



Teachers' engagement in online continuous professional training programs in Morocco

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Abstract

This research delves into an extensive examination of online professional development programs for educators across Morocco, orchestrated by the Ministry of National Education, Pre-school and Sports, Fez-Meknes Regional Academy in collaboration with the Morocco-Korea Training Center (CMCF) Division Fez-Meknes; Also, a project within associative frameworks. Central to this investigation is the exploration of how online competency assessments within these training modules correlate with the attrition rates among educators, a phenomenon that has gained significant attention. Our goal is to identify strategies to address this challenge, emphasizing the crucial role of ongoing teacher training in enhancing educational quality. Our analysis indicates that online assessments serve a dual purpose: they act as a stimulant for teachers striving to update their skills in response to scientific and technological progress. Conversely, for those whose primary aim is to accumulate certificates for personal advantage, these evaluations might act as a deterrent, diminishing their engagement in the programs.

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1. Introduction

Continuing professional training for teachers is an essential aspect of their development and success in the ever-evolving field of education. With constant changes occurring in the teaching and learning process throughout the years, such as the renewal of textbooks, the introduction of new teaching approaches, the emergence of new didactic and technological tools, scientific updates, etc. It is crucial for teachers to have a lifelong learning perspective. This not only allows them to adapt to the changing landscape of education but also helps them to modernize their skills, and adopt new educational strategies not covered in their initial training. Despite the initial efficacy of their education, it cannot sustain them throughout their careers due to these evolving demands.

In response to this need for continuous professional development, the Moroccan Ministry of National Education, Pre-school Education, and Sports has launched several initiatives aimed at enhancing teacher performance and fostering the acquisition of new, applicable skills to boost academic outcomes ^[1]. These measures span various domains, including social, financial, and pedagogical improvements. However, despite these efforts, there's a noticeable high dropout rate from online professional development courses among teachers, posing a significant challenge to Morocco's education system.

To understand the root causes of this issue, our research focuses on online training courses provided by the Ministry of National Education, Pre-school and Sports via the Fez-Meknes Regional Academy, in collaboration with the Fez-Meknes branch of the Korean-Moroccan Center, and national scientific associations. These courses are part of Project 14 under Framework Law No. 51-17 ^[2], enacted by the ministry in 2020, which seeks to enhance the integration of Information and Communication Technologies (ICT) in education. This study examines various factors that could influence a teacher's decision to discontinue online training, including the

selection of course topics, the duration and quality of training, learning accessibility, and teacher motivation.

However, our primary focus is on the role of online competency assessments. We consider these assessments crucial for maintaining the quality and integrity of professional online training and for ensuring the practical application of acquired skills in real-world scenarios.

By analyzing engagement data, including assignment submission rates and participation in training modules, we've found that competency assessments, while a significant deterrent for some educators, are vital for ensuring the relevance and efficacy of professional development programs. These assessments not only validate the training's quality but also serve as a mechanism to identify participants genuinely interested in improving their skills versus those seeking certification for personal gain.

2. Literature Review

"The purpose of vocational training is to promote the professional integration or reintegration of workers, to enable them to remain in employment, to promote the development of their skills and access to the various levels of professional qualification, to contribute to economic and cultural development and to their social advancement." [3].

In this regard, the Ministry of Education in Morocco states that "continuous training and qualification throughout working life provides educational actors with a new opportunity for professional development, upgrading and monitoring developments in their field." [4].

For this reason, the Higher Council for Education, Training and Scientific Research, assures that "improving the performance of educational actors: teachers, trainers, supervisors, researchers and directors, appears at the top of the priorities likely to promote the quality of the school, improve its performance and make its reform successful. The Council calls for efforts to better their training, strengthen their motivation, enhance their functions, respect their dignity and improve the conditions in which they exercise their profession." [4].

2.1. Andragogy

Andragogy is a term that refers to the practice and study of adult education and learning. The concept of andragogy was popularized by KNOWLES Malcolm [5], an American educator, in the first half of the 20th century.

In contrast to pedagogy, which is concerned with the education of children, andragogy focuses on the specific characteristics, needs, and motivations of the adult learner as a "human being in a situation" [6]. Here are some key principles of andragogy:

- **Self-direction:** Adults are more motivated when they have control over their learning process and can help define their own learning goals [7].
- **Experience:** Adults bring a wealth of life experiences to the learning environment. It is important to build on these experiences and link new knowledge to what has already been learned [8].
- **Relevance:** Adults are more engaged when they can see the immediate applicability of what they are learning to real-life situations or concrete problem solving. [9]
- **Problem-centered approach:** Adult learning should be task-oriented and focus on solving real-world problems that allow learners to apply their new knowledge and skills [10, 11].

