure enough provision for a variety of strategies and activities they use, so that much of their students' learning potentials can be tapped (Bas & Bylan, 2010; Berman, 1998). This study aims to investigate if MI-related projects have any contributions in promoting EFL learner's autonomy. According to Soleimani et al. (2012), "MI framework helps learners gain better self-awareness about learning abilities in different intelligence areas" (p. 50). It is hoped that the results will help gain more understanding of Vietnamese EFL learners' autonomy, thereby designing more effective projects to motivate students to be autonomously engaged in their English language learning.

2. Literature Review

2.1 MI Theory

MI theory was initiated in 1983 by Howard Gardner, a psychologist at Harvard University. With a broader approach to human intellectual functioning, Gardner never expected his theory become so popular among educators. Using an elaborate set of criteria, including evidence from studies of brain damage, prodigies,

developmental patterns, cross-cultural comparisons, and various types of tests, he identifies eight central intelligences: (1) linguistic: capacity to use words effectively, orally or in writing; (2) logical-mathematical: capacity to use numbers effectively and to reason well; (3) visual-spatial: ability of using mental imagery for discerning orientation in space; (4) bodily-kinesthetic: capacity of using physical body movements to express emotion and ideas; (5) musical: capacity to perceive, transform, and express musical forms; (6) interpersonal: ability to perceive and make distinction in the moods, intentions, motivations and feelings of other people; (7) intrapersonal: self-knowledge and ability to act adaptively on the basis of that knowledge; (8) naturalist: expertise in the recognition and classification of the numerous species—the flora and the fauna—of an individual environment. He explains about the possible intelligence: "existential intelligence", which he suggests as the ninth one (Gardner, 1993).

Despite the abundance of researches that have addressed the application of MI in classrooms (Anderson, 2007; Armstrong, 2009; Richard & Roger, 2001) few studies have been conducted on foreign language learning at tertiary education. This study is an attempt to investigate the impact of MI-related projects on EFL learners' autonomy in Vietnam.

2.2 Learner Autonomy

The definition of learner autonomy tends to vary in the literature. Holec (1981, p. 3) mentioned it as "the ability to take charge of one's learning". Little (2007) also defines learner autonomy as 'essentially the matter of the learners' psychological relation to the process and content of learning, a capacity for detachment, critical reflection, decision-making and independent action. Each point of view looks at autonomy with different aspect. This study was inspired from Benson (2006)'s definition, which is considered more specific towards language learning. According to Benson (2006, p. 1) "autonomy is about people taking more control over their lives-individually and collectively. Autonomy in learning is about people taking more control over their learning in classrooms and outside them and autonomy in language learning about people taking more control over the purpose for which they learn languages and the ways in which they learn them."

Although learner autonomy in language learning has attracted great attention from educators worldwide over the past 20 years (Benson, 2001, 2006; Breeze, 2002; Chan, 2001; Lo, 2010; Nguyen & Gu, 2013), most of these studies were conducted in Western contexts. In Vietnam, learner autonomy has only been sparsely investigated (Trinh Quoc Lap, 2005; Le Xuan Quynh, 2013; Nguyen Van Loi, 2016; Le Thi Tuyet Hanh & Tran Ba Tien, 2017). These researchers focused on students and teachers' perception and practice of autonomy in higher education contexts. However, no experiment was carried out to see how EFL university students' autonomous learning might be enhanced after some educational intervention. This study aims to find out if there is any improvement of students' autonomy in learning English after the application of MI-related projects.

2.3 MI and Autonomy

There are a number of studies which investigated the relationship between MI theory and EFL learners' autonomy. It was contended that MI-based teaching is a way of taking care of the differences among learners and increases the effectiveness of teaching process (Campell & Campell, 1999; Gahala & Lange, 1997). Armstrong (2009) found that the application of MI theory in teaching improves learners' autonomy in different aspects such as encouraging the positive behaviors. In the same vein, Bass and Byhan (2010) proved that those students in MI-based teaching environment achieve more improvement in their learning as well as express more motivation in comparison with those who have been taught based on traditional ways. The application of MI-based teaching is also shown to be able to encourage students' involvement by satisfying their different needs based each individual's potential (Palmberg, 2011).

