

## Design and assessment of flipped instruction: A study of student learning and perceptions in higher education

### Progettazione e valutazione dell'aula capovolta: uno studio sull'apprendimento e sulle percezioni nel contesto universitario

---

Silvia Gasparini<sup>a</sup>

<sup>a</sup> *Università degli Studi di Trieste*, [nerone30@libero.it](mailto:nerone30@libero.it)

#### Abstract

---

Flipped-type classrooms represent an instructional model which is generally acknowledged as promoting learner engagement and autonomy. However, when flipped courses are not redesigned according to constructivist principles and innovative evaluation practices are not adopted, there is the risk that motivation and learning results are lower than expected. The purpose of this study was to compare: (i) class attendances, (ii) students' overall performance results, and (iii) students' perceptions with respect to two differently designed flipped-type Italian writing modules in two sets of Erasmus students. Whereas the control group followed the lessons in a traditional flipped mode, students in the experimental group were given precise deliveries about the activities to be carried out of class, carried out group activities during the lessons and were subject to in-class formative assessment. The results showed that the experimental group class attendance and scores in a final writing assignment were higher than the control group. In addition, their perceptions on the effectiveness of learning were more positive than those of the control group.

**Keywords:** flipped classroom; higher education; formative assessment; instructional design; student perceptions.

#### Sintesi

---

Le classi capovolte rappresentano un modello didattico che favorisce il coinvolgimento e l'autonomia degli studenti. Tuttavia, soprattutto quando i corsi non vengono riprogettati secondo principi costruttivisti e non vengono adottate pratiche di valutazione innovative, c'è il rischio che i risultati in termini di motivazione e apprendimento siano inferiori alle aspettative. Lo scopo di questo studio è di confrontare: (i) la frequenza, (ii) i livelli complessivi di performance, e (iii) le percezioni degli studenti rispetto a un modulo di scrittura in lingua italiana destinato a studenti Erasmus. Mentre il gruppo di controllo seguiva le lezioni in una modalità di classe capovolta più tradizionale, gli studenti del gruppo sperimentale ricevevano consegne precise sulle attività da svolgere prima delle lezioni, imparavano in gruppo durante le lezioni ed erano soggetti a valutazione formativa in classe. I risultati dimostrano che per gli studenti istruiti nell'ambiente di apprendimento potenziato, la frequenza e i punteggi nella prova finale di scrittura erano più alti del gruppo di controllo. Inoltre, le loro percezioni sull'efficacia dell'apprendimento erano più positive.

**Parole chiave:** classe capovolta; istruzione universitaria; valutazione formativa; design istruttivo; percezioni degli studenti.

## 1. Introduction

Flipping the classroom is a student-centred learning approach which reverses the traditional learning dynamics as students don't learn new content in the classroom, by having a teacher instruct them, but autonomously pre-view new instructional materials and/or watch new videos before joining the class, in their own time and place. Since flipped instruction is an active learning model which capitalises on students' autonomy and active participation, class activities as well as assessment forms should be in line. In fact, when associated with traditional forms of teaching and assessment, the advantages of flipping the classroom in terms of learner motivation and performance may decrease. The purpose of this preliminary study is to compare two different architectures of a module for the enhancement of writing skills for Erasmus students attending Italian courses at the University of Trieste. The paper includes the following points: identification of the distinctive features of the reference research paradigm (par. 2); presentation of the research and contextual analysis of results at a qualitative level (par. 3); discussion of results with reference to the experiment (par. 4); implications for research (par. 5).

## 2. Literature review

Flipping the classroom is an instructional model in which the roles of the instructor and the students are redefined according to a different logic for which the study of new materials is undertaken by the students before the lesson and in-class time is dedicated to exploring topics in greater depth and to creating new learning opportunities under the teacher's supervision (Bergmann & Sams, 2009; 2012; Bishop & Verleger, 2013; Kerr, 2015; Lage, Platt, & Treglia, 2000). Therefore, one of the advantages of a flipped classroom is that it provides more time for teachers to work with students on activities in class. After students have been engaged with materials at home, they come to class with ideas and questions which can be used by the teacher to involve the students in shaping the classes so as to make students responsible for their own learning processes. Besides, flipped classrooms also create a platform for students to seek help on some area they are finding it difficult to understand. Another advantage offered by a flipped-type instruction model is student autonomy in learning. While a traditional class relies on every student understanding at the same time and pace, flipped classroom environments do not. Since knowledge acquisition actually takes place outside the classroom, each student can control it to match his/her own personal abilities as well as learning pace. This benefits in particular slower learners who do not need to keep up with the lesson but are free to learn in any way that suits them.

Although much evidence for the effectiveness of the model is based on heuristic observations and qualitative surveys rather than empirical validation with quantitative data (Hamdan, McKnight, McKnight, & Arfstrom, 2013; Nwokeji & Holmes, 2017), the literature generally agrees on the overall improvement in student achievement provided by this approach. Especially when applied in higher education, flipped learning can increase student performance by making learning more effective and autonomous (Milman, 2012). Looking at the results of experimental contributions, slight learning improvement over conventional teaching methods is reported in many studies (Bishop & Verleger, 2013; Davies, Dean, & Ball, 2013; Enfield, 2013; Kong, 2014; Lukassen, Pedersen, Nielsen, Wahl, & Sorensen, 2014; Missldine, Fountain, Summers, & Gosselin, 2013; Pierce & Fox, 2012; Westermann, 2014; Wilson, 2014), with few studies showing robust evidence about its effectiveness (Hung, 2015) and some studies showing about equal exam scores (Mason, Shuman, & Cook; 2013; McLaughlin et al., 2014).

