# *The Effect of Pedagogical Training in Higher Education on the Newly Employed University Teacher's Approach to Teaching and Self-efficacy Beliefs in Algerian Universities*

**Yahiaoui Nour El Houda**
*Lecturer, Faculty of Economics and Business Management, Djillali Liabes University, Algeria, email address*: *nour_el_houda.yahiaoui@univ-sba.dz*

**Abstract:** To align with society's ever-changing needs, the principal goal the university seeks to achieve within the community shifted from providing knowledge through teaching to the strategic role of knowledge production by applying skills. Accordingly, the implementation of the L.M.D. system in Algerian universities focused on supporting the students' learning process and emphasized student work; this imposed new pedagogical teaching methods and raised the need to improve the pedagogical skills of university teachers.

This study aims to determine the impact of pedagogical training in higher education for newly employed teachers at Algerian universities on their approach to teaching, as measured by the Approaches to Teaching Inventory list, and on their self-efficacy beliefs, as measured by the Motivated Strategies for Learning Questionnaire. Data were collected in a pre-post design; a questionnaire was designed based on the measurement methods and sent electronically twice to a sample of 50 newly employed teachers before and after pedagogical training.

The study finds no statistically significant differences in the teacher-centered or in the student-centered approach among newly employed teachers, and no statistically significant differences in their self-efficacy beliefs before and after pedagogical training. Pedagogical training is not helping newly employed university teachers to center their teaching approach around the student.

**Keywords:** Pedagogical training, Approaches to teaching, Self-efficacy beliefs, Higher education, L.M.D. system

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## *Introduction*

The university's principal role shifted from providing knowledge through teaching to a new strategic role of knowledge production by applying and investing skills due to the rapid changes in the cultural, social, economic, and technological nature of knowledge and society. This shift increased interest in higher education's quality and university outcomes and made teaching approaches and methods adopted in universities a real concern; thus, teacher capacity development has become increasingly essential (Demir & Çetin, 2022).

Teachers often need to be prepared to deal with these changes, especially at the beginning of their professional careers, where they tend to focus solely on imparting knowledge through their teaching methods. Improving the efficiency of teachers and the equity of education requires competency from teachers so that their teaching is of a high standard and is accessible to all students. "In particular, the broad consensus is that teacher quality is the single most important school variable influencing student achievement" (OECD, 2005, p. 2). As a result, the need to improve university teachers' pedagogical skills has become more urgent, and the idea of pedagogical training has become widespread. Many countries, such as Norway, Britain, and Finland, have adopted mandatory training programs for higher education teachers (Trowler et al., 2008) to introduce teaching methods and improve university teachers' pedagogical skills and abilities. In this context, the European Science Foundation stated, "Excellent teachers are made, not born; they become excellent through investment in their teaching abilities" (European Science Foundation, 2010, p. 8); teachers are crucial actors in the process of enhancing the quality of education and students' achievement. To qualify as a teacher, an individual must receive pedagogical training to assist students in acquiring the necessary knowledge, attitudes, and abilities (Okeke et al., 2019). However, despite the importance of research and teaching in doctoral training traditionally regarded as a preparation for an academic career, doctoral and postdoctoral programs tend to focus on academic research (Ibrahim et al., 2020).

Algerian universities witnessed many fundamental changes, the most important of which was the implementation of the L.M.D. system as a new system for higher education starting in 2004, instead of the classical system. The L.M.D. system falls within

higher education reform, consisting of three main phases: Bachelor's, Master's and Doctorate. The most important feature of this system is that it revolves around the student as the center of the educational process instead of the teacher. In contrast, the teacher is one of many sources of information. To achieve its desired goals, this system imposed entirely different pedagogical methods in teaching at the university.

