# Effective Teaching Strategies for Multilevel Classes: A Focus on Alternating Instructional Modes

Fatima Zahra El Ouahabi[1,*], Rachid Drissi El Bouzaidi[2], Abdellah Chaiba[3], Lahbib Hamdaoui[3] & Mohamed Erragragui[3]

[1]Regional Center for Education and Training Professions Rabat-Salé-Kenitra, Morocco

[2]Regional Center for Education and Training Professions Souss Massa, Taroudant, Morocco

[3]Regional Center for Education and Training Professions Draa Tafilalet, BP 9, Ouarzazate, Morocco

*Correspondence: Regional Center for Education and Training Professions Rabat-Salé-Kenitra, Morocco. E-mail: prelouahabi@gmail.com

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**Abstract**

This paper explores a teaching strategy in multilevel classes (MLCs) to tackle learning time loss and teacher strain. Focused on Moroccan primary education, the strategy involves alternating traditional and virtual teaching methods. Expanding previous research, this work 3rd year primary Arabic language and 4th year primary Islamic Education double-level classing. Using NetSupport School software, lessons were conducted with real and virtual teachers' presences, analyzing impacts on lesson duration, teacher effort, and learners' time on task. Results demonstrate the strategy significantly increased effective lesson duration in experimental groups, reducing teacher intervention time and increasing learner task duration compared to controls. Virtual teacher presence showed promise in managing time-out and enhancing student engagement, particularly with the learners' permanent teacher. Challenges emerged when learners interacted with alternative virtual teachers, highlighting the significance of the teacher's perceived status on student engagement and non-adaptation of the learners to a new virtual teacher. For a deep interpretation of this non-adaptation, the importance of the perceived "status" of the teacher has been developed. This study underscores strategic teaching's importance in MLCs to optimize learning outcomes and mitigate time constraints. It emphasizes the pivotal role of the teacher's perceived status in student engagement dynamics.

**Keywords:** multilevel classes (MLCs), NetSupport school software, heterogeneous lessons, Moroccan primary education, learners' time on task, time-out management, virtual presence, real presence

## 1. Introduction

Managed by a single teacher, a multilevel class (MLC) sees two or more levels of students being guided through a lesson. The evolving diversity among learners presents a considerable challenge for their instructor (Carr, 2005; Mahmoodi-Shahrebabaki, 2017; Suprayogi, Valcke & Godwin, 2017; Ashton, 2018). In Morocco and globally, MLC teachers use best practices to promote students' academic success. In handling such classes, teachers are required to create engaging activities and implement effective strategies to maintain students' interest and motivation for learning, even when the curriculum doesn't perfectly match their proficiency levels (Sevy, 2016). The predominant mode typically involves alternative education paired with individual work. This could take the form of setting up different learning stations in different areas of the classroom, one for each teacher and at least one for students to study independently. It is a prevailing approach across several countries (Mason, 1995; Mason & Burns, 1996; Mason & Burns, 1997; Mason & Stimson, 1996; Veenman, 1995; Veenman, 1996; Sevy, 2016). Teaching in alternating modes can exhaust these teachers and often leads to significant time wastage (Ashton, 2018; Huhn & Davis-Wiley, 2023). Notably, too few initial training programs prepare teachers for such class settings nationally and globally (Veenman, 1995; Ghier & Pierron, 1997; Costa & Timmons, 2002; Little, 2004; Lange, 2019; Bouzaidi, Chaiba, & Rahal, 2021). There is insufficient support for continuous professional training, further exacerbating these challenges (Bouzaidi et al., 2021).

In prior research in 2021, Bouzaidi and his research's group explored a strategy incorporated two teaching modes:

the classic "work and make work" approach and a "real-virtual" teacher presence mode within a subset of two-tiered classes, especially in the second year of primary school (2nd YP) and the third year of primary school (3rd YP). Leveraging the NetSupport School software platform, which enabled teachers to direct lesson sequences (video capsules) and engage with learners in predefined groups or the entire class. Applying this strategy in two diverse French courses resulted in noteworthy outcomes. The approach effectively minimized downtime, alleviated teacher fatigue, and heightened learner engagement.