Studies focusing on students' perceptions about the model are generally positive too. When compared to the traditional classroom, students tend to prefer the flipped approach (Chen, Wang, Kinshuk, & Chen, 2014; Gilboy, Heinerichs, & Pazzaglia, 2015; Hung, 2015; Mason et al., 2013; McLaughlin et al., 2014; Moffett & Mill, 2014; Wilson, 2014). Some studies, however, showed students' negative evaluations. For instance, Strayer (2012) performed a comparative study between a flipped classroom and the traditional classroom for an introductory statistics course. The findings of this study demonstrated that students participating in the flipped classroom were less satisfied with the teaching format than students in the traditional classroom. Similarly, in Ferreri and O'Connor (2013), despite increased grade scores, students expressed significantly more negative comments. In the study by Wilson (2014) resistance to the model was expressed by students along with frustration and disengagement sentiments. Similarly, in Yeung and O'Malley (2014) student feedback was mixed as for increased work load and less interaction with teachers (see also Butts, 2014). Moreover, the study by Missildine et al. (2013) revealed less student satisfaction despite improved learning outcomes.

Thus, although the flipped classroom model does seem to have many advantages, it is early to believe that the model always works. In particular, dissatisfactions are often detected when the flipped classroom is associated with more traditional curriculum designs in which traditional activities such as exercises and quizzes are carried out in the classroom (Strayer, 2012; Wilson, 2014) and/or mid-term and final exams are in use (Ferreri & O'Connor, 2013). Often, the greatest problems are found precisely in courses designed for large classes (Missildine, Fountain, Summers, & Gosselin, 2013) since in these courses it is frequent to find a greater presence of teacher-centred activities and intermediate/final summative evaluations represent the only assessment modality (Albert & Beatty, 2014; Danker, 2015; Yeung & O'Malley, 2014; Jungic, Kaur, Mulholland, & Xin, 2015; Largent, 2013; Yestrebky, 2015). As a consequence, it's not unfrequent, as O'Flaherty and Phillips (2015) observe, that flipped learning instructional contexts increase performances but on the long-term lack lifelong learning and XXI century skills.

Indeed, effective learning occurs when curriculum, assessment and instruction align through careful planning (Gollub, Bertenthal, Labov, & Curtis, 2002). A position expressed in Boud, Cohen and Sampson (1999) as well, according to which, given the weight that assessment has in the curriculum, any transformation of the teaching methods is ineffective if the first is not modified in line. Therefore, with specific reference to the flipped classroom context, in order to avoid the advantages offered by flipped instruction be mitigated by the maintainance of traditional instructional designs, suitable in-class activities that contribute to enhance students' autonomy, engagement and collaboration should be introduced and, contextually, new forms of assessment that follow the tenets of flipped learning should be adopted (Chen et al., 2014; Gilboy et al., 2015; Kim, Kim, Khera, & Getman, 2014; Laurillard, 2012; Talbert, 2015).

Among the different practices which are suitable to promote student empowerment and development so as to avoid the lack of incisiveness of the flipped learning approach in the long-term, a special focus should be devoted to: a) group work; b) production of new materials. Since collaborative contexts are shortly to replace purely individual forms of work, the introduction of group work and/or peer learning in flipped contexts is strongly recommended (Bergmann & Sams, 2012; Chen et al., 2014; Gilboy et al., 2015). In-class work which enhances individual cooperation efforts and where students learn with/from each other without instant teacher intervention enters into synergy with flipped learning philosophy aimed at enhancing student autonomy. In this sense, group work could validly

constitute the aim of pre-class work. If accompanied by the anticipation of a subsequent in-class teamwork/collaboration phase, the delivery of pre-viewing study materials in advance may be carried out with greater interest and commitment by students. Closely related to this practice is the integration into the flipped classroom instructional model of activities aimed at materials production (Fisher, 2013). In flipped classroom courses with a traditional design, study materials are mainly used and to a lesser extent actively produced. The production of new learning objects, including the explanation of the choices made regarding the tools used, the contents chosen, the recipients selected, is considered as a highly motivating form of curriculum innovation. This possibility may be as well implemented through the construction of digital objects, which presupposes the use of dedicated learning environments (Chen et al., 2014, Fisher, 2013).

It is precisely the adoption of new forms of autonomous and responsible in-class student-centred learning activities which require new forms of assessment both to determine student achievement and to contextually affect the levels of achievement to be determined (Black & Wiliam, 1998; Boud & Dochy, 2010). Too often in fact, especially in higher education, assessment is limited to the *of* learning through mid-term and final examinations. These forms of non-interactive assessment subtract time spent on direct student/teacher interaction and do not provide direct learning experiences for students. In particular, flipped instruction may benefit from a progressive change of assessment from *of* learning to *as* learning and *for* learning in order to signal the value of learning is not in the exam but in the learning process (Earl, 2006; Earl & Katz, 2005). In relation to the new assessment methods suitable for flipped instruction, Talbert (2015) notes that four assessment strategies must be respected: (i) establish good learning outcomes; (ii) use a frequent-and-small-approach to assessment; (iii) use preformative, formative and summative assessments; (iiii) share data collected with students. Before any assessment can happen, learning outcomes should be fixed so as to create a framework for learning activities that help students construct the new knowledge. Likewise, since the main purpose of assessment is to collect information that will improve student learning (formative assessment), when assignment data come in, it is important for teachers to convert it into a process of continuous information to communicate to the students so as to help them attain their outcomes/goals.