- **Readiness to learn:** Adults are more receptive to learning when they perceive a need for the knowledge or skills being taught [12].
- **Respectful, collaborative environment:** Adult learners appreciate being treated as equals in the learning process and value a caring, respectful learning environment.

Andragogy has become an important discipline in the field of adult learning, providing educators and trainers with valuable insights into how to effectively design and deliver adult-friendly learning experiences.

2.2. Online assessment of skills

(...) "A skill is conceived as an integrated, functional network of cognitive, affective, social, and sensorimotor components, capable of being mobilized into final actions in the face of a family of situations" [13]

The assessment of professional skills is therefore an important practice for ensuring the quality and relevance of teaching. It makes it possible to assess teachers' knowledge, skills, attitudes, and values [14].

It is important to note that the evaluation of teachers' competences should be a fair, equitable and transparent process aimed at supporting their professional development and improving the quality of teaching. The results of these assessments can be used to identify training needs and prepare appropriate plans (diagnostic assessment) [15], to provide constructive feedback to trainers (formative assessment) [16], and to make decisions about the promotion or retention of teachers. Here are some possible approaches to achieve this:

- **Digital Portfolios:** Teachers can create online digital portfolios to showcase their accomplishments, lesson plans, teaching resources, video recordings of their lessons, examples of student work, and more. Course administrators or peers can evaluate these portfolios. [17, 18]
- **Online tests:** Online tests can be used to assess teachers' pedagogical knowledge in specific areas such as educational psychology, teaching methods, student's assessment, and so on. These tests can be administered through e-learning platforms or assessment tools. [19]
- **Video recordings:** Teachers can be invited to videotape their lessons and submit them for evaluation. Videos can be evaluated on teaching skills, ability to engage students, clarity of explanation, use of teaching strategies, etc. [20]
- **Online Discussions:** Online discussions can be organized where teachers can share their pedagogical practices, discuss teaching scenarios, participate in case studies, etc. These discussions can be assessed for relevance of contributions, critical thinking, and ability to interact with other participants. [21]
- **Online peer evaluations:** Teachers can assess the skills of their peers online using pre-defined criteria and online assessment tools. This can be done through video observations, sharing of teaching materials, lesson reviews, etc. [22].

2.3. Online continuing vocational training programs in Morocco

The Moroccan Ministry has actively pursued the enhancement of education and training quality through integrating ICT within the educational framework,

undertaking various initiatives to promote online teacher training. This includes:

- A. The establishment of distance learning platforms like the COLLAB project by the National Center for Pedagogical Innovation and Experimentation (CNIPE), along with the COMPRACTICE project and the GENIE TICE MOOC, part of the GENIE project. Despite these platforms becoming inaccessible for reasons not disclosed, in 2022, the Ministry unveiled "E-TAKWIN TANMIA¹" through CNIPE's Distance Learning Division. This new platform consolidates the features of its predecessors, albeit with unchanged modules, learning paths, and pedagogical design. Only the user interface has been updated.
- B. The organization of Synchronous meetings of very short duration (2 to 4) with pedagogical consultants.
- C. The offer of Annual online training courses lasting from 1 to 6 months, within the framework of cooperation between the regional academies of education and the Moroccan - Korean Center (CMCF)², particularly in the use of ICT.
- D. CPD training organized by scientific associations accredited by the Ministry.

Given the varied nature of evaluation methodologies across these platforms, the training initiatives by the Fez-Meknes regional academy and those organized by accredited associations are deemed particularly valuable for this research. However, although the training courses selected for our study were based on interesting topics such as the use of ICT in teaching practice, and the development of digital pedagogical resources, a notable lack of commitment among educators has been observed. This raises critical inquiries into the factors to the disengagement of educational stakeholders.

- Does the prospect of undergoing online competency evaluations encourage or discourage educators from registering for and finishing training programs?
- Is online competences assessment an important practice that can increase the credibility and quality of online training programs?

3. Materials and Methods

3.1. Research Procedure.

In our study, we pursued a quantitative research

methodology, primarily characterized by gathering and analyzing statistically measurable data derived from real-world online training programs. To analyze this collected data, we employed Microsoft Excel for statistical analysis.

3.2. Targeted Population

Our research sample comprised three distinct online training courses tailored for teachers in the public sector across all educational levels: primary, secondary, and high school. Among these, two were conducted under institutional framework, and one was organized by a non-profit scientific association.

3.2.1. First Training Program (T1)

This program focused on the development and implementation of digital educational resources, a collaborative effort between the Fez - Meknes Regional Academy of Education and Training and the Moroccan-Korean Center, Fez – Meknes Division. The initiative spanned two years, with each course running for a total of **72** hours, distributed over **24** weeks at a pace of **03** hours per session. Additionally, it included **30** hours dedicated to evaluation and remedial activities.