This study aims to extend its investigation to different levels and topics by evaluating the effectiveness of implementing the strategy cited previously with the alternation of its two modes: “working and making work” and “real-virtual” in two heterogeneous classrooms. These courses include a group consisting of two double-level courses: one teaching Arabic language in the third grade of primary school and the other teaching Islamic education in the fourth grade. Additionally, the study examines the effects on lesson duration, teacher effort, and learners’ time on task, of the virtual presence of an alternative teacher instructing classes distinct from those under experimentation. This comprehensive approach allows us to develop a nuanced understanding of how strategies impact learning outcomes across educational settings and disciplines.

## 2. Literature Review

In the literature, a large number of studies have examined multi-level classrooms (MLCs) in different international contexts. Some studies have found that MLC environments are as effective for student learning as single-phase environments (Veenman, 1995; Hattie, 2002; Little, 2004; Fosco, Schleser, & Andal, 2004). However, other studies have reported more varied outcomes (Winsler et al., 2002; Moller, Forbes-Jones, & Hightower, 2008). However, it is widely agreed upon that this type of class presents significant challenges and additional workload for teachers (Veenman, 1996; Benveniste & McEwan, 2000; Fradette & Lataille-Démoré, 2003; Carr, 2005; Allaire, Hamel, Gaudreault-Perron, & Laferrière, 2012; Mahmoodi-Shahrebabaki, 2017; Suprayogi et al., 2017; Ashton, 2018). Moreover, there is consensus regarding the insufficient resources available to support teachers of multi-level classrooms (Martin, 2006; Lataille-Démoré, 2008). Important reviews of published literature (Fradette & Lataille-Démoré, 2003; Lataille-Démoré, 2008), a meta-analysis (Veenman, 1996), and a questionnaire survey to which 105 teachers from 16 school boards responded (Allaire et al., 2012) are the basis of these findings. The difficulties noted for teaching the Multilevel Classes mainly concern managing differences between students, the work of planning and evaluation, and the lack of suitable equipment. The needs expressed are in the area of educational support, release time, and access to suitable materials. In Mulryan-Kyne's 2005 study, which primarily examined classroom practices in MLCs, it was found that teachers play a pivotal role in determining the quality of classroom learning (Mulryan-Kyne, 2005). In a similar context, Hargreaves and his research team noted in 2001 that training is necessary to ensure student assessment (Hargreaves, Montero, Chau, Sibli, & Thanh, 2001). Therefore, educators need to develop ways to respond to student diversity and adjust their teaching methods accordingly. These approaches may include access to effective techniques for implementation individual tasks, group collaboration, or facilitating peer tutoring (Longe, 2019). While there is limited research on teaching strategies in multi-level classrooms, existing research has mainly focused on English language teaching, as shown in the work of Treko (2013), Sevy (2016), and Mahmoodi-Shahrebabaki (2017) as examples. Nevertheless, teachers can find inspiration from dynamic and tailored pedagogical practices, as demonstrated by the work of Suprayogi et al. (2017) and Gabriel (2019), to tailor their teaching to the diverse needs of students. Teaching in alternating modes can place a considerable burden on these teachers, resulting in notable time wastefulness (Ashton, 2018; Huhn & Davis-Wiley, 2023). This teaching strategy, which involves switching between different instructional methods, can lead to teacher exhaustion and contribute to significant time loss during the instructional process. MLC is an excellent environment that promotes student learning. Students must take responsibility because the teacher cannot always be on the same level as the students or their groups. By implementing individual work plans in multi-stage courses, student autonomy can be promoted effectively and quickly (Lange, 2019).

## 3. Method

The adopted approach is quantitative research, specifically deductive research. The didactic steps of the two chosen Arabic language and Islamic Education lessons, each lasting 45 minutes, were followed. Table 1 outlines the phases executed in each lesson.