In this sense, the new forms of distributed assessment apply to pre-class and class activities alike, respectively in the form of pre-formative and formative assessment, preferably following a project of cumulative evaluation in which each step becomes a prerequisite for the next and is carried out in the respect of the decentralized processes typical of flipped learning. Ultimately, with a view to a redesign of assessment more suited to the flipped mode, summative judgments should be maintained only when really required. Likewise, self-assessment and peer-assessment (Boud, 1995) may be included in flipped learning context re-designing as well as forms of negotiated assessment, where students agree on the assessment process in light of their learning goals (Liu & Carless, 2006). Only in this way, in fact, does the assessment process take on the characteristics of full interactivity. Along with individual forms of assessment, group work assessment is needed too. In fact, if students are used to being assessed only individually, the potential of collaborative and/or peer learning cannot be fully realized because it would be perceived by students as scarcely important (Boud et al., 1999). In particular, the authors suggest adopting forms of group assessment which grade individual and group efforts alike (see also Boud, Cohen, & Sampson, 2001).

Through the new forms of assessment the role of feedback is also improved (Hattie & Timperley, 2007). Feedback associated with summative assessment is delivered too late for students to take advantage of it (Gallagher, 2003; Yorke, 2003). If assessment is continuous and student-centred, feedback is no longer configured as simple information transmission from instructor to student at the end of the learning process, but it is an aid to learning as the process is going on. According to Nicol and Macfarlane Dick (2007) good feedback practice helps clarify what good performance is (goals, criteria, standards); facilitates the development of self-assessment (reflection) in learning; delivers high quality information to students about their learning; encourages teacher and peer dialogue around learning; encourages positive motivational beliefs and self-esteem; provides opportunities to close the gap between current and desired performance; provides information to teachers that can be used to help shape the teaching.

It is otherwise important that the redesign of in-class activities and assessment take into account the specificities of individual learning/teaching areas. As for the present research, it is relevant to understand how flipped learning redesign interacts with current L2 learning/teaching methods which increasingly tend to recreate the conditions of natural language learning in class. Specifically, Task Based Language Teaching, born within the constructivist paradigm (Ellis, 2003; Nunan, 2004; Skehan, 1998; Willis & Willis, 2007), emphasizes the authenticity of the activities devised to learn a language. By a *real life task* we mean a communicative activity which leads the learner to use the language to achieve an extra-linguistic goal. According to Skehan (1998) a task is different from an exercise in that: (i) meaning is primary; (ii) learners do not have to repeat others' contents, but rather express their own ideas and opinions; (iii) the task reproduces real world activities; (iv) achieving a goal is a priority; (v) assessment is related to students' ability to complete the task and not, as in exercises, to the ability to use the language accurately. All these elements can be enhanced within a flipped instruction model in which instructional materials preview is expected to increase student autonomy and, especially, within a revised flipped model, in which all in-class activities are student-centred.

In line with these premises, this paper reports the results of a preliminary study exploring the use of two alternative flipped classroom designs and assessment procedures of a language module within a course of Italian for Erasmus incoming students at the University of Trieste. Since the flipped mode is increasingly adopted in language teaching (Egbert, Herman, & Lee, 2015; Hung, 2015; Jamaludin & Osman, 2014), any effort which contributes to understand how course design and assessment should be redesigned to make it more effective in this learning area is indeed an important goal.

### **3. Research methods**

#### **3.1. Context and sample**

Students attending the University of Trieste as part of the Erasmus incoming students program come from many European countries with different linguistic and cultural backgrounds. The Italian courses organized by the University of Trieste Linguistic Center (CLA) for this type of users have as their primary objective to build targeted reading, listening, oral production and writing skills to allow learners to read study materials (manuals) effectively, listen to lessons, take notes and take written/oral exams in Italian. At the beginning of the course a test allows the correct placement of students in the

appropriate level (A2 beginners; B1 intermediate; B2 advanced). There is no course for absolute beginners as Erasmus students are supposed to have already acquired the basic knowledge of the Italian language before the beginning of the period abroad. Each course has a duration of 60 hours divided into four 15-hour modules, each dedicated to building four different skills: reading; listening; oral production, and writing, with training credits based on the number of hours actually attended. Especially in the humanities area, credits can be used in partial fulfilment of course attendances. Being highly motivated adult students with specific linguistic needs, the methodology adopted in the courses is of an active type with a wide use of real materials in line with current principles of constructivism. In this context, the flipped classroom should represent an added value that goes in the direction of enhancing student autonomy and engagement. However, despite being adopted in numerous course editions, this methodology does not seem to have produced appreciable results either in terms of final outcomes or in terms of motivation/perception of learning compared to results obtained with more traditional teaching models. From an informal survey among the teachers who adopted the model in the year 2015-2016 some critical issues emerged that may have detrimental effects on the efficacy of the approach. In particular, it was noted that viewing the materials in advance may induce learner disengagement. In some cases, moreover, it was difficult to convince students to prepare in advance for lessons and if they did then they thought it was useless to come to class. Even some students who viewed the materials in advance and attended classes regularly, showed a passive attitude during the lessons due to the idea of already knowing the topic. Ultimately, the only purpose for which the students attended the lessons was to pass the exams, which is not dissimilar from the objective of a traditional class.

Since, as it emerged from the literature, this may be due to a misalignment between curriculum, instruction and assessment, it seemed appropriate to verify whether it was possible to improve student performance level and satisfaction by re-modulating course design and assessment in order to contribute to a re-alignment of the components. As a preliminary study, the following experiment aims to compare class attendances, learning achievements and students' perceptions of the impact of flipped learning methodology of two classes of Erasmus students who attend the writing module as part of the Italian courses organized by the University of Trieste Linguistic Center (CLA). Specifically, flipped instruction delivered through traditional teaching and accompanied by intermediate and final summative assessment (Group A) is compared to a redesign of the module aimed at increasing the significance and value of the methodology applied (Group B).

The learning objectives, which include the competencies and skills requested, were common to the two groups. The definition of these principles formed the basis for the construction of an instructional design that specifies the strategies and processes to achieve them. Therefore, the desired results for students, a short essential understanding and a description of the learning outcomes were established (Wiggins & McTighe, 2005) (Figure 1).