- **Participants:** In the academic year 2021, the program had 671 attendees, and in 2022, it had 543, summing up to **1214** participants.
- **Training Environment:** The program utilized Microsoft TEAMS.
- **Communication Platforms:** Gmail and WhatsApp groups facilitated communication among participants.

3.2.2. Second Training Program (T2)

This training, focusing similarly on the design and creation of digital educational resources, was organized by the scientific association "INITIATIVES EDUCATIVES" under the AREF of Tangier - Tetouan. The duration was set at 18 hours, spread across 9 days with 2-hours per session.

- **Participants:** It attracted a significant turnout of 3442 attendees.
- **Training Environment:** The training utilized Google Classroom and Facebook closed groups for its delivery.
- **Communication Platforms:** Gmail served as the primary mode of communication.

¹ <https://e-takwine-tanmia.men.gov.ma/>

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<https://www.men.gov.ma/Fr/Pages/DetailActualite.aspx?ActuID=BWkzXqRwGG8=>

4. Results

4.1. T1: Design and creation of digital teaching resources (AREF Fez - Meknes)

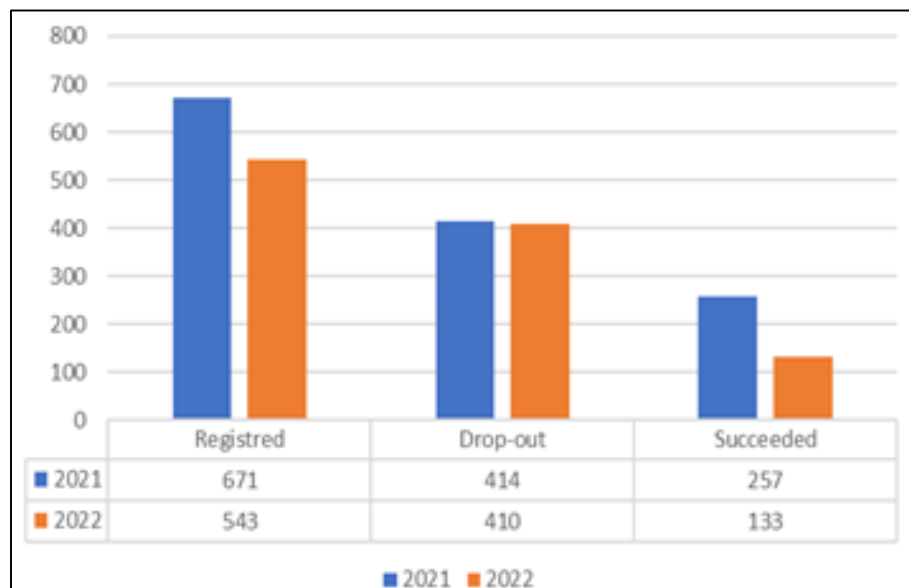


Fig 1: Attrition rate for teachers enrolled in the two online training editions

The attrition rates observed during the initial phases of our study were alarmingly high, with 414 (61.69%) of participants withdrawing in the 2021 session and 410 (75.50%) in the 2022 session. Such substantial dropout rates served as the primary motivation for our investigation. Concurrently, the completion rates of these training courses were notably low, registering at 38.30% for the 2020 - 2021 session and plummeting to 24.49% in the 2021 - 2022 session. These figures represent the proportion of teachers who met the participation criteria detailed in the data sheets for each session, which include:

- Regular attendance and active participation in training sessions, demonstrated through the submission of assignments at the conclusion of each module.
- Engagement with digital learning environments, including participation in forums and real-time discussions.
- Development of a final project that builds on the assignments given throughout the training, reinforcing the skills and knowledge acquired.

The engagement levels of teachers in the training programs were closely monitored, (see table 1 below) with specific emphasis on their compliance with the modules and assignment submissions as required.

It is crucial to underline that participation in the training was conditioned not just on attendance but on the active submission of assignments aligned with the scheduled timelines. Teachers failing to meet these submission deadlines without providing a justifiable reason were permitted to continue attending the training sessions; however, they were excluded from receiving certification upon completion.

In order to motivate teachers to participate and attend their training sessions, a timetable was established based on a questionnaire given at the beginning of the registration to choose the session that suits teachers' availability, one session in the morning and another in the evening, considering that the teacher works either in the morning or in the evening or has a day off.

