New Blended Learning Strategy Based on Flipped-Learning for Vocational Work-Linked Training

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Abstract
In a changing Moroccan educational landscape, Addressing teaching development needs is becoming a major issue in vocational work-linked Training. In this context, this paper present a new blended learning strategy based on the flipped classroom, using a social learning platform as support. Through this strategy, we increased the time dedicated to regulation by the implementation of a self-regulation and a co-regulation online in first time, and other regulation in classroom. The result showed that this strategy guides and increases the time of initial training, and improve the efficiency, performance of student teachers while supporting teaching needs and self-learning skills.
Keywords: Blended learning, flipped learning, vocational work-linked Training

1. Introduction

Nobody can deny teacher performance is mainly based on the quality of basic training, qualification, durable and effective continuing education. In Morocco, the qualification of teachers lasts one year with a training program based on the alternation as a training model. This model help the harmonization between theoretical and vocational training in which the self-learning competence has a central position. This qualification takes place in two training areas: the regional center for the education profession and training (CRMEF) and schools as workplace that contribute to a progressive and dynamic construction of professional skills training. According to this model (Dalli 2010), the school is taken as space for achievement of real activities of the trainee teacher. Indeed, the CRMEF is considered as space that provides the values, knowledge, skills and competencies in education (40% of training time). As well, the workplace offer the opportunity to put them to test in same condition physique and social of real work (60% of the time).

Challenged by the heterogeneity of profiles and inadequate initial training of trainee teachers, some teachers use adult education procedures and strategies but if we talk about quality, we have to get off the beaten track. With the rapid evolution in new technologies, others innovative methods and online tools promote skills development.

Learning Management Systems (LMSs) are becoming much easier to set up use, and are used by instructors to create, manage and track online training. LMSs can offer a great variety of channels and workspaces to facilitate information sharing and communication among participants in a course. With the introduce of Cloud computing in education that has improved the access, sharing and storage of information, and allows the introduction of a new educational model as flipped classroom that swaps the arrangement of knowledge imparting and knowledge internalization comparing to traditional classroom (Jinlei 2012)

Educators and searchers encourage the use of both technology and the flipped classroom model as a hybrid learning strategy (Alvarez 2012; Berrett 2011; Dziuban 2004; Fulton 2012; Graham 2006; Hughes 2012; Khan 2012; Kleiman 2000; Novak 2011; Talbert 2012).

The principle of a flipped classroom modifies the traditional learning model: Basic elements of the course and elementary and practice exercises are outside class while the more difficult issues and developments are treated in the presence of learners inside class (Fine 2014). Thus, this strategy involves that students will take control of their learning in terms of pace of study and the mastery the content of training courses by becoming engaged. (Alvarez 2012, Fulton 2012). This approach allows the teacher to use in several ways class time, such as the regulation and in our case taking more time for professional situations.

As shown in Figure 1, In classical implementation of the flipped classroom, the learning time is divided among these three phases (Boyer 2012) namely viewing video clips, regulation and activities through workshops and case studies.
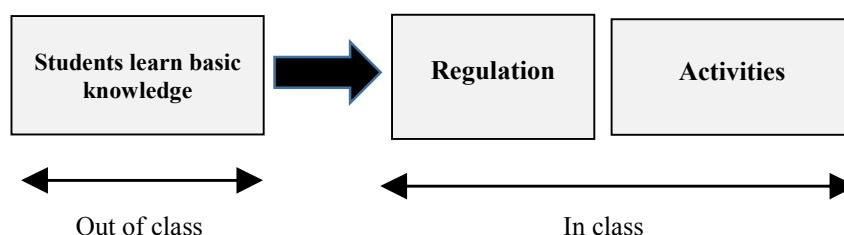

Figure 1. the three phases of classical flipped classroom

In this paper, we present a new strategy for blended learning vocational work-linked Training. This strategy is based on the technique of the flipped classroom. Through this strategy, we have controlled and managed the time devoted to regulation; first, by the establishment of an online pre-self-regulation and social regulation by pair, and another regulation in class. To our knowledge no attempt highlighting the impact of this new approach to the training of future teachers were made. While it is interesting to study how best to integrate this new strategy.