**Table 1.** Phases of Lessons Studied

| Lesson | Phase 1 | Phase 2 | Phase 3 | Phase 4 |
|---|---|---|---|---|
| 3rd YP Arabic language | Diagnostic assessment + Citation and writing of examples | Analysis | Learning summary | Assessment |
| 4th YP Islamic Education | Diagnostic assessment + Baseline situation | Construction of concepts<br>Source text (reading, comprehension, extraction, and content analysis) | Learning summary | Assessment |

Each class's two group levels were divided into two homogeneous subgroups of five students each. Two Control subgroups (C3 + C4) and (C'3 + C'4) were given traditional lessons, while two Experimental subgroups (E3 + E4) and (E'3 + E'4) were given the same lessons using our strategy of combined virtual and real presence.

In the first class, the permanent teacher was virtually present with the Experimental subgroup (E3 + E4). In the second class, the Experimental subgroup (E'3 + E'4) engaged with the same lessons in the virtual presence of a different teacher. In both Experimental classes, two console computers connected to a third administrator facilitated the sessions. The teacher made sure that the video capsules containing lesson sequences were present in their administrator workstation and that they could see the two screens of the classroom consoles initially blocked in the NetSupport School software (www.netsupportschool.com).

At the beginning of the course, the teacher starts with the first phase of the first video capsule and assigns the appropriate tasks to the upper subgroup E4 (or E'4). As students in this group viewed the capsule under the virtual guidance of their regular (alternative) teacher, students in the other group E3 (E'3) proceeded with phase 1 under the supervision of their real teacher. At the end of the capsule, the teacher blocked the screen, allowing subgroup E4 (E'4) to complete the required tasks. In the second phase, the teacher was physically present with subgroup E4 (E'4) and virtually present with subgroup E3 (E'3). The entire course is conducted in a mode where the teacher alternates between real and virtual classes.

To assess the effectiveness of this approach on learning outcomes, four recorded lessons were analyzed in detail. The analysis focused on recording the duration of each instructional phase, pauses, and the time teachers spent in the intervention. These filmed lessons were carefully analyzed by developing teaching plots and creating running summaries to view multiple levels of analysis. Finally, we similarly assessed the learning outcomes of learners at both the control and experimental sub-groups levels equally.

## 4. Results and Discussion

### *4.1 Virtual Presence of the Learners' Permanent Teacher*

Figure 1 displays the durations of the two lessons in the double-level classes.

The analysis showed that the effective lesson duration of the two classes in the control group was 36 minutes in the C3 subgroup and 35 minutes in the C4 subgroup. The wasted time was calculated to be 9 min for C3 and 10 min for C4, resulting from the joint presence of teachers at both levels. This waste of time, particularly noticeable during the initial phase of the course, when learners in the C3 group had to wait for the teacher to introduce the first stage to them, affected the completion of both classes. The C4 group did not complete the writing learning assessment task and may not be able to complete Phases 3 and 4 (Figure 2).