The module architecture for Group A required students to preview three articles similar in content taken from newspapers and/or scientific journals concerning current topics at home before each lesson, without specifying any purpose. The activities planned for the lessons were mainly teacher-centred. In particular, the teacher in class presented the language structures associated with the unknown words encountered by the students, along with examples, usually in PowerPoint or on a white board. The presentation goal was to help the learners acquire new linguistic knowledge. Subsequently, active controlled practice of the target language was provided in the form of individual writing exercises that included

multiple-choice and cloze tests containing the selected words/structures. The results were discussed immediately after with the teacher and with the possible intervention of other students. The main target of practicing was to provide learners with opportunities to strengthen the target structure in order to enhance the learning of the new words and lexical frames. There were two intermediate tests and a final test. Each intermediate test consisted of: (i) translation of the selected words into Italian without a dictionary, respectively out of context (5 words), and as part of sentences similar to those encountered in the articles (5 words), and (ii) a multiple-choice test (10 words). The two tests were graded so as to give more weight to the translation (60%) and less to the multiple-choice test (40%). The translation test is in fact more difficult since it requires the recovery of words in memory. Results obtained in the intermediate tests did not influence final test assessment. The final test involved an essay writing on one of the topics covered (about 300-400 words), with the specific delivery of appropriately using the largest number of words/structures learned. The test, which lasted about half an hour, was scheduled in the same way also for Group B.

<p><b>Course Aim:</b> To write short argumentative essays and improve students' expressive skills through the reading of scientific articles</p>
<p><b>Essential Understanding:</b> Writing reflects the topic dealt with in terms of structure and vocabulary</p>
<p><b>Learning Outcomes:</b> By the end of this module students will have:</p> <ol style="list-style-type: none"> <li>1. become able to write short argumentative texts on current scientific topics;</li> <li>2. gained awareness of the topics in all their aspects by citing sources and producing documented examples;</li> <li>3. understood how to demonstrate consistency in writing by structuring a text clearly without contradictions and/or inconsistencies;</li> <li>4. reached syntactical and grammatical correctness in writing;</li> <li>5. gained appropriateness in the use of the new words/structures learned.</li> </ol>

Figure 1. Module design for developing writing abilities in the Italian language (Group A and B).

In order to redesign the module for Group B students, great consideration was given to what appeared to be the limits of traditional design: (i) the lack of specific deliveries in the pre-lesson phase; (ii) the centrality teacher's explanations in class; (iii) the exclusive use of exercises in the controlled practice phase; (iv) the presence of intermediate graded tests which subtracted time from interaction; (v) the absence of alternative forms of assessment. In particular, the module re-design was aimed at: (i) developing the dimension of individual autonomy through greater empowerment of students in the pre-lesson phase; (ii) providing group work in class thus limiting the role of the teacher; and (iii) introducing writing skills development in the practice phase in order to learn how to write essays from start.

The day before each lesson, students were given the delivery of reading three designated articles by following a set of specific instructions (rubric): (i) understanding article structure; (ii) distinguishing causes from effects; (iii) focusing on unknown lexicon, both at single word and sentence level; (iv) looking for word translation in the dictionary. The students were also informed that the results of their work would be immediately and quickly evaluated orally by the teacher who would provide positive and negative feedback to each student and that, immediately afterwards, they would have to explain the results of their work to a partner.

Class time was spent on group activities. The students worked in pairs receiving specific deliveries. The first delivery involved composing a single list of difficult words/structures

to present to the other groups in order to compose a single conceptual map corresponding to the content of the three texts read at home accompanied by a list of newly acquired words and structures. The second group activity consisted in producing a short essay by developing original points of view starting from the conceptual map previously produced and using the newly acquired lexicon. The third delivery asked each group to discuss the essays between the groups in order to compose one essay. The tasks of negotiating meanings, drawing up maps and producing a final report collectively replaced exercises proposed to Group A, so that students could start to produce language freely from start. Writing assignments are generally well accepted by language students because of the lack of constraints present in completion or multiple-choice exercises. As a result, students may produce more output, have more opportunity for practice and develop a greater sense of autonomy, feeling free to express thoughts.

The first two phases of group work were briefly evaluated informally by the teacher with comments regarding: (i) number of words used; (ii) map articulation; (iii) linguistic quality of the essays. The feedback received influenced the next phase of group discussion that resulted in the collectively written essay, which was subject to discussion with the teacher. At the end of each lesson, if there was time available, the students were required to reflect briefly on their performance through a checklist, as a first-step practice to self-assessment (Black & Wiliam, 1998). Overall, practice was aimed at increasing language use through collaborative and creative activities which involved peer interaction and which were supported by pre-formative and formative informal feedback with the only maintenance of summative assessment on the final exam (Figure 2).

Module design	Groups	
	Group A	Group B
Pre-class	Examine three press articles	Examine three press articles with specific goals
In-class	Teacher explanations; individual exercises (translation; multiple-choice)	Group activities: meaning negotiation; conceptual/lexical map charting; text writing
Assessment methods	Two mid-module graded assessments, final individual summative grading	Pre-formative oral feedback; ongoing formative assessment (individual and group); self-reflection; final individual summative grading

Figure 2. Flipping-the-class module design (Groups A and B).

The study involved 22 university students in Italy for about two months enrolled in Italian language courses organized by the University of Trieste, who came respectively from: Austria (3); Croatia (3); France (2); Greece (4), Romania (3); Slovakia (1), Slovenia (4); Spain (2). As the experiment took place as part of the ordinary teaching activity, it was difficult to randomize the samples. A more viable option was to apply the quasi-experimental design. Group A students (12 students) were the students who attended the writing module as part of the level B1 course held in the academic year 2016-2017, whereas Group B students (10 subjects) were the students who attended the B1 course in the academic year 2017-2018. The two groups had a comparable (B1=intermediate) initial competence as resulted from placement tests.