3. Method

3.1 Research Questions

This study aims to find the answers to two main questions:

- What is the difference of learning autonomy, if there is, between experimental group and control group after the implementation of MI-related projects?

- What are students' perceptions about MI-related projects?

3.2 Participants

The study involved 59 students, aged from 19–21, whose first language is Vietnamese. They were learning English as a required subject in the curriculum. They were first year students and their English proficiency is at elementary level. Based on the autonomy pre-test scores, 23 students were put in the control group and 36 in the

experimental one.

3.3 Instruments

3.3.1 Autonomy's Pre-Test and Post-Test

The pre-test and the post-test of learner autonomy were exactly the same. The pre-test was administered at the first week and the post-test was conducted at the fifteenth week. The tests were designed based on Benson's three inter-related levels of autonomy: **control of learning process; control of resources and control of language.** All the statements were randomly placed in the questionnaire. These instruments were used to find out the differences, if any, between participants' autonomy before and after the treatment. The Vietnamese language was used to avoid possible misunderstanding of the questions. With a 50 Likert-type item questionnaire, the test takers needed about 30 minutes to complete the task.

3.3.2 MI-Related Projects

The MI-related projects were designed based on the contents of the coursebook LIFE (Hughes, 2015). Each unit has its own topic. Students were asked to complete a project relating to this topic. For example, Unit 8, lesson 8c (Hughes, 2015, pp. 88–89) focuses on "Designs from nature" topic; students have to carry out a three-week project to create or describe a design which is originated from Nature. In total, the students were to complete five projects (3 weeks for each) according to five types of intelligence: intrapersonal, interpersonal, kinesthetic, natural and musical ones during the term. These five types of intelligences were chosen because these were the most dominant types of participants in the study. For each project, there was a rubric for teachers to assess their students' achievement and another rubric for students to assess each other.

3.3.3 Project Questionnaire

Project questionnaire consists of 15 likert-questions, ranging from *never* (1) to *always* (5). This questionnaire was distributed to only students in the experimental group. It aimed to find out students' perception about MI-related projects. Participants needed about 15 minutes to complete the survey at the last week of the semester.

3.3.4 Project Rubrics

Project rubrics were designed to assess students' performance of the required projects. There were two types of rubric. The one for teachers was designed based on five criteria: content, comprehension, preparedness and organization. The other for students was based on their task completion, participation, responsibility and time line. These instruments were used after the completion of each project. The rubrics from group members were collected for teacher to assess students' performances.

3.4 Research Procedure

The study began by identifying the reliability of research tools, namely autonomy pre-tests and post-tests and MI survey. The tools were distributed to 34 students and the data were collected and analyzed with an SPSS software. When the reliability and validity of all the tools were confirmed, five groups were randomly chosen, of which three were named as experimental groups (36 participants) and two are control groups (23 participants).

The experiment was conducted at the second week of the semester. Before the experiment, the teacher was trained carefully about how to manage a project-based teaching and MI theory. The MI-related projects were completed in three weeks and there were five projects in total. During the project process, students were encouraged to contact with the teachers through email, phone or Facebook.

The assessment papers of MI-related projects were collected from students after each project presentation. At the end of the experiment, students were given the project questionnaire to reflect on their perceptions of MI projects.

3.5 Validity and Reliability

According to Creswell and Clark (2011), reliability and validity of a psychometric instrument are very important concepts in quantitative research to make the scores measured from an instrument stable and consistent. Cronbach's alpha coefficient, which was obtained by SPSS, was used to measure the consistency reliability (Cronbach, 1984). Cronbach's alphas coefficient for the 50 items of the autonomy test and nine groups of MI survey were .848 and .829, respectively, which are considered highly reliable, based on the guidelines provided by George and Mallery (2002). Moreover, as discussed previously, all research instruments were tested and corrected before being applied to the main study.