2. Research Methodology and Implementation

The research methodology and implementation as three main parts which are described as follow:

2.1   Research problems and questions

Among the great challenge when designing and in tailoring a teaching-learning strategy is to make the learner central to learning which took into account several constraints such as profiles and inadequate initial training of trainee teachers. Moreover, as shown in the training schedule shown in Figure 2 below, the time for theoretical training (in white) was very insufficient and inadequate to acquire various skills covered in the modules taught.

In a techno-pedagogical practice [10], It appears more relevant to affix both face to face & online; This prompted us to choose the use of blended learning based on the flipped classroom with the use of a Computing Environment for Human Learning (CEHL) which allows to set up training systems that can be spatially and temporally deferred between trainee teachers and teacher.

Two research questions were raised during this study: i) Can this strategy increase the time and motivation of the training? ii) What is the impact of this approach on the effectiveness of learning?

Figure. 2. Planning of training in the 2nd half in CRMEF.

2.2 objectives

The research objectives in this study are:

- Adapting the flipped classroom in vocational work-linked training using a hybrid approach.
- To study if the involvement trainee's teachers in the learning process is satisfactory.
- To study and examine the effectiveness and feasibility of the use of this approach compared to the traditional approach.

This study was conducted during the 2013/2014 training year in CRMEF (Regional Centre of Trades Education and Training) Agadir in Morocco. This is a higher public educational institution and research whose main function is the training of future teachers. This strategy has been applied for the training module entitled "ICT-based training" which has an hourly volume of 34 hours. The target population consists of 4 groups of 24 trainee teachers each.

2.3 Implementation

The main objective of using the flipped classroom is to extend the initial time of training and the regulation, even during real activities of the trainee teacher in work situations at school that can last up to three weeks. Therefore, we have developed an intelligent approach, shown in Figure 3, in which we shared the time devoted to the regulation in two phases:

- **Phase 1** (self-regulation) was conducted online in order to increase the regulation time and take advantage of technological and pedagogical practices of distance education (Peraya 2008). It manifests as a self-regulation (Laveault 2012) allows learners to focus on the essentials first, and second regulation using social learning through synchronous and asynchronous exchanges between peers or the teacher. Indeed, the online Computing Environment for Human Learning (CEHL) used does not

offer only the implementation of mediated resources, but also of collaboration tools (wiki) and communication (forum, chat).

● **Phase 2** (post-regulation): in classroom which we operate pre-control results to conduct a regulatory.
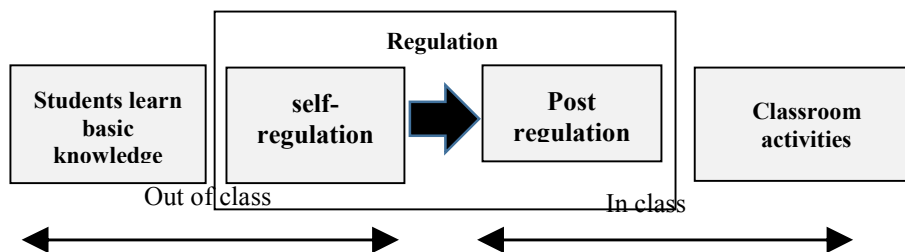

Figure 3. Proposed approach

2.4 Learning Platform

The choice of the online platform is conditioned by the favoring of self-learning and social learning exchange. For this, we chose Blackboard (Coursesites 2016) that provides all the tools usually available in e-learning platforms whose main features are:

● The choice of learning strategy.
● The introduction of video clips.
● The possibility of individual and collective management of inscribed.
● The information and shared communication spaces.
● The educational monitoring…
● The home page (Figure 4) has been configured so as to provide student teachers:
● An overview of the training modules.
● Video clips.
● triggering discussions and sharing.

3. Results

In this section, we present the initial results obtained from observation and monitoring the activities of learners on the platform and in the classroom.

3.1 The analysis of learners' activity

Monitoring activities of learners throughout the period devoted to the module allowed us to see that the student teachers consult daily the platform as confirmed by the histogram shown in Figure 5. Furthermore, the peak of consultation is recorded during the period of the MSP. The result of this strategy is that the time for training was insufficient and becomes longer.