### 3.2. Research questions

Since the focus of the present research was to identify the overall differences between two different flip-the-classroom instructional designs, the problem was explored from three different perspectives. Therefore, three research questions were identified:

RQ1. Do group B students attend lessons more than Group A?

RQ2. Is Group B flip-the-classroom design more valid in terms of student final achievements?

RQ3. Do Group B students have a better perception of the flipped class environment?

### 3.3. Instruments

The instruments used in the research consisted of: (i) class attendance records; (ii) a scoring report gained from final essay-writing assignments; (iii) a questionnaire investigating students' perceptions of the flipped classroom. Class attendance is to be considered an indicator of motivation so that any differences found on this factor should be carefully analysed as to its possible causes (McLaughlin et al., 2014). The final essays constituted the main indicator of performance and were evaluated through the use of a rubric including four criteria and four performance levels (0-4). Since the main goal of the module was to enhance the use of the newly acquired words/structures in essay-writing, one criterion was related to content (Completeness) while the other three concerned form (Discourse coherence; Formal accuracy; Lexical appropriateness) (Figure 3).

Criteria	Performance level			
	Very good (3 points)	Good (2 points)	Sufficient (1 point)	Insufficient (0 points)
Completeness	The subject is thoroughly treated, plurality of perspectives and examples used	The topic is analysed from a number of perspectives, but argumentations are not always clearly documented	The discussion of the topic is incomplete with few examples used	The topic is poorly treated; examples are scarce; information is sometimes incorrect
Discourse coherence	The text is clearly structured; it shows consistency with the topic in all its parts	The essay internal structure is not always coherent	Gaps, inconsistencies and contradictions are sometimes an obstacle to reading	The various parts are poorly linked, internally incoherent
Formal correctness	The text is smooth in all its parts, without syntactical, and grammatical mistakes	The essay is syntactically and grammatically correct; prevalence of simple constructions	The text contains some grammatical and syntactic mistakes	Many grammatical/syntactical mistakes are present
Lexical appropriateness	A vast bulk of newly acquired words/structures are used appropriately	Words and structures are properly used but the number of freshly acquired ones is limited	The essay contains few newly acquired lexemes with a prevalence of generic words	Generic lexicon is used; newly acquired words are scarce

Figure 3. Final essay assessment rubric.

The questionnaire (Figure 8) contained ten questions which asked the students to rate from 1-5 (Likert scale) how much the learning environment had been useful for them (questions

1-7) and how it had impacted on learning how to write fluently in L2 (questions 8-10). Understanding whether perceptions were modified by the learning experience in the two groups was an important goal of this research since student perceptions of learning may reflect the effectiveness of the teaching approach. To ensure the content validity of the questionnaire, it was examined by a panel of three English language teachers and adjusted based on the feedback received. Cronbach's Alpha coefficient was calculated for the total scale to evaluate internal consistency reliability, and the result was 0.77 indicating that the reliability of the questionnaire was acceptable. The questionnaire was distributed to the students after the final exam. The time allowed to compile it was approx. ten minutes. Due to the low number of students participating in the experiment, perceptions toward the flipped classroom were analysed using descriptive statistics procedures (means and standard deviations) based on the following ranges: 1.00-1.50 = very low, 1.51-2.50 = low, 2.51-3.50 = moderate, 3.51-4.50 = high, 4.51-5.00 = very high.

### 3.4. Findings

*RQ1. Do Group B students attend lessons more than Group A?* Class attendance throughout the module was compared for the two groups, resulting significantly higher in the experimental group ( $t(28) = 4.88, p < 01$ ). According to Figure 4, while attendance to the first lesson was high for both the groups, immediately after, two different patterns emerge. In Group A attendance first decreased to increase again close to the assessed in-class compulsory tests (Lessons 5 and 10). Unsurprisingly, in the lessons 5 and 10 when the compulsory tests took place attendance was at 100% to drop off again after the assessment had taken place. All the students were also present in the final lesson when the final exam took place. During informal talks with the students who did not attend, they expressed annoyance with the lessons of which they thought they already knew the contents. Besides, they said that it was exams which mattered most. In the end it was clear that students' attendance was motivated by assessments. In Group B attendance was not influenced by intermediate assessments (not scheduled) and maintained high and stable throughout all lessons. By attending the classes, students demonstrated they were motivated and liked teacher support and collaborative work with their peers, without being only concerned with test results.

Student Groups	Lessons (the number are reported in percentages)														
	1a	2a	3a	4a	5a	6a	7a	8a	9°	10a	11a	12a	13a	14a	15a
Gr. A	100	80	70	90	100	60	70	70	100	100	60	70	90	100	100
Gr. B	100	91	100	100	91	91	91	83	100	100	91	83	100	100	100

Figure 4. Student participation in lessons.

*RQ2. Is Group B flip the classroom approach more valid in terms of student final achievements?* Given that this question could not be answered as a pre-post test design was not adopted, some indications may still be drawn. Performance in the final assignment assessed through the scoring rubric presented in Figure 3 represented the main data for analysis. Descriptive statistics for the results of final exams for both groups are shown in Figure 5. An independent samples  $t$ -test showed that the performance result of the modified

module design class is more satisfactory when compared to the class which used a more traditional flipped classroom approach ( $t(20)=5.18, p<.01$ ).

Student Groups	Total Score	Min	Max	Mean	S.D.
Group A	12	2	9	5.9	2.13
Group B	12	8	12	9.6	1.23

Figure 5. Students' learning achievements.

By separating global assessment into assessment on the essay conceptual component (criterion Completeness) and assessment on the formal component (criteria: Discourse coherence + Formal correctness + Lexical appropriateness), it is clear that while the former is not significantly different in the two groups (Figure 6) ( $t(20) = 0.11, p > .05$ ), a statistically significant difference emerges in the assessment of the formal component of the work (Figure 7) ( $t(20) = 6.89, p < .01$ ).