Table 1: Teacher engagement in the online training sessions 2021

Week	Assignment	Attendance		Submission		Succeeded	
1	diagnostic test	418	62,30%	400	59,61%	400	59,61%
3	Assessment 1	430	64,08%	420	62,59%	411	61,25%
5	end-of-training project form	414	61,70%	390	58,12%	383	57,08%
6	exercise 1 mediator	415	61,85%	410	61,10%	401	59,76%
8	exercise 2 mediator	408	60,80%	380	56,63%	373	55,59%
10	mind map	375	55,89%	360	53,65%	352	52,46%
13	end-of-training project poster	352	52,46%	340	50,67%	337	50,22%
15	design: Poster 8 march	359	53,50%	330	49,18%	327	48,73%
16	Video editing: 1 st part	345	51,42%	320	47,69%	302	45,01%
18	Video editing: 2 nd part	326	48,58%	299	44,56%	280	41,73%
19	automatic quizzier	308	45,90%	270	40,24%	265	39,49%
20	PFE: project sheet	277	41,28%	275	40,98%	266	39,64%
21	PFE: digital resources	277	41,28%	270	40,24%	263	39,20%
22	PFE: pedagogical scenario	277	41,28%	274	40,83%	260	38,75%
24	PFE: presentation of the project	277	41,28%	273	40,69%	257	38,30%

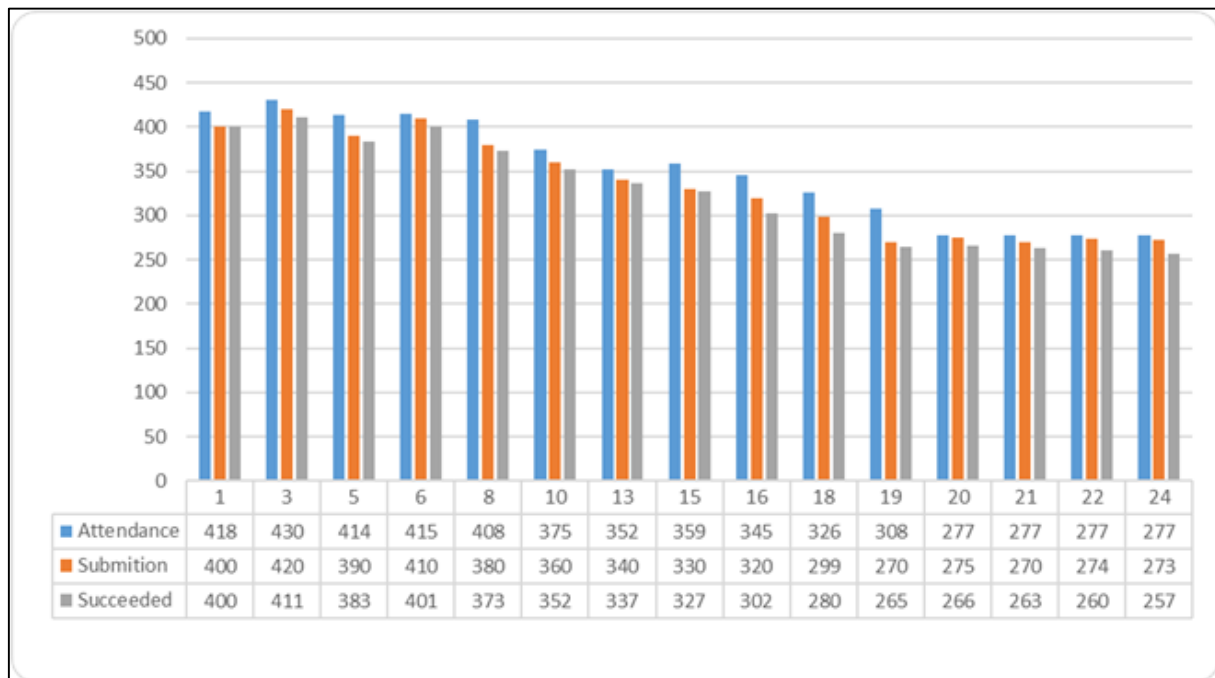


Fig 2: Teacher engagement in the online training sessions 2021.

Upon examining Table 1 below, a slight enhancement in participation and dedication rates, by a margin of 2% in the third week, is observed. This rise is primarily due to the late attendance of teachers who experienced issues with activating their TEAMS accounts in the first session.

A closer look at the data presented in Table 1 and Figure 2 reveals a consistent decrease in both attendance and

commitment levels following each homework submission. It's crucial to understand that the act of submitting homework alone did not suffice for a trainee to be considered actively committed. This is because the trainer undertook a thorough review of each submission to ascertain if it aligned with the set.

