

Techno-pedagogical support for newly recruited university professors: reality and challenges

التكوين التكنولوجيдагоجي للأساتذة الجامعيين حديثي التوظيف: الواقع والتحديات

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Abstract:

This article focuses on the techno-pedagogical training of newly recruited university teachers in Algeria. The training is provided by Frères Mentouri Constantine University (UFMC). The article looks at the quality of this training and the application of what teachers have learned on the Moodle platform. To do so we opted for a questionnaire among teachers who had received this training in several universities. The outcomes demonstrate that the teachers were satisfied with the topics addressed and that the training was successful. However, there are still obstacles to student interaction on the Moodle platform.

Keywords: techno-pedagogical support, hybrid learning, newly recruited teachers, UFMC, ICT's.

ملخص:

يركز هذا المقال على الدعم التكنولوجيдагоجي للأساتذة الجامعيين حديثًا في الجزائر. هذا التكوين كان تحت إشراف جامعة الإخوة منتوري قسنطينة. ويبحث المقال في جودة هذا التكوين وتطبيق ما تعلمه الأساتذة الجدد على منصة مودل. وللقيام بذلك، إخترا إجراء استبيان موجه للأساتذة الذين تلقوا هذا التكوين في عدة جامعات عبر الجزائر. أظهرت النتائج أن الأساتذة كانوا راضين عن المحاور التي تم التطرق إليها وأن هذا التكوين كان ناجحًا. ورغم ذلك، لا تزال هناك عقبات تتمثل في نقص تفاعل الطلبة مع أساتذتهم على منصة مودل.

كلمات مفتاحية: الدعم التكنولوجي، التعليم الهجين، الأساتذة حديثو التوظيف، جامعة الإخوة منتوري قسنطينة، تكنولوجيات الإعلام والاتصال.

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1. Introduction

Technological development is inherently intertwined with teaching and learning processes. In other words, the advancement of technologies directly influences teaching methods aimed at enhancing the quality of education through the use of technological resources. In the Algerian academic context, we have been witnessing ongoing changes over the past few years, which have been further intensified during and after the Covid-19 crisis. One notable change is the adoption of hybrid teaching-learning methods, which necessitate a significant digitization effort and the implementation of supportive policies.

To support the digitization policies in the higher education sector, the Ministry of Higher Education and Scientific Research (MHESR) launched a training program in 2016 (Decree No. 932 of July 28, 2016) aimed at university professors in Information and Communication Technologies (ICT's) and pedagogy. This training initiative, entrusted to a team of trainers from Frères Mentouri University of Constantine (UFMC), is considered techno-pedagogical support for newly recruited teachers. Its primary objective is to equip these teachers with skills in digital pedagogy, thereby ensuring high-quality education that fosters competencies and skills in educational technologies among university students.

Amidst this evolving educational landscape, Algeria has undertaken significant reforms emphasizing the integration of ICT's in higher education. Tools such as dedicated online learning platforms, collaboration tools, and virtual classrooms have been made available to students, fundamentally transforming both the delivery and reception of education.

Since its inception in 2016, this project has successfully trained thousands of university professors. This article aims to assess the outcomes of this techno-pedagogical support on the ground by addressing key questions: Have the anticipated benefits of this support, both in terms of the

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quality of online courses and student education, been achieved? What challenges do professors face during training and in the application of their newly acquired skills in university techno-pedagogy?

This article seeks to investigate the conditions, implementation process, and impact of the techno-pedagogical support project for university professors on both the educators who undergo the training and the students they teach. To accomplish this, we conducted a questionnaire-based survey among newly recruited teachers from various disciplines and Algerian universities. The findings from this study are crucial for informing future policies related to distance learning.

2. The techno-pedagogical support in Algerian higher education

In a didactic context, technopedagogy is a concept recently formed by the fusion of technology and pedagogy. According to the Office québécois de la langue française (2021), this concept refers to a pedagogy based on ICT's (Information and Communication Technologies) aimed at supporting and facilitating teaching and learning. It also aims to improve the quality of teaching and learning practices by integrating digital technological tools, which also make classroom activities more engaging and enjoyable. Additionally, as noted by Lameul (2015) and members of Percolab (2022), it involves aligning methodological aspects of teaching and learning, motivational factors, and the development of learners' skills, on one hand, and the integration of various digital tools, on the other hand.