Since the purpose of the module was precisely to improve formal expression in writing, it can be concluded that in Group B the activities and the assessment methods introduced were more suitable to ensure better performance on the linguistic component.

Student Groups	Total Score	Min	Max	Mean	S.D.
Group A	3	1	3	2.2	.78
Group B	3	1	3	2.1	.57

Figure 6. Students' learning achievements for criterion Completeness.

Student Groups	Total Score	Min	Max	Mean	S.D.
Group A	9	1	6	3.7	1.56
Group B	9	6	9	7.5	1.21

Figure 7. Students' learning achievements for criteria (Discourse coherence + Formal correctness + Lexical appropriateness).

*RQ3. Do Group B students have a better perception of the flipped class environment?*

Item		Mean	S.D.	Mean	S.D.
1.	helped me to organize my work	2.5	.97	3.75	.75
2.	allowed me to understand my mistakes	2.6	.69	3.91	.51
3.	enabled me to study at my own pace	2.1	.56	3.08	.66
4.	encouraged me to be an active learner	2.2	.63	3.83	.57
5.	allowed me take control of my learning	2.0	.66	2.58	.66
6.	helped me to understand how to improve	2.2	.63	4.0	.73
7.	made me engaged with the activities	2.1	.73	4.08	.66
8.	made me able to analyse topics	2.2	.91	3.91	.66
9.	helped me to enlarge my vocabulary	1.8	.42	3.58	.79
10.	allowed me to write more fluently	1.7	.67	3.66	.77

Figure 8. Students' perception of the impact of flipping-the-classroom methodology on learning strategies (1-7) and on L2 writing abilities (8-10).

Students' perceptions of the flipped classroom were explored in depth through a questionnaire containing specific questions whose answers are summarised in Figure 8.

Overall, the findings revealed that Group B ratings were sensibly higher than Group A on all items. There was only one item (item 5) on which the two groups were not much different. This item regards the control over learning on which the perception of both groups was rather low. As for Group A, the organizational aspect and the possibility of understanding one's errors (item 1 and item 2) record the most positive evaluations, whereas item 9 and item 10 regarding the impact of the flipped classroom on writing fluently recorded the lowest perception levels. In group B item 6 and item 7, concerning respectively the possibility of improvement and engagement in the activities, are associated with the highest perceptions. Moving to the questions in which students were asked to rate how much they valued the effectiveness on learning (item 8, item 9 and item 10) Group B perceptions were rather high.

#### **4. Discussion**

The goal of this experiment was to assess the effects on learning of two different flip-the-classroom designs for an Italian language module aimed at developing writing abilities. Unfortunately, the fact that the research lacked a rigorous pre/post test design allows to draw only some indications.

Findings showed that students that attended classes where the model was associated with a re-design of pre-class and in-class activities along with the adoption of new forms of assessment obtained higher class attendance records and reached better performance levels than students who attended the module with a more traditional design setting.

These results may be explained by the following reasons. First, by giving students specific reading instructions, as well as by communicating the purpose of reading in advance (i.e. explaining one's pre-class work to a classmate) allowed students to concentrate more on the reading task, obtaining greater profit. On the contrary, the simple delivery of reading the text in advance may have caused anxiety and consequent dispersion in the study, which resulted in fewer learned words. Second, in-class activities based on team work may have turned collaboration into effective learning. Third, the possibility of producing new learning objects (conceptual maps, essays) from start rather than taking repetitive tests may have contributed to making learning more incisive and realistic. Finally, formative assessment provided by the teacher informally and the moments of student self-reflection promoted at the end of lessons may have contributed to better performances by lowering anxiety and increasing feedback. Unfortunately, the research design did not envisage checking whether performance differences were due to one of these variables or to their interaction as a whole. Likewise, it cannot be excluded that better performances found in the experimental group were not due to the greater pedagogical value of the proposed activities but merely to the fact that they were more numerous.

However, not only did class attendances and objective performances improve as a result of the experiment. Students had higher perceptions on the flipped classroom when this was accompanied by a redesign of the module. This result may be interpreted as a confirmation of the first hypothesis put forward above, that the flipped class re-design was more engaging than a traditional flipped module so as to positively modify the overall student perception of effectiveness, which is considered a highly important factor for the evaluation of learning. Of course, it cannot be excluded that it was the intrinsic value of the activities and not the flipping the classroom modality which impacted more on students' perceptions and final results.

## 5. Conclusion

Flipped settings are more and more used as a teaching tool to help students learn more effectively. The methodologies associated with this approach are however different. Very often courses taught in a flipped-type classroom mode use a teacher-centred approach along with traditional forms of assessment. Yet, frequent student resistance and dissatisfaction indicates that this may not be the best way of implementing the model. The aim of this preliminary study was to redesign a flipping-the-classroom writing module of an Italian language course for Erasmus students into a meaningful flipping learning experience by providing a new learning setting and continuous step-by-step feedback. This was prompted by past teaching experiences in which flipping the classroom did not result in improving learning because students continued to be more focused on exams than on the learning process. One of the main advantages of a flipped classroom is that it provides more time for teachers to work with students.