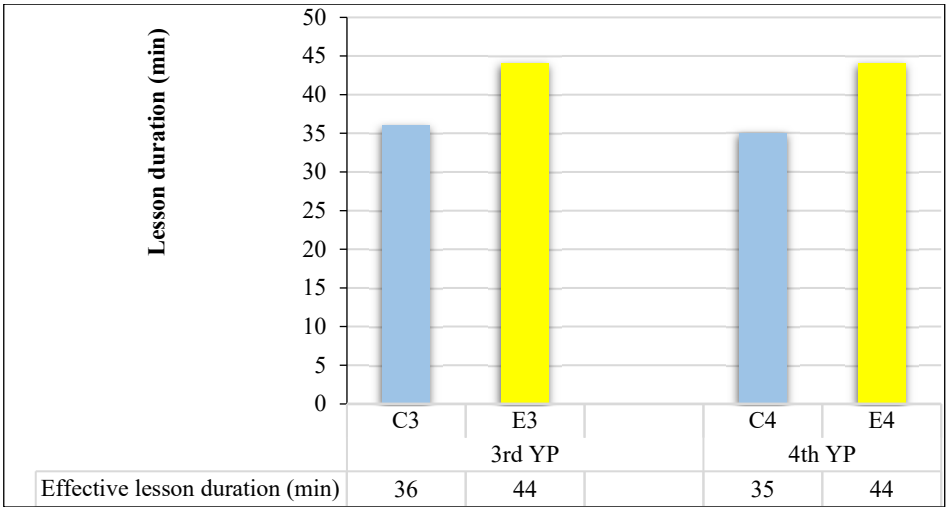


**Figure 1.** Effective Duration of Lessons for the First Classes

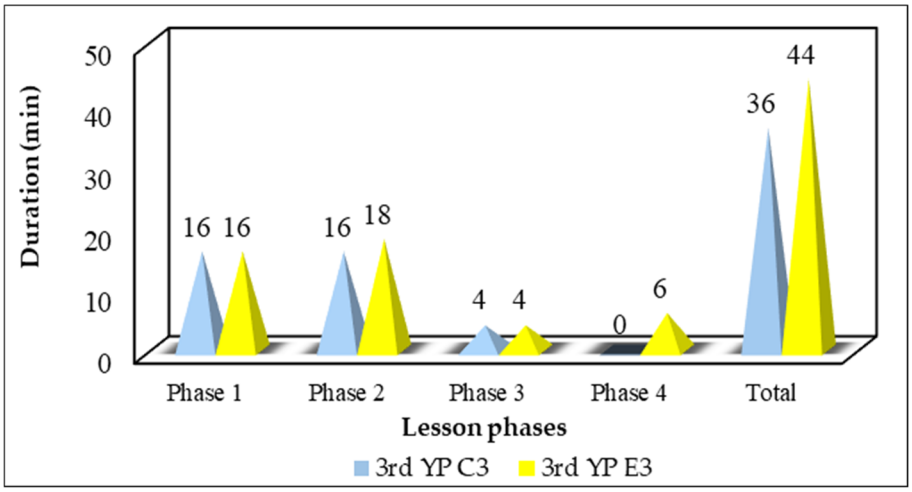


**Figure 2.** Effective Duration of Control and Experimental Lesson Phases for the 3rd YP Groups

Similarly, sub-group C3 did not have time to correct the application exercises with the teacher (Figure 3).

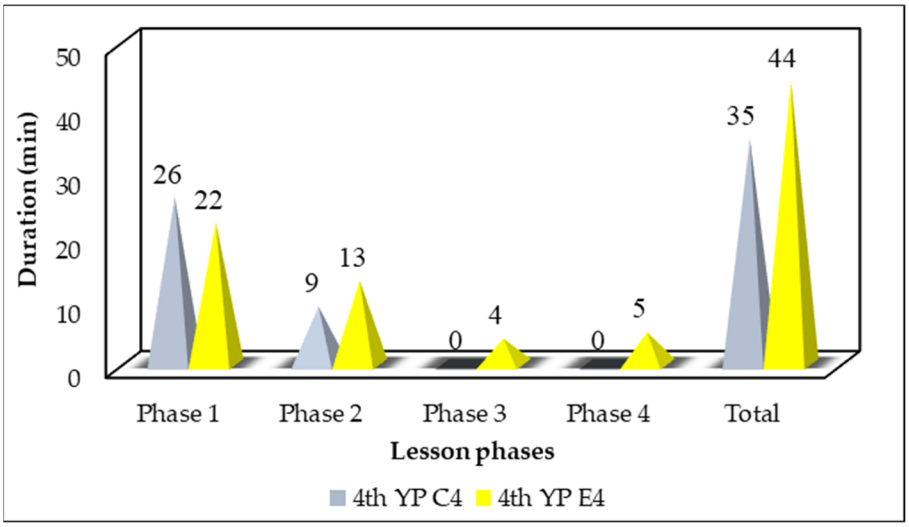


**Figure 3.** The Effective Duration of Control and Experimental Teaching at Each Stage of the Fourth YP Group

By adopting our experimental teaching strategy, the effective classroom demonstration time increased significantly, that is, E3 increased by 8 minutes (it constituted 18% of the total lesson duration), and E4 increased by 9 minutes (i.e., 20% of the duration of the lesson).

Figure 4 illustrates the timing of learners' tasks and time-outs for both control and experimental subgroups at different levels.