From these different definitions of technopedagogy, it is essential to distinguish between this concept and that of ICT's to avoid ambiguity or confusion. ICT's refers specifically to the technological means and resources used in educational contexts, whereas technopedagogy encompasses a broader approach that integrates digital tools into a thoughtful method aimed at enhancing teaching and learning.

This new practice has been utilized in Algeria within the framework of hybrid learning adopted during the Covid-19 health crisis. Hybrid learning, according to Nissen (2019), combines face-to-face and distance learning modes. In Algeria, university technopedagogy emerged around 2012 as part of the training program adopted by UFMC for newly recruited professors. As

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part of the Ministry of Higher Education and Scientific Research's modernization efforts, a support program (decree no. 932 of July 28, 2016) was established. UFMC has been responsible for training all newly recruited teachers across Algerian universities since 2016 through the Pedatic platform, having trained thousands of university professors to date.

3. Methodology

This study adopts a technopedagogical approach aimed at investigating the impact of technopedagogical support for newly recruited teachers on both the teachers themselves and the students subsequently mentored by these teachers. To achieve this, we employed a method centered around data collection using a questionnaire administered via Google Forms. This questionnaire consists of 4 main sections and includes 21 questions of various types, tailored to the predefined objectives.

The survey aims to comprehensively explore all aspects of technopedagogical support/training for newly recruited teachers, including the quality and duration of training, the effectiveness of tutor support, topics covered, encountered challenges, implementation of acquired skills, and student interaction with course materials on training platforms.

Our survey sample consists of 35 teachers trained by the UFMC team, representing 22 different specialties across 19 higher education institutions. This sample reflects geographical diversity, a variety of specialties, university settings, and training periods.

Data collection was conducted via Google Forms, and for the statistical analysis of our data corpus, we opted to use the Antidote software to facilitate data processing and comparison.

Ethical considerations were strictly adhered to throughout the study, ensuring participant anonymity, confidentiality of collected information, and secure data handling procedures.

4. Analysis and interpretation of results

4.1. Participants' profiles

Table 1. Practice locations

No	Practice locations	Number
01	Oran 1 university	5
02	Relizane university	2

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03	Oran 2 university	3
04	Constantine 1 university	2
05	Teachers' Training School of Sétif	1
06	Khanchela university	1
07	Teachers' Training School of Mostaganem	1
08	University center of Maghnia	1
09	Bordj Bou-Arréridj university	2
10	Médéa university	1
11	Blida 1 university	2
12	Blida 2 university	7
13	Tiaret university	1
14	Tamanrasset university	1
15	Chlef university	1
17	Khemis Miliana university	2
18	Mascara university	1
19	Sidi Bel Abbès university	1
Total	19	35

Results: In this table we can observe that the surveyed teachers work in various higher education institutions. These institutions, totaling 19, are located in different regions of Algeria (North, South, East, and West). Furthermore, they represent universities, university centers, and Teachers' Training Schools. This diversity of locations can add value to the results of our survey.

Table 2. Teacher specialities

No	Specialities	Number
01	Biological sciences	2
02	Legal sciences	3
03	Computer science	3
04	English	2
05	Geological sciences	1
06	French	3
07	Psychology	2
08	Mechanical engineering	1
09	Process engineering	1
10	Biotechnology	1
11	Hydraulics	1

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12	Agronomy	1
13	Finance and Accounting	2
14	Information and Communication Sciences	2
15	Arabic Language	2
16	Chemistry	1
17	Archaeology	1
18	Physics	1
19	Veterinary science	1
20	Translation	1
21	Earth sciences	1
22	Sociology	2
Total	22	35

Results: The table above shows the various specialties of the teachers participating in our survey. There are 22 specialties covering fields such as literature and languages, sciences, technology, economics, and social sciences. However, the results are predominantly from scientific and technical disciplines. This diversity of specialties provides us with a clear understanding of the technopedagogical training of newly recruited teachers and how this training is implemented on the Moodle platform for the benefit of students across different domains.

Table 3. Teachers' Experience

No	Number	Professional experience
1	30	From 1 to 5 years
2	05	From 5 to 10 years

Results: We observe that the majority of participants, 30 teachers in total, have experience ranging from 1 to 5 years. The remaining participants, numbering 5 teachers, have between 5 and 10 years of experience. These results clearly indicate that all participants are newly recruited teachers who are involved in the techno-pedagogical training provided by UFMC.