The results of the experience are encouraging. Although they are to be considered only as insights due to some limitations in the research design, when compared with a more traditional flipped teaching approach, the higher attendance of the experimental group, their performance results in the final test as well as their perceptions indicate that the students appreciate authentic learning experiences in their education and that this impacts on their learning results. The higher degree of proficiency implied that they could apply the linguistic knowledge to accomplish the writing task more effectively. That is, the redesigned module enabled students to learn and practice more. The little and often assessment approach applied was important for students to feel engaged throughout the module and to give them the right message about what really counts in the learning process. Assessing students with tests and exams as in the traditional approach, effectively mitigates this advantage by replacing time spent on direct student teacher interaction with non-interactive assessment which does not provide a direct learning experience. Besides, as emerges from the literature, team work to create new learning objects supported by ongoing personalized feedback are conditions which enhance learning in flipped contexts. All these elements were positively reflected in the survey carried out to assess learners' perceptions where students in the experimental group demonstrated a more positive perception on all items. Overall, the salient qualities of the flipped learning contexts, namely the possibility of self-determination, of self-regulation and of being active protagonists of the learning process have been made more incisive by the redesign of the learning environment and by the adoption of forms of evaluation that are process-oriented rather than result-oriented.

The reproposal of the research that involves overcoming current methodological limitations represents the next step. To this end it is necessary to face all the critical issues present in the current research approach. First, it is essential the adoption of a pre/post-test design which allows to effectively attribute final results to variable manipulation. As for the sample size, it is conceivable to involve a larger number of subjects, for example by involving students enrolled in the other courses (A1 and B2), with the necessary inclusion of pre-test scores as a covariate in the comparison of post-test scores. At present, however, it appears difficult to randomize each course in order to assign subjects to control and experimental groups. Moreover, it seems important to include the analysis of the interaction between variables in the research design in order to understand which variables and/or interaction between them are actually effective.

Further research is also needed to see if results can be generalized to other language learning contexts and to other disciplines as well. Besides, new studies are needed to go deeper in other aspects of the flipped learning design. In particular, it is well known that a

way to work cooperatively in XXI century learning environments is through learning platforms in which students can work on group assignments as well as receive feedback from teachers and peers. This further possibility, already explored in the literature, should be carefully evaluated as an alternative tool to the in-class face-to-face activities adopted in the present design. It is otherwise clear that the pedagogical value associated to student-centred activities deserves to be explored in depth also where the flipped classroom model is not adopted.

### Reference list

- Albert, M., & Beatty, B. (2014). Flipping the classroom applications to curriculum redesign for an introduction to management course: Impact on grades. *Journal of Education for Business*, 89, 419–424.
- Bergmann, J., & Sams, A. (2012). *Flip your classroom: reach every student in every class every day*. Washington, D.C.: International Society for Technology in Education.
- Bishop, J. L., & Verleger, M. A. (2013). The flipped classroom: a survey of the research. *120<sup>th</sup> ASEE Annual Conference and Exposition, Atlanta, GA*, 30(9), 1–18.
- Black, P., & Wiliam, D. (1998). Inside the black box: raising standards through classroom assessment. *Phi Delta Kappan*, 80(2), 139–48.
- Boud, D. (1995). *Enhancing learning through self-assessment*. London: Kogan Page.
- Boud, D., Cohen, R., & Sampson, J. (1999). Peer learning and assessment. *Assessment and Evaluation in Higher Education*, 24(4), 413–426.
- Boud, D., Cohen, R., & Sampson, J. (2001). *Peer learning in higher education: learning from and with each other*. London: Routledge.
- Boud, D., & Dochy, F. (2010). *Assessment 2020. Seven propositions for assessment reform in higher education*. Sydney: Australian Learning and Teaching Council.
- Butts, A. (2014). Student views on the use of a flipped classroom approach: Evidence from Australia. *Business Education & Accreditation*, 6(1), 33–43.
- Chen, Y. L., Wang, Y. P., Kinshuk, & Chen, N. S. (2014). Is FLIP enough? Or should we use the flipped model instead? *Computers & Education*, 79, 16–27.
- Danker, B. (2015). Using flipped classroom approach to explore deep learning in large classrooms. *The IAFOR Journal of Education*, 3(1), 171–186.
- Davies, R., Dean, D., & Ball, N. (2013). Flipping the classroom and instructional technology integration in a college-level information systems spreadsheet course. *Education Technical Research Development*, 61, 563–580.
- Earl, L. (2006). Assessment: a powerful lever for learning. *Brock Education, A Journal of Educational Research and Practice*, 16(1), 1–14.
- Earl, L., & Katz, S. (2005). *Rethinking classroom assessment with purpose in mind*. Winnipeg, Manitoba: Western Northern Canadian Protocol.
- Egbert, J., Herman, D., & Lee, H. (2015). Flipped instruction in English language teacher education: A design-based study in a complex, open-ended learning environment. *Teaching English as a Second or Foreign Language*, 19(2), 1–19.