On the other hand, Algerian universities witnessed a continuous increase in student numbers; the number of graduate students increased from 181,350 in 1990 to 1,250,310 in 2013, while the number of post-graduate students increased from 13,967 in 1990 to 54,317 in 2013 (Ministry of Higher Education and Scientific Research, 2013), resulting in an apparent shortage and deficiency in supervision, sometimes reaching 40%, each teacher facing 70 students. This significant expansion in higher education, the vast numbers of students, and the disproportionate number of teachers made the idea of training and preparing university teachers to adapt to such changes crucial. This proposal was relatively new in Algeria; the first signs of genuine interest in the training of university teachers started at the beginning of the last decade during academic days and conferences organized by different Algerian universities. Then, numerous national pedagogical conferences were held at the direction of the Ministry of Higher Education and Scientific Research to discuss pedagogical issues aimed at increasing the effectiveness of higher education in Algeria, such as teaching methods in universities and the design of curriculum evaluation methods. This proposal became official with Ministerial Decree No. 932, dated July 28, 2016, which sets out a pedagogical training program for newly hired university teachers. The decree established support cells for newly hired university teachers in various universities to provide them with knowledge and skills in teaching methodologies and pedagogy during their internship period. These methodologies focus on pedagogy, educational psychology, educational legislation, the use of information communication technology, and distance teaching methods recognized as complementary to traditional teaching in Algerian universities.

This study aims to determine the impact of pedagogical training programs on the teaching approaches of newly employed teachers in Algerian universities. To align with the L.M.D. system objectives, we focus on whether such training helps the new teacher to center their teaching approach on the student rather than on information transfer, since turning from a student-centered to a teacher-centered approach after finishing the

training and becoming less teacher-centered is seen as a proxy for becoming a better educator (Ödalen et al., 2018). The study also aims to identify the effect of training programs on teachers' self-efficacy beliefs: their confidence in their teaching skills and their role as university teachers.

The study is organized as follows: Section 1 establishes the theoretical and institutional framework of the study and presents an overview of the existing literature on the issue. Section 2 presents the methodology adopted in the study regarding sample selection, variable measurement methods, data collection, and analysis methods. Section 3 presents a discussion of the results.

## *Theoretical Framework and Hypotheses Development*

### *1. The Pedagogical Training of University Teachers*

We define pedagogical training in teaching and learning as activities designed to improve teachers' skills and competencies in order to enhance students' learning (Taylor & Rege Colet, 2010). Boud and Brew (2013) emphasize the importance of integrating academic development activities within professional practice, addressing academics' skills and knowledge, and considering all aspects of academic work.

### *2. Two Different Approaches to Teaching*

Kember (1997) describes two broad approaches to teaching: the conceptual change/student-centered approach (CCSF) and the information transfer/teacher-centered approach (ITTF). He finds that the student-centered approach is based on the idea that "the student is the center of the educational process, in which knowledge is built by students, and the role of the teacher is to facilitate and guide the learning process rather than simply presenting and narrating information" (Kember, 1997). Rogers (1983, p.188) argues that an essential element in this teaching method is the need for a leader who is considered an authority in the learning process, who is competent and feels

sufficient security within himself and in their relationship with others, giving them essential confidence in their ability to think for themselves and learn on their own. Burnard (1999, p.244) emphasized the importance of choice in the learning process; he explains Rogers' (1983) ideas about the student-focused approach to teaching: "Students may not only choose what they study, but also how and why a particular subject matter may be studied." Burnard (1999) also stresses the importance of the student's ideas, perspectives, and different perceptions.

Student-focused teaching focuses on student learning and what they do to achieve it rather than what the teacher does (Harden & Crosby, 2000, p. 335). This definition emphasizes the concept of "student work." Therefore, according to Trigwell et al. (1999), in the teacher-focused approach, the teacher focuses on organizing, presenting, and evaluating the content, teaching methods, and behavior in teaching, with the goal of assessing how well the student understands the information. The teacher-centered approach focuses on the teacher who transfers knowledge from an expert to a novice (Harden & Crosby, 2000, p. 335). In contrast, the student-focused approach focuses on supporting the students' learning process so that they acquire and develop relevant concepts. Lea et al. (2003, p. 322) summarize some of the characteristics of a student-centered teaching approach: (1) reliance on active learning (student work) rather than passive learning (receiving knowledge and instruction from the teacher); (2) focus on deep learning and understanding; (3) increasing student responsibility in learning; (4) increasing the learner's sense of independence; (5) the interconnection between the teacher and the learner; (6) mutual respect in the teacher-learner relationship, and (7) both the teaching and learning processes being reflective of both the teacher and the learner.

