

## An Empirical Study on a Flipped Classroom in Open University Teaching Based on an Ecological Perspective: A Case Study on a Translation Theory and Practice Course

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### Abstract

A flipped classroom refers to a model of learning which reverses how time is spent in and out of the class to shift the ownership of learning from the teachers to learners. But from the perspective of ecology, education can be healthily developed in a harmonious and dynamically-balanced ecological system. Therefore, this project, exemplified through translation teaching, constructed a flipped teaching model based on an ecological perspective that open university distance learners will adapt to after revisiting the flipped classroom. Through the teaching experiment in the course on Translation Theory and Practice, the author highlighted that a good ecological relationship should be established in the translation subject, the translation object, the objectives of the translation course, and translation sources and requirements from the translation market — based on which the basic teaching process of a flipped classroom was developed. Using a questionnaire and interviews, the results of a one-year experiment showed that the flipped teaching model with the integration of modern information technology (functions of interaction, virtual simulation and social networking) in translation teaching could foster greater student engagement and higher levels of motivation and translation competence; and the teachers were excited by the opportunity to enhance their teaching practice and the profession. However, some major challenges were also posed to the students and teachers, viz.: (1) how to make the students transform from knowledge-receivers to knowledge-producers; and (2) how to improve the teacher's TPACK (technology integrated into some curricula) — for example, how to explain a concept in a bite-sized video (the pace, the visual representation, and the aligned assessment practices) and how to extend these activities into the classroom.

**Keywords:** flipped classroom, ecological perspective, translation teaching model, empirical study; open university

### Introduction

The flipped classroom is a new form of blended learning which is characterized by a reversal of traditional teaching in which students first gain exposure to new materials

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outside class, usually via video lectures prepared by teachers; and then class time is used to do the harder work of assimilating that knowledge through problem-solving, discussion or debates (Bergmann & Sams, 2012). A search of the literature revealed that the studies on flipped classrooms focused on descriptions of the flipped classroom (Bland, 2006; Lage, Platt & Treglia, 2000; Zhang, Wang & Zhang, 2012); employing flipped classrooms in teaching practice (Day & Foley, 2006; Wang & Zhang, 2013); and instructional design based on flipped classrooms in an ICT environment (Zhong, Song & Jiao, 2013). Based on the above studies, the author conducted an empirical study to examine student performance throughout two semesters after employing a flipped classroom from an ecological perspective in a translation course.

### **Connotations of flipped classrooms**

The technological movement which enables the amplification of information at a low cost has changed the face of education (Bishop & Verleger, 2013). Studies on technology show that interactive video lessons outperform in-person lectures at conveying basic information; online assignments are as effective as paper-and-pen assignment; and so are the developed intelligent tutoring systems when compared to human tutors — all of which contribute to the concept of the flipped classroom. However, as a new exciting buzzword, there is a lack of consensus on the definition of the flipped classroom. Some definitions just re-order the classroom and at-home activities (Lage, 2000). In this study, the flipped classroom is defined as two parts: (1) group learning activities that cannot be computerized or automated with interaction inside the class; and (2) pre-recorded instructional videos outside the classroom with the help of free access to information provided by, for instance, Open Course Ware, the Khan Academy, Udacity and Coursera.

In order to have a clear idea of the flipped classroom, a comparison with traditional teaching is shown in Table 1.