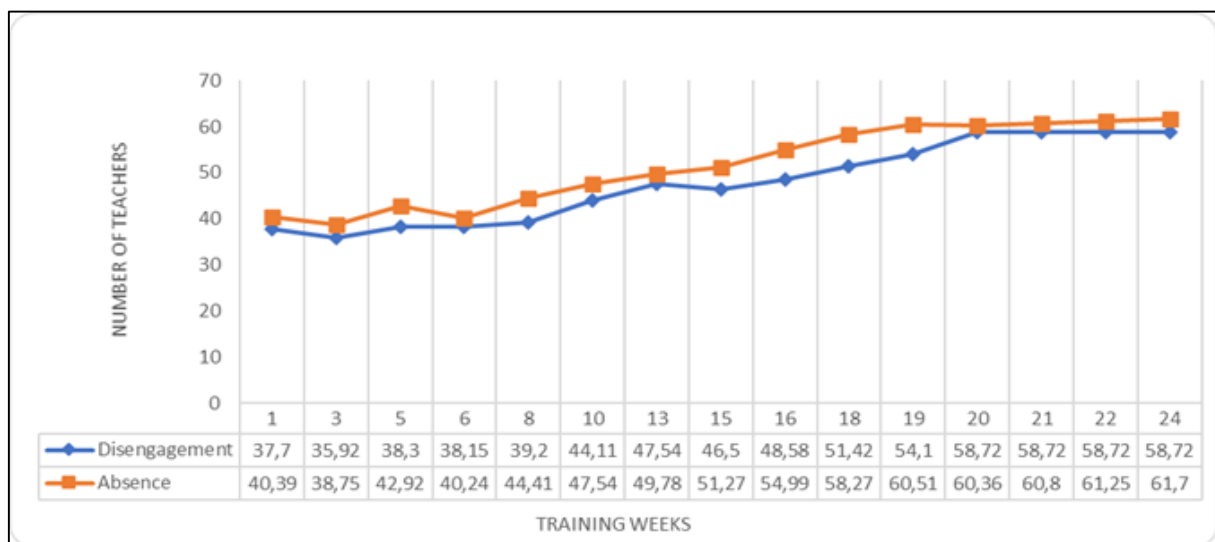
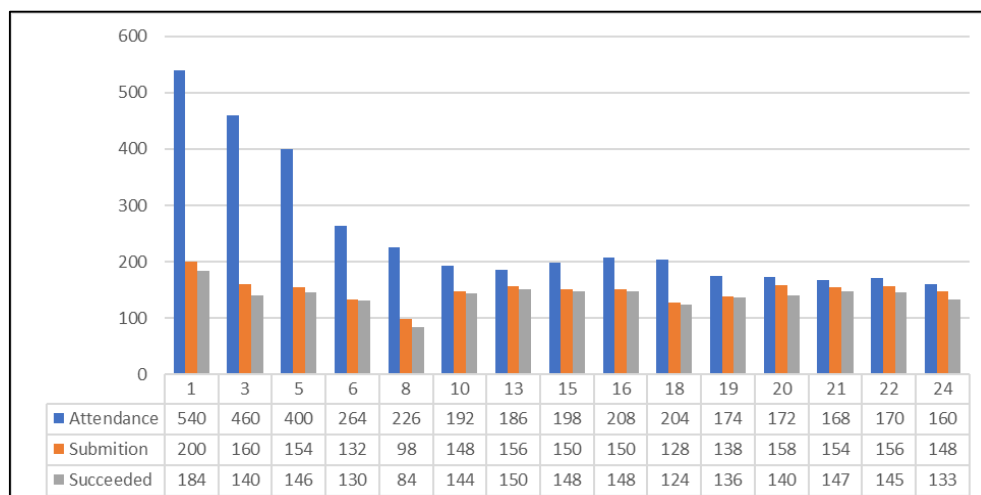


Fig 3: Teachers' disengagement and absence rate from online training sessions 2021