4. Results

4.1 Autonomy Test Results

Descriptive statistical analysis was performed to compare the effect of MI related projects towards learners' autonomy in learning English between two groups. The autonomy pre-test was administered among 150 students to find out their level of autonomy and only 59 were chosen to be participants of the treatment, based on their same level of autonomy (Mean = 2.5), 23 students were in the control group and 36 in the experimental group. The autonomy post-test was delivered to participants in both groups at the end of term. The findings are presented as follows.

Table 1. Mean and Deviation standard of the autonomy post-test

		N	Mean	Std. Deviation
Control of resource	Control group	23	2.6	.37
	Experimental group	36	3.0	.45
Control of language	Control group	23	2.7	.58
	Experimental group	36	3.2	.59
Control of learning process	Control group	23	3.0	.55
	Experimental group	36	3.4	.48

The results in Table 1 indicate that both control group and experimental group gained higher scores of autonomy levels, compared with 2.5 scores on the pre-test. The post-test data show that the scores of experimental group in the autonomy test are higher compared with control group. As it can be seen, the mean score of resource control experimental group is 3.0, compared to 2.6 from the control group. Surprisingly, a mean difference of 0.5 was found between experimental group and control group in controlling language. The mean score of learning process control was found with 3.0 and 3.4 in the control and experimental groups, respectively. The sections below will go into details for each previously mentioned component of autonomy.

4.2 EFL Students' Control of Learning Process

As can be seen in Table 2 both control and experimental groups increased the mean scores after fifteen weeks, from 2.95 to 3.02 for the control group and from 2.95 to 3.22 for the experimental group. A one-sample independent t-test was conducted to find whether there is a significant difference between participants' performance on pre-test and post-test. The finding shows that only the treatment group has a significant difference with the Sig = 0.45 between pre-test and post-test. Moreover, the data from the follow-up interviews showed that students appreciated the MI projects in term of its creativity in applying different approaches to a problem.

Table 2. EFL students' control of learning process before and after the treatment

Control of learning process		N	Mean	Std. Deviation	Sig.
Control group	Pre-test	82	2.95	.56	0.57
	Post-test	82	3.02	.45	
Experimental group	Pre-test	116	2.95	.56	0.45*
	Post-test	116	3.22	.51	

4.3 EFL Students' Control of Learning Resources

Table 3. EFL students' control of learning resources before and after the treatment

Control of learning resources		N	Mean	Std. Deviation	Sig.
Control group	Pre-test	82	2.92	.54	0.68
	Post-test	82	3.0	.45	
Experimental group	Pre-test	116	2.92	.54	0.00*
	Post-test	116	3.4	.58	

Table 3 presents the results from two groups related to students' control of learning resources. It indicates that after the treatment, students in the experimental group outscored their peers in the control group; the difference is

0.4, which proved a significant improvement in the experimental group members. In the interviews, participants expressed themselves about their time spending outsourcing for their projects. Not only paper-based resources were needed but also real materials were taken into account. For example, for Unit 8 projects, recycle materials were used by the kinesthetic group to create the product.

4.4 Students' Control of Language

Table 4. EFL students' control of language before and after the treatment

Control of language		N	Mean	Std. Deviation	Sig.
Control group	Pre-test	82	3.35	.37	0.88
	Post-test	82	3.4	.48	
Experimental group	Pre-test	116	3.35	.37	0.26
	Post-test	116	**3.55**	.58	

As mentioned previously, students' control of language was examined in terms of the creativity in learning and the ability to refer their language competence to the norms and content of the target language (Benson, 2006, p. 33). The statistics from Table 4 shows a significant difference between two groups' scores, (Sig = 0.26 < 0.5).

4.5 EFL Students' Perception of MI Projects

To find out students' perception about MI related projects during the treatment. A questionnaire of 15 likert questions was distributed among MI group at the end of the treatment. The finding is shown in Table 5.