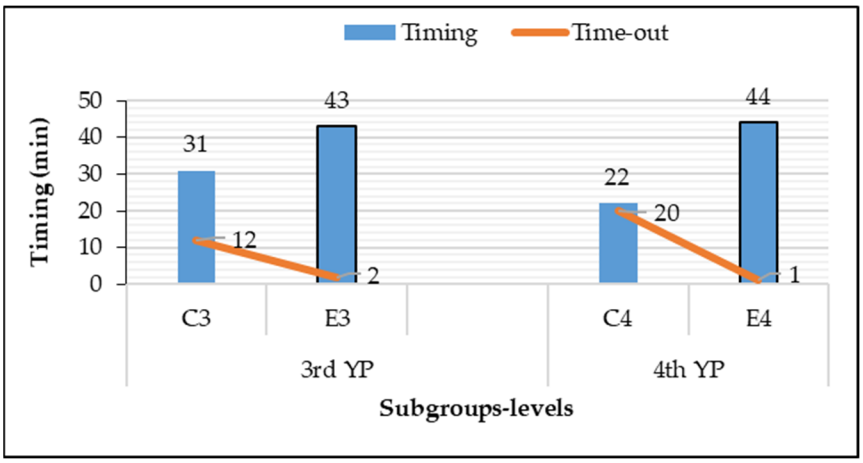


**Figure 4.** Timing of the Learners' Task and the Time-Out

Figure 4 displays the timing of the learners' tasks and their respective time-outs. Based on these findings:

1. The total task duration for learners in the experimental subgroups notably surpasses that of the control subgroups, recording 87 minutes versus 53 minutes. This substantial difference is attributed to the expanded task scope for learners in the experimental group, primarily influenced by a teacher's virtual presence.
2. The time-out duration in the control subgroup, assessed at approximately 34 minutes, significantly exceeds that of the experimental subgroup, which stood at 3 minutes.

At the same time, Figure 5 illustrates the actual intervention time of teachers for the two groups:

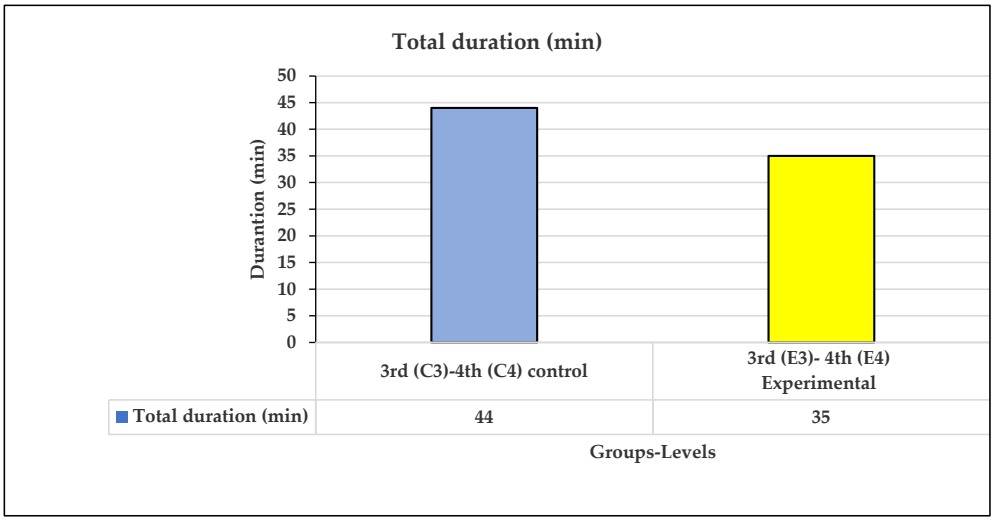


**Figure 5.** Actual Intervention Time of Teacher

These outcomes underscore a considerable reduction in the teacher's effort achieved through the alternations between real and virtual presences. Specifically, the teacher's active involvement spanned the entire lesson with the control subgroup, contrasting with approximately 10 minutes of rest observed in the experimental subgroup.

*4.2 Virtual Presence of Other Alternative Teachers*

To enrich this study, we aimed to replicate the experiment in another double-level class (3rd YP + 4th YP). Identical lessons and pedagogical approaches were employed, albeit with learners of the Experimental subgroups engaging with the virtual presence of different teachers.