Table 4. Teachers' Grades

No	Number	Grade
01	08	Assistant Professor B
02	01	Assistant Professor A
03	21	Associate Professor B

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04	05	Associate Professor A
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Results: Since the university teachers surveyed are newly recruited and have experience ranging from 1 to 10 years, it follows that their ranks vary as follows: 21 teachers hold the rank of Associate Professor B, achieved after 3 years as Assistant Professor B. This is followed by 8 teachers at the rank of Assistant Professor B, then 5 teachers at the rank of Associate Professor A, and finally 1 teacher at the rank of Assistant Professor A.

4.2. Informations about UFMC training

Table 5. UFMC Training

UFMC training	Number
Yes	35
No	00

Results: According to the above table all 35 surveyed teachers were trained as part of the "ICT's and Pedagogical Practice" training conducted remotely by UFMC. These results clearly demonstrate the supervisory policy aimed at generalizing this training across all university institutions and for all newly recruited teachers.

Table 6. Training Dates

No	Training date	Number of teachers
01	2017-2018	05
02	2020-2021	03
03	2021-2022	05
04	2022-2023	08
05	2023-2024	14

Results: We observe that the dates of the various training sessions for the surveyed teachers are varied, spanning from 2017 to 2024. However, the academic year 2023-2024 shows the highest number of trained teachers, estimated at 14, representing 40% of our sample.

Table 7. Duration of Training

No	Duration of Training	Number of teachers
01	6 months	02
02	7 months	07
03	8 months	09

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04	9 months	11
05	1 year	06

Results: The training periods for newly recruited teachers vary between 6 months and 1 year. However, the majority of teachers, numbering 27, or 77% of our sample, underwent training lasting between 7 and 9 months. A rate of 17%, equivalent to 6 teachers, received training for 1 year. Finally, 2 teachers, accounting for 6% of the total, underwent a 6-month training. This diversity in training durations stems from technical issues that necessitated the training team to extend workshop deadlines.

Table 8. Training Focus Areas

Themes	Training Content
Workshop 1	Tools for using ICT's in teaching
Workshop 2	Designing a hybrid course
Workshop 3	Designing courses for hybrid teaching
Workshop 4	Designing a MOOC
Workshop 5	Portfolio

Analysis of Results: The axes of technopedagogical training for teachers are diverse, complementary, and logically organized. This training encompasses the use of various tools, software, and platforms, different methods for designing hybrid courses, the online deployment of these courses, and pedagogical aspects used in the context of distance learning. It is a comprehensive training program that covers all aspects necessary for teachers. The training concludes with the creation of a portfolio summarizing all stages of the training and the grades obtained. This portfolio will be presented by the teacher before a jury composed of experts in the field of technopedagogy.

Table 9. ICT's Training outside UFMC

ICT Training outside UFMC	Number
Yes	20
No	15

Results: We observe that 20 teachers received additional ICT's training alongside the training provided by UFMC. Meanwhile, 15 teachers stated that the UFMC training was their sole training in this area.

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Table 10. Source of Training outside UFMC

No	Source de formation	Nombre
01	Universities	18
02	Associations	01
03	Self-study	01

Analysis of Results: The 20 teachers trained outside of UFMC reported that these trainings were conducted by their universities (18 teachers), an association (1 teacher), and through self-study (1 teacher). These findings indicate that some universities have taken the initiative to train their newly recruited teachers in the use of ICT's for higher education teaching.

Tableau 11. Support for UFMC Tutors

No	Qualité de l'accompagnement	Nombre
01	Continuous Support	15
02	Intermittent Support	09
03	Lack of Support	11

Analysis of Results: In response to the question regarding the quality of support provided by UFMC tutors to teachers during training, we find that 15 teachers stated they received continuous support, 9 teachers mentioned receiving intermittent support, and 11 teachers reported receiving no support during the training. These results illustrate the varied approaches taken by each tutor. Some tutors prefer to provide constant assistance to their learners, while others intervene only when learners encounter obstacles or express difficulties. Lastly, some tutors encourage autonomous learning among their learners.

4.3. Evaluation of Training and Acquired Skills

Tableau 12. Training Effectiveness

N°	Training Effectiveness	Number of Teachers
01	Highly Beneficial	24
02	Beneficial	06
03	Slightly Beneficial	05
04	Not Beneficial	00

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Analysis of Results: The results clearly show that the majority of teachers, totaling 30, are satisfied with the training. They evaluated its effectiveness as very beneficial or beneficial. However, 5 teachers indicated that the training was not very beneficial for them. Upon analyzing these responses, it appears that most teachers are generally satisfied with the effectiveness of the training, the topics covered, and the skills acquired. However, a minority of teachers struggled with keeping up with the fast pace of the training and the high volume of tasks required, in addition to their teaching and sometimes administrative responsibilities.