From a theoretical standpoint, the student-centered teaching approach is closely related to the constructivist view of learning, given its emphasis on activity, discovery, and independent learning (Carlile & Jordan, 2005), it is primarily associated with physical activities. In contrast, cognitive theory is based on learning as a mental process. The student-centered teaching approach is also related to the social constructivist view, which emphasizes the importance of activity and the role of others in the learning process. In the student-centered approach, the learner is the result of the learning experience, which is entirely different from the traditional teaching and passive learning approaches. It is

based on the student's choice of what they want to learn and focuses more on the student's work and activity than the teacher's (active learning vs. passive learning). It emphasizes strong relationships between the student and teacher.

### 3. *The Self-efficacy Beliefs of University Teachers*

Bandura (2000, p. 36) defines *self-efficacy* as not just beliefs about the skills and abilities an individual possesses but rather the belief in their ability to perform using those skills and abilities under certain circumstances. Therefore, university teachers may have strong beliefs about their teaching abilities in a familiar instructional setting but may need clarification about their ability to teach in an unfamiliar teaching situation or in front of an assertive audience. Teachers' self-efficacy is defined as their belief in their capability to successfully handle tasks related to their professional work. Teachers' self-efficacy beliefs may differ for different subjects: they are subject-specific (Bandura, 1997). The self-efficacy of teachers impacts important academic outcomes, such as the students' well-being, achievement, and motivation (Barni et al., 2019). In their study, Shah & Bhattarai (2023) concluded that there are four factors that contribute to Nepali teachers' self-efficacy: (1) students' engagement efficacy; (2) instructional preparation efficacy; (3) efficacy in behavioral competence, and (4) teaching skills efficacy.

### 4. *Pedagogical Training, Teaching Approaches, and Teachers' Self-efficacy Beliefs*

Gilbert & Gibbs (1999) were the first to point out the need for more evidence of the relationship between training and teaching quality in higher education, either because few studies addressed this relationship or because previous research was more descriptive than experimental. They emphasized the need to establish training effectiveness in improving higher education quality because evidence of training effectiveness was required to guide the efforts of educational development units in designing training courses in the UK.

Gibbs and Coffey (2004) conducted the first quantitative study. The study examined the impact of university teacher training on their teaching approaches and

skills and their students' learning approaches in a sample of teachers and their students during two periods: the first at the beginning of the teacher training process and the second after one year of teacher training. They considered that the teacher's approach became less focused on the teacher and more centered around the student by the end of the fourth to the eighteenth month of training. In addition, the teachers' teaching skills improved significantly according to their students' ratings. The students' approaches to learning also became more profound, but this change was not statistically significant.

Thus, most early studies on the subject found positive effects of pedagogical training. However, their results were not generalizable due to their reliance on small samples, such as the study by Stefani and Elton (2002), which included only one university. Thus, there was consensus on the positive effects of pedagogical training, but its effects remain weak (Stes et al., 2012; Trigwell et al., 2012), and the idea of its positive effects remains to be seen. For example, Norton et al. (2005) conducted a study comparing the teaching methods of teachers who participated in pedagogical training and those who did not. The results showed no significant differences between the two groups, indicating conflicting results regarding the effects of pedagogical training in universities.

In addition, studies that focused on measuring the effects of training relied on using measures known as teachers' conceptions and pedagogical approaches. One of the measurement methods used is the ATI (Approaches to Teaching Inventory), which helps the researcher determine which of the two approaches is used by the teacher in teaching: the student-centered approach or the teacher-centered approach. Many studies have relied on this method, such as Gibbs & Coffey (2004), Hanbury et al. (2008), Postareff et al. (2007), Stes & Petegem (2011), Trigwell et al. (2012), Nevgi & Löfström (2015), Bailly et al. (2015). Ödalen et al. (2018) used the ATI in six Swedish universities; they started with a high level of student-centeredness before the participants started the training and they found no changes in the level of student-centeredness approach.