Figure 6 represents the effective durations of the lessons studied.

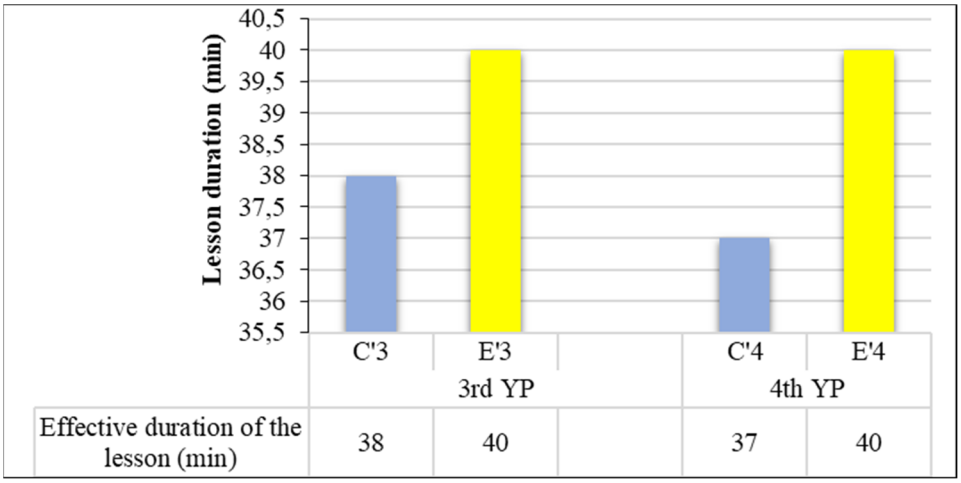


**Figure 6.** Effective Durations of Lessons

Upon analysis, the effective durations of the control classes are 38 minutes for C'3 and 37 minutes for C'4 subgroups. A time loss estimation of 7 minutes for C'3 and 8 minutes for C'4 was observed. Implementing our strategy in the Experimental class reduced this time loss by 2 minutes for E'3 (4% of the lesson duration) and 3 minutes for E'4 (7%). Comparing these reductions with those seen when learners were in the virtual presence of their permanent teacher, we note a 4% decrease against the previous 18% and a 7% decrease against the earlier 20%. This underscores the efficacy of the virtual presence of the learners' permanent teachers.

Additionally, to assess the scope of the learners' task, Figure 7 illustrates the timing of tasks and time-outs for both control and experimental subgroups.

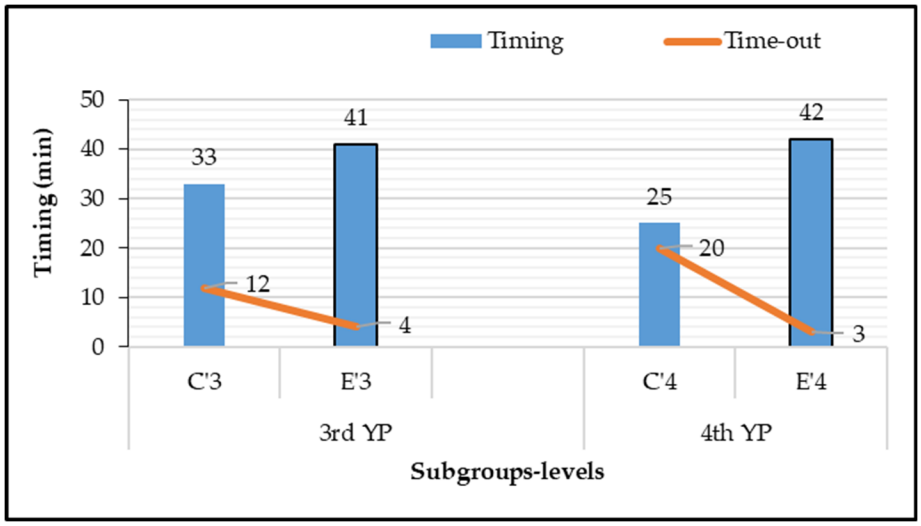


**Figure 7.** Timing of Learners' Tasks and Associated Time-Outs across Lesson Phases

Figure 7 illustrates the task timing for learners across different phases of the lesson and their associated time-outs. Upon examination of Figure 7, several noteworthy observations emerge:

1. The total task duration of the learners in the experimental sub-group exceeded that of the control sub-

group. This result was due to the expanded range of tasks performed by the experimental group, which was mainly affected by the teacher's virtual presence.