Table 13. Training Success Rate

Outcome	Number	Percentage
Yes	33	94 %
No	02	6 %

Results: The obtained results show that the overwhelming majority of teachers, totaling 33, successfully completed their training. However, 2 teachers failed their training due to delays in submitting the required activities to the trainers, which negatively affected their final evaluation score, which must be above 50/100.

Tableau 14. Causes of Failure

No	Causes
01	Lack of prerequisites, lack of training, lack of support, and lack of practice
02	Recurrent platform outages, failure to submit an activity on time (causes of downtime), lack of response from technical support and supervisors, absence of a tutor throughout the training.

Results: The two teachers who did not succeed in the UFMC training attributed their failure to lack of prerequisites in ICT's, lack of support during the training period, failure to meet deadlines for activity submissions, inadequate practice of acquired skills, and frequent outages of the Pedatic platform.

Table 15. Difficulties Encountered During Training

No	Challenges Encountered	Number	Percentage
01	Academic Workload	26	74,28%
02	Lack of time	22	62,85%

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03	Poor Internet connection and Pedatic platform outages	19	54,28%
04	Accelerated pace of training	11	34,37%
05	Lack of resources	06	17,14%
06	Administrative burdens	02	05,71%
07	Lack of proficiency with platforms and programs used	02	05,71%

Analysis of Results: According to the table above, newly recruited teachers faced various challenges during ICT’s training. These challenges included professional issues such as academic workload, administrative burdens, and lack of time. Technical difficulties like poor connectivity and recurrent platform outages were also encountered. Training-related challenges included the accelerated pace. Lastly, personal challenges included lack of resources and proficiency with computer tools. These difficulties are considered challenges to overcome as they are part of the daily reality for university teachers.

Table 16. Needs for Additional Training

Training Needs	Number	percentage
Yes	11	31 %
No	24	69 %

Results: Out of 35 teachers surveyed, 24 indirectly indicated that the training provided by UFMC was sufficient for them. However, 11 teachers expressed a need for additional training.

Table 17. Type of Additional Training

No	Type of training
01	Artificial intelligence
02	Assistance for teachers in face-to-face mode (practice)
03	More advanced technologies

Analysis of Results: Teachers who expressed a need for additional training primarily highlighted the field of artificial intelligence, considered an innovative technology that has been integrated into higher education for several years. Additionally, teachers indicated a need for practical application training based on the online training provided by UFMC. Finally, these teachers expressed a desire for training in the use of more advanced

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technologies, specifically platforms and software different from those used in the previous training.

4.4. Application of Acquired Skills from Training

Tableau 18. Course Submission on Moodle Platform

Course Submission on Moodle	Number of Teachers	Percentage
Yes	31	89 %
No	04	11 %

Analysis of Results: Teachers' responses to the question "Are you involved in course submission on the Moodle platform?" showed that only 31 out of 35 teachers surveyed were involved in uploading their courses. This number represents a rate of 89% of all teachers. These teachers are responsible for subjects taught in distance or hybrid modes, while the 4 teachers who responded "no" are involved in subjects taught in traditional classroom settings.

Table 19. Course Design According to Training Criteria

Course Design According to UFMC Criteria	Number of Teachers	Percentage
Yes	31	89 %
No	04	11 %

Analysis of Results: Teachers involved in course design according to what they learned during UFMC training are not only those involved in uploading courses to Moodle. UFMC training encompasses techniques for designing hybrid courses and the pedagogical aspects of face-to-face courses, including objectives, prerequisites, assessment systems, entrance and exit tests, and designing various activities. This indicates that only the 31 teachers who upload their courses to the Moodle platform design these courses based on what they learned from UFMC trainers.

Table 20. Course Posting According to Training Standards

Course Posting According to Standards	Number of Teachers	Percentage
Yes	27	87.09 %
No	08	22 %

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Analysis of Results: According to the findings, 27 teachers (87.09%) out of those involved in uploading their courses (31 teachers) follow the guidelines and standards for posting courses on Moodle. These standards are practiced during the UFMC training period. However, 4 teachers stated that they do not adhere to the standards for online course posting. This indicates that they simply upload PDF files on Moodle for students to access without following the necessary steps outlined for this process.