**Table 1** Comparison between the flipped classroom and traditional teaching

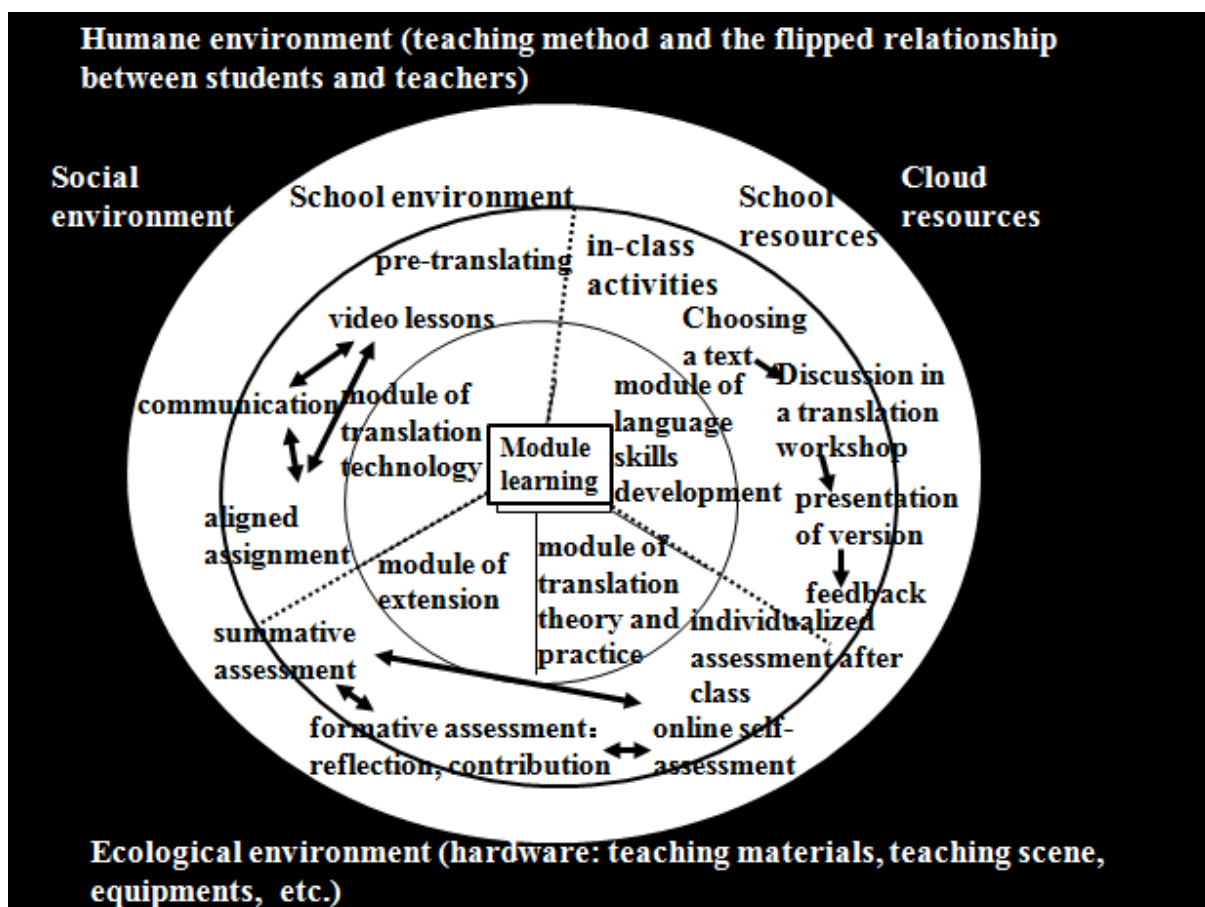
		<b>Traditional teaching</b>	<b>Flipped classroom</b>
<b>Teaching process</b>	Imparting knowledge	<i>Teachers:</i> delivering lessons  <i>Students:</i> knowing what to learn inside the class	<i>Teachers:</i> imparting knowledge outside the class  <i>Students:</i> viewing and/or listening to teacher-created videos and interactive lectures
	Students' internalization of knowledge	Applying knowledge to solve problems and do practice work outside the class	Inside the class, applying knowledge through solving problems, advancing concepts, and engaging in collaborative learning
<b>Teachers' and students' roles</b>	Teachers' roles	The ones who impart knowledge	Move from 'sage on the stage' to 'guide and tutor on the side'
	Students' roles	The ones who are crammed to acquire knowledge by teachers	Move from 'passive learners' to 'active learners'
<b>Teaching resources</b>		Few online resources with little interaction	Ten-minute teacher- or third party-created videos about the content; theoretical/lecture-based component of the lesson more easily controlled by learners — for example, allowing students to progress at their own pace, and review the parts that are of great interest, and which are misunderstood and need further reinforcement
<b>Teaching environment</b> (Learning Management System with a combination of offline classroom and online platform)	Teacher	Difficult to dynamically know the students	Helping teachers organize the class effectively, record the students' achievements and know the difficulties students encounter, so as to adjust their own teaching plan promptly
	Student	No places to share ideas, discuss problems and work out the tasks cooperatively	Establishing dialogue and exchanging ideas between students, teachers and subject experts in a learning community, so as to finish tasks cooperatively

### Translation teaching based on the flipped classroom model from an ecological perspective

A translation course aims to train and graduate efficient and competent translators.