2. Notably, the time-out in the control subgroup, approximately 32 minutes, significantly exceeds that of the experimental subgroup, which was 7 minutes. Comparing these findings with a similar class scenario (3rd + 4th) where the learners were virtually engaged with their permanent teacher, the extended time-outs notably affected subgroups E'3 and E'4. Consequently, these subgroups did not complete their respective lessons. This highlights the potential impact of learner adaptation when encountering a different teacher, underscoring the significance of the perceived "status" of the teacher (an aspect to be further discussed).

Concerning the effort of the teacher, our findings align with those in the case of the virtual presence of the learners' permanent teacher, as shown in Figure 8.

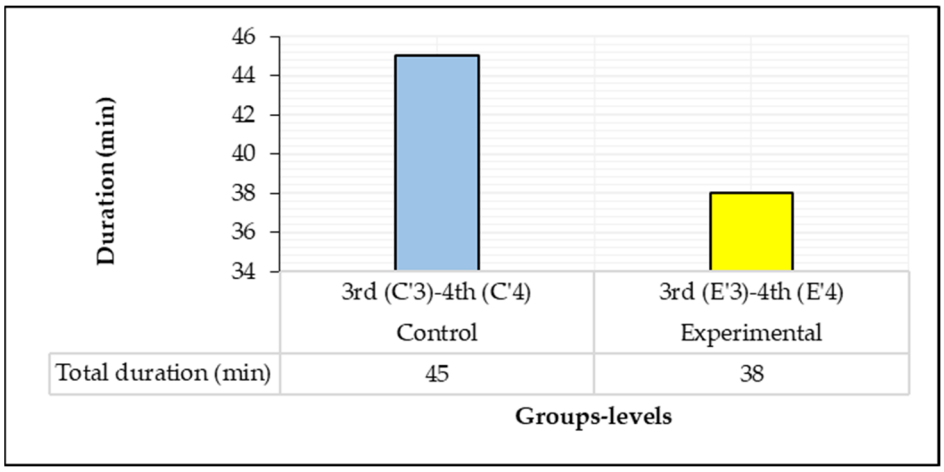


**Figure 8.** Teacher's Actual Intervention Duration

Analysis of these results shows that teachers' workload is significantly reduced through the alternating "real presence-virtual presence" approach. Indeed, the teacher's active involvement persisted throughout the entire lesson with the control sub-group, contrasting with intervals of rest observed with the experimental subgroup. This alternating approach effectively mitigated the teacher's overall effort, demonstrating the benefits of employing a blend of real and virtual teaching modalities.

*4.3 Importance of the Perceived "Status" of the Teacher*

To deepen the interpretation concerning the non-adaptation of learners with another teacher, it is useful to highlight the importance of the perceived "status" of the teacher. Indeed, theorists of group dynamics, and especially those of the Palo Alto School, conceive of the group as a system whose components and their functioning depend largely on the whole system (Systemic Approach). For Marc and Picard, for example, the system is a "set of interacting elements such that any modification of one of them leads to a modification of all the others." p. 21 (Marc & Picard, 2023). And the product of a disturbed and disturbing relational system (Chabanet, Chakor, Goujon, & Richard, 2019). This is how the system manages to preserve and maintain a certain balance necessary for its survival as such. According to Tardif, this characteristic, observed especially in the field of family therapies, is not exclusively specific to family systems (Tardif, 1992). The class, as a group, does not escape this reality: Everything that happens in it can only be understood when all the interactions between the different components are considered. The group with a teacher cannot keep the same configuration nor the same operating rules as another. Therefore, it is necessary to consider the context in which these interactions take place (Marc & Picard, 2023).