Table 2: Teacher engagement in the online training sessions 2022

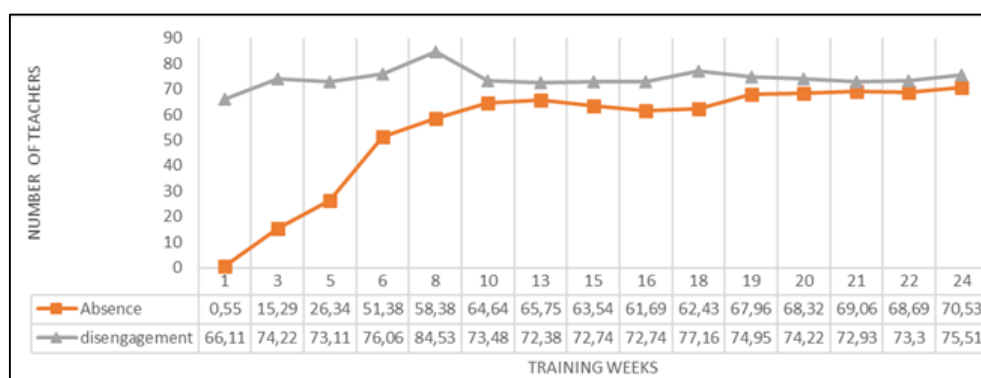
Week	Assignment	Attendance		Submission		Succeeded	
1	diagnostic test	540	99,45%	200	36,83%	184	33,89%
3	Assessment 1	460	84,71%	160	29,47%	140	25,78%
5	end-of-training project form	400	73,66%	154	28,36%	146	26,89%
6	exercise 1 mediator	264	48,62%	132	24,31%	130	23,94%
8	exercise 2 mediator	226	41,62%	98	18,05%	84	15,47%
10	mind map	192	35,36%	148	27,26%	144	26,52%
13	end-of-training project poster	186	34,25%	156	28,73%	150	27,62%
15	design: Poster 8 march	198	36,46%	150	27,62%	148	27,26%
16	Video editing: 1 st part	208	38,31%	150	27,62%	148	27,26%
18	Video editing: 2 nd part	204	37,57%	128	23,57%	124	22,84%
19	automatic quizzier	174	32,04%	138	25,41%	136	25,05%
20	PFE: project sheet	172	31,68%	158	29,10%	140	25,78%
21	PFE: digital resources	168	30,94%	154	28,36%	147	27,07%
22	PFE: pedagogical scenario	170	31,31%	156	28,73%	145	26,70%
24	PFE: presentation of the project	160	29,47%	148	27,26%	133	24,49%

**Fig 4:** Teacher engagement in the online training sessions 2022

Moreover, Figure 3 clearly depicts a pattern of increasing teacher attrition rates subsequent to every homework submission, underscoring the challenge in maintaining consistent engagement and commitment among participants. Disengagement rate represents teachers who participate in the training without submitting the assessments required. While absence rate represents teachers registered in the training without any participation to the training session. Table 2 and Figure 4 highlight a significant disparity in the second edition between teachers' presence and their

commitment to submitting assignments that meet the course's requirements. While an impressive 99.45% of teachers were in attendance, only a mere 33.89% submitted work that aligned with the established criteria. However, a shift towards equilibrium between attendance and commitment is observable from week 10 onward, marking a notable change in dynamics when contrasted with the first 9 weeks' pronounced differences.

Figure 5 below shows teachers' absence and disengagement rates as a function of training weeks and work handed in.

**Fig 5:** Teachers' disengagement and absence rate from online training 2022

4.2. T2: Design and creation of digital teaching resources (AREF Tangier - Tetouan).

Table 3: Registration and attendance rates as a function of time

Google Classroom	PILOT GROUP	24	24	24	24	24	24	24	24	24
	G1	66	77	127	134	135	137	138	138	139
	G2	78	87	115	119	125	127	128	128	129
	G3	29	34	72	111	128	132	135	136	137
	G4	45	56	94	98	104	107	110	110	110
	G5	61	69	122	126	127	134	134	135	136
	G6	34	35	91	99	103	106	106	106	108
	G7	40	43	74	79	79	80	81	82	82
	G8	67	73	81	83	83	84	86	86	86
	G9	31	50	70	76	88	98	100	100	103
	G10	17	22	32	33	35	35	35	36	36
	G11	34	39	77	83	85	85	87	87	87
	G12	30	31	39	42	47	51	51	51	51
	G13	38	45	100	109	115	140	141	141	141
Training period		05/04/20	06/04/20	07/04/20	08/04/20	09/04/20	10/04/20	11/04/20	12/04/20	13/04/20
GOOGLE CLASSROOM		594	685	1118	1216	1278	1340	1356	1360	1369
FACEBOOK		200	859	1445	1647	1894	1986	2013	2034	2073
All Platforms		794	1544	2563	2863	3172	3326	3369	3394	3442

As depicted in Figure 5, there was a progressive climb in absenteeism rates on a weekly basis, peaking in the 10th week when a striking 58.38% of enrolled educators abandoned the course for good. Concurrently, the disengagement rate was alarmingly high right from the outset, with an initial 66.11% of the attending educators failing to submit their assignments. This figure escalated to 84.53% by the 10th week. Post the 10th week, both absentee and disengagement rates stabilized, indicating that the course was primarily retained by those teachers genuinely engaged and responsive to the assignments put forth by the instructor.

In this particular training program, a unique pedagogical framework was adopted, where the evaluation of participants extended throughout the course duration. Each piece of homework, tied to specific module themes, was meticulously reviewed until the course concluded, with individual assignments contributing a defined percentage to the final grade. The breakdown of the grading scheme included:

- Engagement with theoretical content and completion of multiple-choice questions (MCQs), constituting 10% of

the final grade.