As illustrated in Table 5, students showed a significant motivation toward MI related projects with the mean score of 3.53, suggesting that students had a medium high motivation toward the completion of required projects. Four highest scores belong to Q5, Q 1, Q14, Q15, with M = 3.94; 3.89; 3.70; 3.70, respectively. Meanwhile four lowest scores can be seen in Q13; 12; 4; 7. The data suggest that students manifested a great attention from teacher's instructions (Q5) and knew to evaluate themselves as well as expected problems during project time (Q14, 15) to submit their tasks in time (Q1). However, they had some difficulties in managing their time to complete the project and evaluate the effectiveness of the resources and their work.

Table 5. Mean and deviation standard of project questionnaire

	N	Mean	Std. Deviation
Q1: I completed the project in time	36	3.89	.936
Q2: I searched necessary information online or on the internet to complete the project.	36	3.47	1.043
Q3: I asked teacher or friends about my problems during project time	36	3.46	.904
Q4: I knew how to manage free time to learn about the project.	36	3.23	.904
Q5: I took notes from teacher's project instructions	36	3.94	.873
Q6: I consulted my friends about the project	36	3.60	.968
Q7: I knew how to evaluate the project resources	36	3.39	.982
Q8: I knew when to ask for help from group mates	36	3.51	1.057
Q9: I can work in group to study certain problem	36	3.59	1.086
Q10: I set the goal to achieve during project time	36	3.53	1.015
Q11: I planned my tasks	36	3.51	.951
Q12: I selected and experimented different methods to complete the project.	36	3.32	.910
Q13: I could evaluate the effectiveness of my used methods	36	3.18	.935
Q14: I expected the difficulties met during project time	36	3.70	.842
Q15: I knew how to encourage myself to study and complete the project	36	3.70	.913
Total	**36**	**3.53**	**.954**

4.6 Discussion

This study investigated the impact of MI-based projects on learner autonomy in learning English, aiming at answering the question whether there is a difference among students during after the treatment. The statistical results showed that a significant difference between the experimental and control groups' mean scores was found in both pre-test and post-test. Therefore, it can be concluded that autonomy in learning English was better achieved with MI-based projects in comparision with the traditional teaching method. In other words, the projects that were designed based on the MI theory have resulted in more effective learning. This can be

explained by the diversity of project requirements based on the MI framework, which gave the participants more choices to approach the same problems and more chance to develop their potentials. The fact that students needed to consult different sources to complete their projects helped them receive more references for their learning and provide more strategies, not just note-taking and doing homework as they did in the traditional classrooms. The findings of this study concur with the results of other studies in this area (Armstrong, 2009; Bass & Byhan, 2010; Campell & Campell, 1999; Gahala & Lange, 1997; Nguyen Xuan Quynh, 2013; Nguyen Van Loi, 2016; Palmberg, 2011).

It was also found that EFL students were motivated by MI-based projects. This might have been resulted from comfortable learning environments that MI-based projects brought about. More specifically, in MI-based teaching, students were allowed to learn in the way they feel most comfortable with. This finding is in line with Soleimani et al. (2012), Le Thi Tuyet Hanh and Tran Ba Tien (2017). In other words, to help students achieve educational aims and reduce their anxiety in solving learning problems, the activities should be interesting enough and give learners different options to approach the problems.

5. Conclusions

This study looked into the relationship between MI-based projects and learner's autonomy using tests and questionnaires as data collection instruments. Before the treatment, students' autonomy levels were tested. After five MI projects, the findings showed that there is a significant difference of learner's autonomy between the experimental group and control group. Students showed a great interest in learning English through different MI-based projects which they could exploit in different ways. The MI-based projects also proved to be effective in enhancing students' autonomy to learn English. By implementing projects according to their learning styles, the students took more control and responsibility for their own learning. During the course of project-based learning, the teachers gave them guidance that led to their gradual autonomy in learning English and equipped them with study skills to maximize their strengths and compensate for their weaknesses. It can be concluded that applying MI-based projects can increase EFL student autonomy, and thereby leading to greater success in learning English.

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