- Ellis, R. (2003). *Task-based language learning and teaching*. Oxford: Oxford University Press.
- Enfield, J. (2013). Looking at the impact of the flipped classroom model of instruction on undergraduate multimedia students at CSUN. *TechTrends*, 57(6), 14–27.
- Ferreri, S., & O'Connor, S. (2013). Instructional design and assessment. Redesign of a large lecture course into a small-group learning course. *American Journal of Pharmaceutical Education*, 77(1), 1–9.
- Fisher, M. (2013). *Digital learning strategies: How do I assign and assess 21<sup>st</sup> century work?* Alexandria, VA: Association for Supervising Curriculum Development (ASCD).
- Gallagher, C. (2003). Reconciling a tradition of testing with a new learning paradigm. *Educational Psychology Review*, 15(1), 83–99.
- Gilboy, M., Heinerichs, S., & Pazzaglia, G. (2015). Enhancing the student engagement using the flipped classroom. *Journal of Nutrition Education and Behaviour*, 47(1), 109–114.
- Gollub, J., Bertenthal, M., Labov, J., & Curtis, P. (2002). *Learning and understanding: improving advanced study of mathematics and science in U.S. high schools*. Washington, D.C.: National Academy Press.
- Hamdan, N., McKnight, P., McKnight, K., & Arfstrom, K. (2013). *A Review of flipped learning*. Virginia: Pearson: George Mason University, 1–17.
- Hattie, J., & Timperley, H. (2007). The power of feedback. *Review of Educational Research*, 77(1), 81–112.
- Hung, H. (2015). Flipping the classroom for English language learners to foster active learning. *Computer Assisted Language Learning*, 28(1), 81–96.
- Jamaludin, R., & Osman, S. (2014). The use of a flipped classroom to enhance engagement and promote active learning. *Journal of Education and Practice*, 5(2), 124–131.
- Jungic, V., Kaur, H., Mulholland, J., & Xin, C. (2015). On flipping the classroom in large first year calculus courses. *International Journal of Mathematical Education*, 46(4), 508–520
- Kerr, B. (2015). The flipped classroom in engineering education: A survey of the research. *Interactive Collaborative Learning (ICL), 2015 International Conference on*. IEEE, 1–4.
- Kim, M. K., Kim, S. M., Khera, O., & Getman, J. (2014). The experience of three flipped classrooms in an urban university: An exploration of design principles. *The Internet and Higher Education*, 22, 37–50.
- Kong, S. C. (2014). Developing information literacy and critical thinking skills through domain knowledge learning in digital classrooms: An experience of practicing flipped classroom strategy. *Computers & Education*, 78, 160–173.
- Lage, M., Platt, G., & Treglia, M. (2000). Inverting the classroom: A gateway to creating an inclusive learning environment source. *The Journal of Economic Education*, 31(1), 30–43.

- Largent, D. (2013). Flipping a large CS0 course: An experience report about exploring the use of video, clickers and active learning. *Journal of Computing Sciences in Colleges*, 29(1), 84–91.
- Laurillard, D. (2012). *Teaching as a design science: Building pedagogical patterns for learning and technology*. New York, NY: Routledge.
- Liu, N., & Carless, D. (2006). Peer feedback: The learning element of peer assessment. *Teaching in Higher Education*, 11(3), 279–290.
- Lukassen, N. B., Pedersen, A., Nielsen, A., Wahl, C., & Sorensen, E. K. (2014). Digital education with IT: How to create motivational and inclusive education in blended learning environments using flipped learning – A study in nurse education. *Proceedings of the European Conference on E-Learning*, 305–312.
- Mason, G., Shuman, T., & Cook, K. (2013). Comparing the effectiveness of an inverted classroom to a traditional classroom in an upper-division engineering course. *IEEE Transactions on Education*, 56(4), 430–435.
- McLaughlin, J. E., Griffin, L. M., Esserman, D. A., Davidson, C. A., Glatt, D. M., Roth, M. T., ... & Mumper, R. J. (2013). Pharmacy student engagement, performance, and perception in a flipped satellite classroom. *American journal of pharmaceutical education*, 77(9), 1–8.
- Milman, N. B. (2012). The flipped classroom strategy: What is it and how can it best be used? *Distance Learning*, 9(3), 85–87.
- Missildine, K., Fountain, R., Summers, L., & Gosselin, K. (2013). Flipping the classroom to improve student performance and satisfaction. *Journal of Nursing Education*, 52(10), 597–599.
- Moffett, J., & Mill, A. C. (2014). Evaluation of the flipped classroom approach in a veterinary professional skills course. *Advances in Medical Education and Practice*, 5, 415–425.
- Nicol, D., & MacFarlane-Dick, D. (2006). Formative assessment and self-regulated learning: A model and seven principles of good feedback practice. *Studies in Higher Education*, 31(2), 199–218.
- Nunan, D. (2004). *Task-Based Language Teaching*. Cambridge: CUP.
- Nwokeji, J. C., & Holmes, T. S. (2017). The impact of learning styles on student performance in flipped pedagogy. *2017 IEEE Frontiers in Education Conference (FIE)*, 1–7. Piscataway, NJ: IEEE.
- O’Flaherty, J., & Phillips, C. (2015). The use of flipped classrooms in higher education: A scoping review. *The Internet and Higher Education*, 25, 85–95.
- Pierce, R., & Fox, J. (2012). Instructional design and assessment: Vodcasts and active learning exercises in a “flipped classroom” model of a renal pharmacotherapy module. *American Journal of Pharmaceutical Education*, 76(10), 1–5.
- Skehan, P. (1998). *A cognitive approach to language learning*. Cambridge: CUP.
- Strayer, J. (2012). How learning in an inverted classroom influences cooperation, innovation and task orientation. *Learning Environments Research*, 15, 171–193.

- Talbert, R. (August 10, 2015). *Four Assessment Strategies for the Flipped Learning Environment*. <https://www.facultyfocus.com/articles/blended-flipped-learning/four-assessment-strategies-for-the-flipped-learning-environment/> (ver. 23.03.2020).
- Westermann, E. B. (2014). A half-flipped classroom or an alternative approach? Primary sources and blended learning. *Educational Research Quarterly*, 38(2), 43–57.
- Wiggins, G., & McTighe, J. (2005). *Understanding by Design* (2<sup>nd</sup> ed.). Alexandria, VA: ASCD.
- Willis, D., & Willis, J. (2007). *Doing task-based Teaching*. Oxford: OUP.
- Wilson, S. (2014). The flipped class: A method to address the challenges of an undergraduate statistics course. *Teaching of Psychology*, 40(3), 193–199.
- Yestrebsky, C. L. (2015). Flipping the classroom in a large chemistry class-research university environment. *Procedia - Social and Behavioral Sciences*, 191, 1113–1118.
- Yeung, K., & O'Malley, P. (2014). Making “The Flip” work: barriers to and implementation strategies for introducing flipped teaching methods into traditional higher education courses. *New Directions for Institutional Research*, 10(1), 59–63.
- Yorke, M. (2003). Formative assessment in higher education: Moves towards theory and the enhancement of pedagogic practice. *Higher Education*, 45(4), 477–501.