However, the enclosed teacher-oriented traditional teaching method pays more attention to language points, with a lack of effective communication between students and teachers, and students and the outside world. There is a wide consensus among the teachers of translation that the translation class falls short of its aims and expectations.

With technological advances, with free and open access to information, the flipped classroom model was created in translation teaching from an ecological perspective in this study. The following is the basic process of an ecological flipped classroom model of translation teaching (Figure 1):



**Figure 1** Ecological flipped classroom model of translation Teaching

*Constructing a harmonious and dynamically-balanced ecological learning environment, including the ecological environment and humane environment*

Except for the teaching materials provided by Schools (small environment), there are cloud materials provided by the information society (big environment), which can solve the problems of shortage of time and limited teaching materials in the class. In this case, the ecological interaction between students, teachers, translation materials and the Web

is of great significance. Besides, a balance is sought between teaching and learning — that is, the pace of teaching should be adjusted based on the students' characteristics, curriculum and School equipment.

### ***Setting aims and contents***

With adult students' lack of proficiency in English, a translation course is and should be academic and geared to upgrading students' proficiency in the source and target language rather than professional, including: (1) a module on language skills development for eliminating the effect of negative transfer from the mother tongue; (2) a module on translation theory and practice for helping students to understand the translation process and broaden their horizons in the translation field; (3) a module on extension for developing students' thinking ability; (4) a module on translation technology — including web-sharing technology (corpus, terminology database), search engine technology, social networking tools (QQ, micro-message) and communication platform technology (BBS) — for students actively acquiring translation knowledge with various information technologies (Ren, 2013). With people's entry into the ubiquitous area of computing, not only should the teacher know how to integrate technology into teaching, but student should also improve their accomplishments in information technology.

### ***Designing a teaching method based on the flipped classroom***

With knowledge imparted outside the class in teacher-created videos, the class becomes the place for students to apply the knowledge by working through challenging problems with the teacher offering more personalized guidance and interaction with them. A proposed methodology based on the flipped classroom can be described along the following lines.

- *Selecting the translation text*: Students are encouraged to collect the translation texts they meet in daily life, with the degree of text difficulty being related to their proficiency in English. Depending on the length of the text and the degree of difficulty, the teacher divides the text into as many segments as the groups of students. Each group is assigned a fair portion of the text and the segment distribution order can rotate so that a different group begins a translation unit every time.
- *Dividing students into several 'translation workshops'*: One workshop acts as project managers, one as proofreaders, and the other as translators. In the pre-translating process, the teacher crafts a five- to 15-minute video lesson, or uses cloud online material, which explains the linguistic style and text type, introduces a parallel corpus for the assignment and computer-assisted translation tools, and posts them online. The students can search and share materials related to the assignment. The teacher, with social networking technology, can follow up what each workshop

has done and help them to solve any problems.

- In class time, one student in each workshop is elected to show how the group finished the assignment. The project manager group tells the other workshops how to distribute the segments of the original text and how to coordinate each workshop. The translator group recommends how to use computer-assisted translation tools and translation strategies in the translating process before they read out the versions. The proofreading group firstly presents the translation criteria it holds, explains why it agree or disagree with the versions the translating group proposes, and then recommends some translation technologies to proofread the versions. During the procedure, the students and teacher should feel free to stop a workshop's presentation, when the situation warrants questions, suggestions and contributions. The students can defend their presentation against criticism. Based on translation criteria, the homogeneity of terms and the coherence of the whole translated text, all the workshops analyse the translation strategies used and discuss the reasons taken into account in the choice of the versions proposed. As Newmark (1995) and Kussmaul (1995) state, 'The ability to discuss translation is central to a translator's competence'. Finally, each workshop delivers its final version which is revised for the customer (teacher).
- *Evaluation:* In a flipped classroom model, evaluation is an indispensable part, which assesses whether the pre-translating process has been well-prepared, and whether the students can apply their knowledge in practice. To carry out the process of translation efficiently, students are encouraged to make comments to each other, emphasize creative solutions, and analyse weaknesses in the process of translation. The formative evaluation of each student — including discussions, contributions, the way of consulting all possible written or 'live' sources, and analysis of the translation version — should be put in the students' portfolios. In the process of discussion on the assignment, the students' internalization of knowledge is completed.