Table 21. Reasons for Not Posting Courses on Moodle According to Standards

No	Causes	Number	Percentage
01	Lack of time	4	100%
02	Teaching workload	4	100%
03	Administrative responsibilities	2	50%
04	Lack of technological resources	1	25%

Analysis of Results: The 4 teachers who do not adhere to the standards for posting courses online justified their practice based on the reasons listed in the table above. The reasons cited by these teachers can be generalized to other teachers who follow the standards for course posting on Moodle. Indeed, we attribute the behavior of this category of teachers to a lack of motivation, insufficient practice of acquired skills, and resistance to the distance education mode.

Table 22. Objectives of Posting Courses on Moodle According to Standards

No	Motifs	Number	Percentage
01	Implementation of hybrid teaching for the benefit of students	27	100 %
02	Promotion	14	50 %
03	Compliance with supervisory directives and fear of sanctions	4	10,8 %
04	Compensation for student absences	1	03,7 %

Analysis of Results: In contrast to the aforementioned category of teachers, those who stated that their courses are posted on Moodle according to the standards learned from UFMC training cited several objectives that motivate them to carry out this task diligently. The primary objective, mentioned by all teachers, is the implementation of real hybrid teaching for the benefit of

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students. Another objective, cited by half of the teachers, is promotion, while 4 teachers explained that the objective of this task is compliance with supervisory directives to avoid sanctions. Finally, one teacher indicated that this practice serves as a way to compensate for sessions missed by students who are absent from face-to-face classes. These stated objectives serve as catalysts and motivations that drive teachers to follow the necessary steps for posting courses on Moodle.

Table 23. Students' Interactions with Courses Posted on Moodle

Students' interaction	Number	Percentage
They interact	10	32 %
They interact little	02	7 %
They do not interact	19	61 %

Analysis of the results: For this last question concerning students' interaction with courses posted on Moodle, more than half of the teachers, 19 out of 31, state that the students involved in these courses do not interact. 10 teachers affirm that their students do interact, and finally, two (2) teachers report that their students interact little with these courses. The lack of interest from students in accessing online courses and interacting with the teacher is a reality witnessed by several teachers across multiple universities. This sometimes leads them to question the usefulness of distance learning in the absence of any student interaction.

5. Summary

Through the questionnaire survey conducted in this study involving 35 teachers from 19 universities in Algeria, we gathered responses reflecting the reality of technopedagogical support for newly recruited university teachers, the application of acquired knowledge, and the obstacles encountered during and after this support. The teachers' responses indicate that technopedagogical training, initiated since 2016 until present, was supervised by expert teachers and guided by well-trained tutors in the field. Furthermore, the technological and pedagogical content of this training was organized into workshops with both individual and collective activities. These workshops had specific objectives that were clearly explained from the outset. The organization of this technopedagogical training and the effort invested by the

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training team, over periods ranging from 6 months to 1 year, ensured high-quality training that enhanced teachers' technopedagogical skills and improved teaching practices, whether in face-to-face, distance, or hybrid modes.

Despite encountering obstacles, we observed satisfaction among trained teachers regarding the design of this training, its implementation, the support provided by tutors, and the skills developed in educational technology. However, according to teachers' responses, this technopedagogical training aimed at enhancing teaching practices to support student learning faces a challenge related to students' lack of interaction on dedicated distance learning platforms. This persistent reality results from several issues that all stakeholders in higher education must address to fully benefit from technopedagogical training and optimize distance learning outcomes.

6. Conclusion

The policy of training/supporting university teachers in technopedagogy has shown its effectiveness since its inception, according to testimonials from the teachers involved. This long-term training considers both technological and pedagogical aspects, equipping teachers with a solid mastery of technological tools, platforms, software, and the necessary methodology for designing and producing courses in a hybrid training. As a result, based on the responses of teachers to our questionnaire, we can consider that this policy of technopedagogical support for university teachers has achieved positive results observed in teaching practices, particularly in the quality of online courses delivered to university students of various disciplines via Moodle.

However, one of the goals of integrating technopedagogy is to enhance the quality of learning for university students. Trained teachers in this field face a harsh reality where students often lack, sometimes completely, interaction and engagement with course materials on the Moodle platform. Consequently, this issue results in most teachers being unable to fully utilize the skills they have developed in technopedagogy. Moreover, it deprives students of opportunities to learn in this field and benefit from engagingly designed courses that facilitate content assimilation.

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Ultimately, this issue underscores the need for authorities to find solutions aligned with their policy aimed at widespread implementation of distance learning across all university establishments.

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