- Active participation in real-time discussions, also accounting for 10%.
- Completion of three practical assignments, each varying in complexity and scope, collectively worth 30%: Task 1, Task 2, and Task 3.
- Submission of a final project link, such as videos hosted on a YouTube channel, which carried the most weight at 50%.

The enrollment policy offered teachers unparalleled flexibility, allowing them to register for the training at their convenience without strict adherence to attendance, except for the live discussion sessions. This flexibility in registration and access to course materials, as documented in Table 3, facilitated a gradual increase in teacher registrations and subsequent attendance over time. However, certification at the course's conclusion was contingent upon the submission of a comprehensive portfolio comprising all requisite assignments.

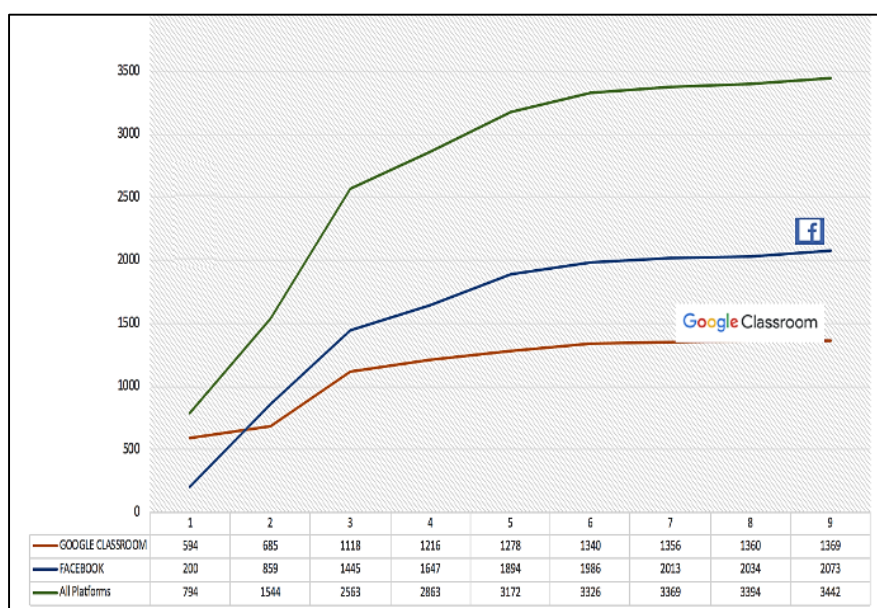


Fig 6: Google Classroom and Facebook presence rates

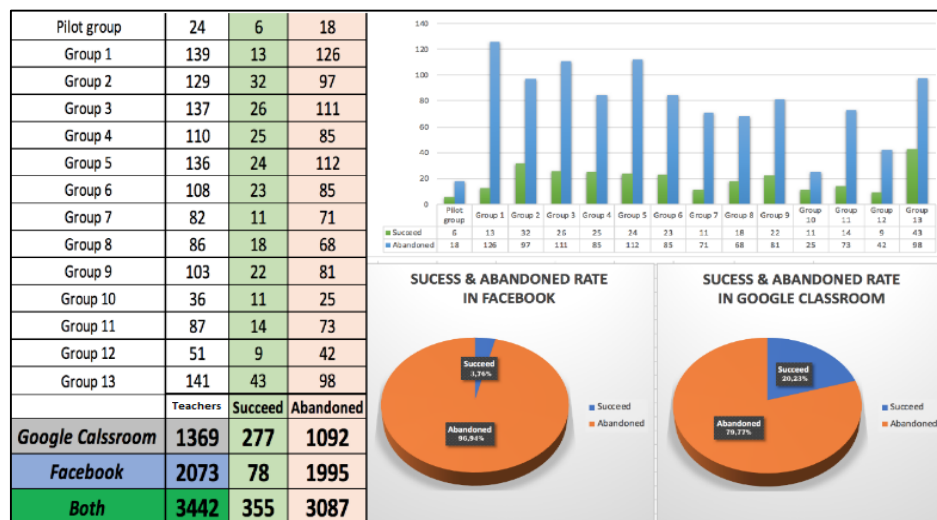


Fig 7: Dropout of teachers registered on both Google Classroom and Facebook platforms

Despite the impressive surge in enrollment numbers, with over 1,300 teachers joining via Google Classroom and 2,000 through Facebook, the course concluded with a high dropout rate: 79.77% from Google Classroom and a staggering 96.94% from the Facebook group. This dropout rate primarily consisted of teachers who failed to submit their final projects and assignment files. It's important to highlight that the trainers played a pivotal role in facilitating the course, dedicating considerable effort to assist teachers in preparing their assignments and projects. They also were instrumental in addressing technical issues, thereby motivating participants to submit their work within the stipulated deadline of one week. For a detailed analysis, Figure 7 provides an overview of dropout rates across each platform and training group.