Communication systems constantly seek functional balance. In addition, in a complementary communication situation, as opposed to a symmetrical situation, one of the elements of the system (here the teacher) occupies a more important place than that of the others and therefore plays a preponderant role: the teacher is responsible for the operation of the entire system. The changes, that may affect this "main" component, can induce changes that can affect the functioning of the entire system. It may be that in our experiences, the change observed will be due to the change of the person of the teacher. In a school context, it is the teacher who commands, and all the interactions of the other elements are under his control (Tardif, 1992). The teacher has become more of a guide, who does not

possess all the knowledge but instead creates environments conducive to learning, such as object-subject interaction situations, an authentic school context (Collin, 2017). This is done while promoting the establishment of social interactions.

Introducing a different teacher virtually alters the class dynamic, which must establish a new functional balance. However, even if this interpretation helps us understand some of the observed changes, it is insufficient to explain an experience: The students' disinterest is constant except with their teacher. We must therefore look for the reasons for these difficulties outside of the group's systemic functioning, and the nature of psychosociological interactions.

We can also discuss the personal characteristics of the teacher and how he approaches his mission: the tone (confident or not), his mobility in the classroom, and the degree of his involvement. All these factors can be decisive in capturing and maintaining students' interest and thus achieving lesson objectives. If the alternative teacher is not competent enough to grab the attention of the students, the whole process could go wrong. What can generate behaviors of disinterest similar to those noted during our experiences? We therefore expect an improvement when the alternative teacher has sufficient mastery of his work. In our experience, children seem a little sensitive to these variations. As soon as they are in front of another teacher, these problems reappear.

In his work "Student Master: Institutional Roles and Representations", Gilly explains how the institutional status of the teacher shapes the representation he makes of the pupil, and how this has repercussions on the latter's academic performance (Gilly1980). Since this study, the influence of representations on educational relationships has been a topic of interest for various researchers (Wise, Chang, Duffy, & Del Valle, 2004; Dickerson, Levy, Jarvis, & Thomas, 2021; Lumumba Aghan & Mbogo, 2022). While there is a lack of clarity on the influence of a student's representation of their teacher on their academic performance, recent studies have explored related topics. For example, the study by Koomen and colleagues and the study by Pianta (Pianta, 1999; Koenen, Bosmans, Petry, Verschueren, & Spilt, 2019;). We certainly have a wealth of literature on the impact of the representations of the learners on their learning. Still, we, unfortunately, do not yet have clarity on the influence of the pupil's representation of his teacher on the student's acquisition of knowledge (Giordan & de Vecchi, 1988). In a situation like ours, the facts raised by our experiences can only be explained by the effect of this representation. Children forge personal bonds with their teachers in early schooling. A teacher does not acquire institutional status in a child's mind until very late.

During the first years at school, the student-teacher relationship primarily centers on the perceived authority and status of 'our teacher'. Any alternative person, especially if they are not very well prepared for class, will not be able to benefit from this "legitimate status". This clarifies why encountering a different teacher leads to student disinterest due to adjustment difficulties.

## 5. Conclusions

This study examines teaching practices in mixed learning classrooms (MLCs) that aim to minimize learning disruptions through changes in teaching methods. Our time management strategies were implemented in heterogeneous courses in small groups (3rd + 4th year) with promising results. Notably, this strategy significantly reduced teachers' workload while providing students with richer learning opportunities compared to the control group. In particular, the control group allocated significantly longer time to the task, averaging about 32 minutes, while the experimental group reduced this to just 3 minutes. This significant difference in time has a significant impact on the completion of classroom tasks.

Furthermore, significant differences in pause times were observed when comparing courses in which learners interacted with a virtual teacher and courses with a fixed teacher. The average timeout in classes with a substitute virtual teacher was 7 minutes, which was significantly higher than the 3-minute timeout observed in classes with a permanent teacher. These different pause lengths have a significant impact on the completion of teaching tasks. Additionally, the study highlights the importance of virtual presence and highlights differences in outcomes based on a teacher's status and representation in the classroom. The teacher-student relationship focuses primarily on the authority and status of "our teacher." This explains why encountering another teacher can cause students to lose interest due to difficulty adjusting.

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