Figure 4. Overview of the home page

For more information about the platform connecting ridges, we did the scan of connections for several days on time. The statistical average of connected number is shown in Figure 6. The analysis of the histogram shows that the highest connection times, to the platform, are recorded between 15 and 18h. This led us to use this time to plan a regulation, between trainees and teacher, during the last MSP and assessment quiz at the end of the module.
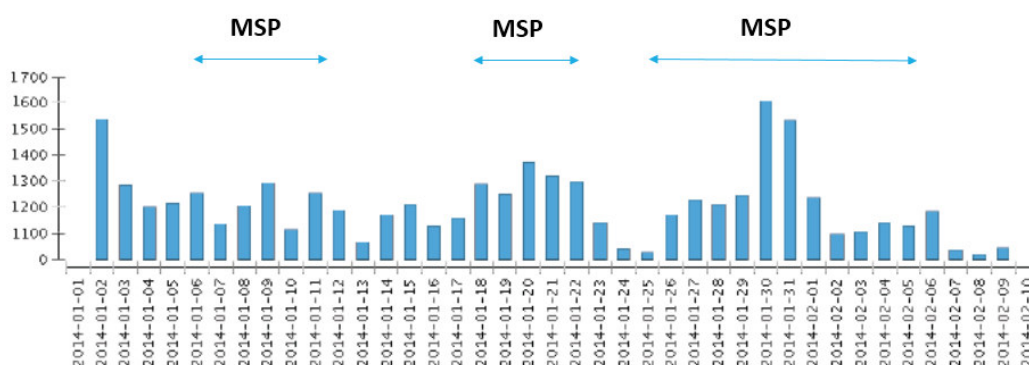
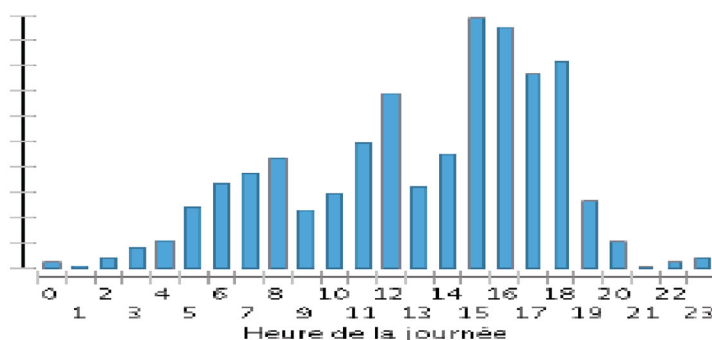**Figure. 5.** The histogram of the platform consultation .

Fig. 6. The histogram of the activities during the day

3.2 The pre-regulation and sharing

The monitoring of the various activities carried out on the platform (table 1) showed that in addition to the content made available by the teacher, students also share YouTube videos (20%) indicating that the use of a pre-regulation by social exchange helps develop other skills and knowledge not covered in the video clips.

One key finding emerged from these data analysis was that in our model, we managed to engage teachers in the learning process.

Other preliminary results of this study from direct observation during the implementation have shown remarkable commitment in professional workshops of learners following a development of tools and resources (knowledge) pre-purchased online from the retrieval of video capsules on the one hand and pre-regulation on the other.

Furthermore, according to interviews with student teachers, an important result has caught our attention is that teacher's trainees learned how to use and develop new teaching strategies using ICT.

Table 1. The monitoring of the various activities carried out on the platform.

Item	Percentage
Content (Video clip)	59%
Shared Videos (YouTube)	20%
My notes	5%
Discussion	4%
Assignment (MSP)	12%

4. Conclusions

In this work, we developed a blended learning approach based on the flipped classroom as part of a vocational training alternately. Under this approach, the control was carried out in two phases: a pre-regulation and a post-regulation.The effectiveness of the use of this approach has been demonstrated. Indeed, the time of formation has been widely framed without the trainee teachers noticing. In addition, we detected the period connection during MSP which led us to use it to plan a regulation, between teacher and student, or other activities. The pre-regulation in the sharing form and collaboration have helped develop other skills and other knowledge not covered in the videos capsules. Possibly, this model has fostered self-learning skills which occupies a central position in the professionalization of teaching. Studies are underway on motivation, perception of our approach compared to a traditional approach and its impact on the habits and professionalism of teacher trainees.

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