### **An experimental study on translation teaching based on the flipped classroom model from an ecological perspective**

Given the above review, an experimental study was conducted to examine the students' performance throughout two semesters after adopting an ecological flipped classroom model in a translation course. The following research questions are addressed in this study:

1. What is the impact of the model on the students' translation competence?
2. What is the impact of the model on the students' English comprehension ability, including listening, reading, writing, vocabulary and grammar?
3. How can the use of technology implement the traditional mode of teaching?

### ***Study participants***

The participants were 60 sophomore students in Zhejiang Radio & TV University, aged 20 to 25, who were majoring in English. Thirty students (20 females and ten males) were selected as the experimental class, and the rest (20 females and ten males) as the control class. Before the experiment, the Test for English Major 4, an intermediate level English examination, was used to evaluate the two classes' English proficiency. Independent sample t-test results showed that there were no significant differences between the two classes ( $t=0.044$ ,  $p=0.482>0.05$ ) — that is, the students' English proficiency in the two classes was the same.

### ***Research instruments***

The research instruments included pre-and post-Tests for English Major 4, pre-and post-tests of translation, interviews, a questionnaire, and SPSS 11.0. The post-Test for English Major 4 was to measure whether the students' command of English language related to translation had improved in the flipped classroom model. The students' translation assignments were marked by three teachers, with the mean as the final result. According to PACTE (Process in the Acquisition of Translation Competence) (2005), a translation competence scale was designed on a 5-point Likert-type scale before SPSS was used to analyse the data from the scores of the translation sub-competences of the experimental and control classes. Also, a questionnaire and interviews were conducted with the experimental class at the end of the experiment. The questionnaire was divided into the following parts: the students' performance and attitudes towards the pre-class and in-class activities; their overall reflections on the ecological flipped classroom model compared with the traditional mode of teaching; and their suggestions for the present trial model. The questionnaire included 20 multiple-choice questions on a 5-point Likert-type scale and one open-ended question. The collection rate and the effective rate were 100%. The interviews involved the gathering of information about the students' subjective attitudes towards the flipped classroom model, the teaching contents, the teacher-created video lessons, and the translation workshops.

### ***Study process***

The control class adopted the traditional pattern: the teacher firstly decided the teaching contents, then assigned the translation exercise to the students, and finally offered the translated texts — while the experimental class adopted the flipped classroom model from an ecological perspective. The course offered was of one-year duration (72 periods). The topics for the first semester are an introduction to translation (4 periods); the process of translation (3 periods); the skills of translation (6 periods); a contrastive study between English and Chinese (6 periods); language, culture and society (4 periods); cross-cultural communication (6 periods); and culture and translation (7 periods). The second semester includes an introduction to translation technology (4

periods); advertisement translation (6 periods); tourism translation (6 periods); news translation (6 periods); translation for documents concerning foreign affairs (6 periods); translation for international communication (6 periods); and translation for enterprise names (2 periods). The study took the topic of translation criteria for example.

1. Setting teaching contents: to understand different translation criteria and their representatives;
2. Dividing the students into several workshops;
3. Offering the crafted, interactive video lessons (a discussion on translation criteria with one person as a student, the other as the teacher) as students' homework — with four types of translation criteria and their representatives (source-language-oriented or target-language-oriented translation principles; author-and-reader-oriented translation principle; aesthetic-oriented translation principle; the sociosemiotic-oriented translation) — and encouraging students to come to class with a question instead of just watching the video and being done with it;
4. In class time, MindManager was recommended to students to present translation criteria for reviewing knowledge in video lessons. Some translation exercises were selected for each workshop to discuss which translation criteria the different versions hold;
5. Based on the discussion and contribution of each student in the pre-translating stage and in class time, their performances were put into their own portfolios;
6. A network translation course platform (<http://cw1.zjtvu.edu.cn/k0513002/>) was offered, where the students could find real-time communication tools, an online testing system, and mobile learning, etc. for self-tutorials and reference after the class.

After one-year of the teaching experiment, both the experimental class and control class took part in Test for English Major 4 and a translation test.