5. Discussion

Despite our trainers' dedication to delivering high-quality education anchored in foundational principles and values rather than focusing merely on the quantity of certifications issued, the issue of teacher dropout emerges as a significant challenge that demands attention from entities overseeing and supporting ongoing online professional development. The establishment of guidelines and schedules alone has proven insufficient, necessitating a comprehensive analysis of training outcomes to devise strategies for addressing the underlying causes of this trend.

Through a **qualitative questionnaire** disseminated at the conclusion of our training programs and subsequent analysis, we've pinpointed several key factors contributing to the dropout rate and diminished engagement:

- **Technical Challenges:** A considerable number of teachers disengage due to difficulties with the educational technology used (Microsoft TEAMS), and issues related to setting up professional email accounts, complicating the submission process for projects.
- **Personal Motivations:** A significant portion of participants are primarily motivated by the acquisition of a certificate for personal advancement rather than a genuine interest in skill development.
- **Lack of Incentive:** Without a legal mandate that ties training participation to professional growth, a large segment of teachers remains disinterested and unmotivated.

- **Scheduling Conflicts:** The synchronous nature of Microsoft Teams necessitates attendance within a prescribed schedule, inadvertently excluding those who, due to professional or personal obligations, cannot participate in real-time sessions and subsequently struggle to complete module assignments.

From these insights, it's clear that the evaluation process in online training serves as a dual-purpose tool:

- For teachers who are genuinely interested in skill enhancement and keeping abreast of advancements, it acts as a motivator and a means for self-assessment.
- Conversely, it functions as a deterrent for teachers seeking merely to accumulate certifications for personal gain, who view assignments as obstacles rather than opportunities for growth.

For trainers, online assessment is crucial for distinguishing between these divergent motivations. It also serves as a reflective tool at the end of each module to assess the achievement of training objectives and identify ongoing needs and challenges. Consequently, this approach facilitates the development of a credible and qualitative training framework that not only meets but anticipates the needs and expectations of dedicated teachers, particularly those fitting into category A.

Recommendations and suggestions

- Assignments play a pivotal role in online training programs by serving as a filter to distinguish between teachers pursuing certification for its own sake and those genuinely invested in professional growth through skill development. These tasks not only uphold the integrity and standards of online education but also ensure that certification is awarded to teachers who demonstrate active participation and engagement throughout the course.
- Incorporating homework assignments facilitates a formative evaluation process, allowing trainers to closely monitor and support trainees by assessing their progress towards achieving the training modules' specific objectives. To foster active involvement and ensure the effectiveness of online training, it's essential to structure courses around interrelated modules based

on a Competency-Based Approach. Progression to subsequent modules should be contingent upon the successful completion and validation of the preceding ones.

- The implementation of a collaborative tutorial system is crucial. This system would enable trainees to collectively address technical issues and explore solutions, all under the guidance of their trainers.
- The introduction of a national digital signature system for the certification of state-accredited training courses, labeled as “**the online professional training validation system (OPTVS)**”, is paramount. This system would assign a unique serial or reference number to each certificate, which would then be logged in a central database, ensuring that only officially recognized certificates are utilized for professional evaluations, competitive exams, and promotions.
- Furthermore, integrating the OPTVS system into the professional training framework would afford additional points or benefits for active teachers, thereby offering an incentive for professional advancement. Currently, professional training seldom translates into tangible career benefits, contributing to a lack of motivation and engagement among teachers.
- A significant challenge in the current system is the inefficient communication mechanism for course registration, often resulting in notifications reaching teachers post the registration deadline. To address this, the establishment of a direct notification system is imperative to provide timely updates and information, thereby enhancing the accessibility and efficiency of teacher participation in training programs.

6. Conclusion

The findings delineated in this article shed light on the persistent issue of teacher attrition in online professional development programs. Despite concerted ministerial efforts, the problem remains unresolved, primarily due to the absence of a dedicated framework for monitoring and supporting teachers within these training paradigms. Additionally, the lack of concrete ministerial incentives for teachers to actively engage in ongoing professional development—both for their career progression and in preparation for competitive examinations for leadership roles—further exacerbates the situation.

The data suggests that Morocco's strategy for integrating training and communication technologies into the framework of continuing professional development is in its formative stages. This highlights the imperative need for a collaborative approach that brings together diverse social and educational stakeholders. Such a cooperation is essential to devise and implement a robust strategy capable of addressing the myriad challenges and barriers impeding the effectiveness of teacher professional development programs, which are crucial for the sustenance and advancement of the Moroccan educational infrastructure.

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