### Results of the Study

All the data were examined through independent sample t-tests. The results showed that the students' scores on translation competence (including bilingualism competence, extralinguistic competence, instrumental-professional competence, translation technology competence, strategic competence) in the experimental class were higher than those in the control class ( $p=0.000, 0.000, 0.000, 0.000, 0.000<0.05$ ) (see Table 2). Also, the students' average score on the translation test in the experimental class was higher than that in the control class ( $t=-1.765, p=0.041<0.05$ ) (see Table 3). Therefore, there were significant differences between the experimental class and the control class, which showed that the students' translation competence had improved based on the flipped classroom model.

**Table 2** Translation sub-competence scale of the experimental class and the control class after the teaching experiment

	Experimental class (N=30)		Control class (N=30)		t	p
	M (Mean)	SD (Standard deviation)	M (Mean)	SD (Standard deviation)		
<b>Bilingualism competence</b>	4.07	0.87	2.77	0.86	-5.83	0.000
<b>Extralinguistic competence</b>	3.57	1.14	2.57	0.82	-3.915	0.000
<b>Instrumental-professional competence</b>	4.03	0.89	3.00	0.87	-4.545	0.000
<b>Translation technology competence</b>	4.23	0.68	2.17	0.70	-11.617	0.000
<b>Strategic competence</b>	4.10	0.84	2.47	0.86	-7.419	0.000

**Table 3** Comparison of scores on pre- and post- translation tests of the experimental class and the control class

	Experimental class (N=30)		Control class (N=30)		t	p
	M (Mean)	SD (Standard deviation)	M (Mean)	SD (Standard deviation)		
<b>Scores on translation test (pre-test)</b>	64.30	11.38	64.53	11.05	0.081	0.468
<b>Scores on translation test (post-test)</b>	71.43	11.36	66.43	10.56	-1.765	0.041

Also, the average score on the Test for English Major 4 in the experimental class was higher than that in the control class ( $74.2 > 66.9$ ). After being examined through independent sample t-tests, there were significant differences ( $t = -2.68$ ,  $p = 0.005 < 0.05$ ). Therefore, the flipped classroom model from an ecological perspective can also improve the students' English comprehension ability. To analyse whether the students' English proficiency related to translation was developed in the flipped classroom, the study also analysed the data collected from the scores on listening, reading, writing and vocabulary and grammar. With independent sample t-tests, it was found that there were no significant differences between listening, vocabulary and grammar in the experimental class and the control class ( $P = 0.4$ ;  $0.280 > 0.05$ ,  $t = 0.248$ ;  $-0.586$ ). But in reading and

writing, there were significant differences ( $P=0.008$ ;  $0.0045<0.05$ ,  $t=-2.46$ ;  $-2.70$ ). The flipped teaching model with information technology integrated into translation teaching can, therefore, help students to learn language through translation, and then acquire the necessary knowledge through language in order to express their professional thoughts.

The questionnaires and interviews revealed that most of the students were satisfied with the flipped classroom model. Of the students, 85% stated that, with video lessons accessed at home, they had more freedom to customize when and where to learn. They really liked being able to control the pace of delivery of the content in the videos. Besides, the adult students had time to watch a 15-minute video and didn't have to struggle with the book assignment. In the translation workshop, 78% of the students had more opportunities to engage in more higher-order thinking projects related to their profession; and 70% found it challenging and supportive to get more attention from the teacher, who used to spend more time with the most outgoing and engaged students. However, 5% of the low-income students found it difficult to get access to computers at home; and 7% couldn't adapt to the new model and preferred to have in-person lectures rather than sit through a 'monotonous' online presentation, in which their attention would wander to, for example, texting and going to get a snack.

## Conclusion

This study, exemplified with a translation course, clearly described in- and out-of-class activities in the flipped classroom model and objectively examined students' performance throughout a year. The one-year teaching experiment revealed that the flipped classroom model fostered better relationships, greater student engagement, and higher levels of motivation, and the teacher relished the opportunity to enhance teaching practice and the profession. However, there were some significant challenges posed for the teacher: (1) how to explain a concept in a bite-sized video (such as the examples used, the pace, the visual representation, and the aligned assessment practices) and how to extend these activities into the classroom; and (2) how to develop the teacher's teaching transferring ability, communication ability and teaching evaluation ability. In addition, flipping classrooms runs the risk of being involved in a false battle between teachers and technology, and content knowledge and skills acquisition. Therefore, with video lessons, an interactive simulation platforms and online tools continuing to multiply in the information age, further research is needed on how to control these to fulfil their potential without fear of standardization and deprofessionalization of instructional videos and exhausting the students.

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