These studies have often found a positive relationship between long-term training (more than 45 hours) and changes in trainee teaching approaches; teachers moved from an approach that focuses on knowledge transmission (teacher-centered approach) to an approach that focuses on changing concepts (student-centered approach). The duration of training is one of the main variables that lead to changes in teachers' knowledge, skills,

attitudes, and beliefs (Connolly et al., 2018). On the other hand, it is noticeable that the relationship is less evident when the training is of short duration (Bailly et al., 2015). In addition to time duration, other characteristics leading to effective training include: (1) content focus: the training focuses on specific subject matter content, (2) active learning: participants engage in activities such as discussions or group work rather than listening to lectures for example; (3) coherence: the consistency and integration of training activities, and (4) collective participation: the involvement of a group of individuals who can facilitate interactions and discourse (Fabriz et al., 2020).

The impact of pedagogical training on university teachers' practices has yet to be adequately proven, especially as training programs are designed according to specific criteria or requests. The evaluation of these programs often depends on the participants' short-term evaluation (satisfaction) (Stes et al., 2010). With the increasing interest in researching the effects and effectiveness of pedagogical training in higher education, recent studies have adopted a more significant number of quantitative, qualitative, and even mixed methods and methodologies. For example, Stes et al. (2010) argue that systematic evaluation studies that include pre-testing, quasi-experimental, and mixed methodologies can measure the long-term effects of pedagogical training for university teachers.

Pedagogical training is also related to self-efficacy beliefs; Albert Bandura's works in the past decades are considered detailed and wide-ranging. Since the publication of Albert Bandura's seminal article entitled "Self-Efficacy: Toward a Unifying Theory of Behavioral Change" (Bandura, 1977), countless social and behavioral science researchers have used self-efficacy to predict and explain a wide range of human behavior.

However, research on teacher self-efficacy beliefs was primarily conducted with schoolteachers, similar research on higher education teachers' self-efficacy beliefs remaining limited. Studies conducted on the effectiveness of schoolteachers and student learning outcomes indicate that teachers with high self-efficacy tend to achieve better learning outcomes with their students (Bandura, 2000). Norton et al. (2005) made a comparison between a group of 72 teachers who had no training and a group of 50 teachers who had a program on teaching and learning in higher education in the UK; they found no significant differences between the two groups on scales measuring teaching

beliefs and intentions. Postareff et al. (2007) found a negative relationship between training and teachers' self-efficacy beliefs; teachers who have received training for a short period tend to feel less confident after training than at the beginning. Ödalen et al. (2018) found a relatively weak positive effect but considered the relative increase in confidence statistically significant. Fabriz et al. (2020) found significant results between and within the pre- and post-measurements for self-efficacy and self-concept and within subjective knowledge in a sample of academic staff at Goethe University, Germany, who finished a professional development program on academic teaching between the winter of 2013 and the summer of 2019.

Previous studies often focused on participants' change of attitude or approaches to teaching and learning in higher education while disregarding other aspects of teachers' learning; researchers keep conducting empirical research on the impact of professional development programs in the field of teaching and learning, and the results are not without ambiguity (Fabriz et al., 2020). The effects of teacher training in higher education are questionable; there is only a little evidence that the training would affect teaching behavior (Norton et al., 2005), and there needs to be more evidence of whether participation has the mentioned effects (Sadler & Reimann, 2018).

Based on a review of previous studies and research literature, as well as the aim of the study, we formulate the following null hypotheses:

H1. There are no statistically significant differences in the teacher-centered teaching approach among newly employed teachers before and after pedagogical training.

H2. There are no statistically significant differences in adopting the student-centered approach among newly employed teachers before and after pedagogical training.

H3. There are no statistically significant differences in the self-efficacy beliefs of newly employed university teachers in their roles before and after pedagogical training.

## *Institutional Framework*

The institutional framework of our study is the characteristics of higher education in Algerian universities with the L.M.D. system.

### 1. *Higher Education Philosophy in Algerian Universities*

The L.M.D. system is based on the competency-based approach to teaching. This approach relies on the student's independence; it aims to develop students' ability to adapt to changes and use new technologies continuously; it achieves this by assigning students to pedagogical projects.

The Ministry of Higher Education and Scientific Research considers that "teaching is a profession that must be learned, and that no matter how competent and knowledgeable a professor is in his field of specialty, he cannot be considered a true instructor; therefore, pedagogical and methodological training is a must" (Ministry of Higher Education and Scientific Research, 2016, p. 01). The Ministry also considers that "the profession of a teacher-researcher requires two integrated skills necessary to perform his tasks satisfactorily: (1) active participation in scientific research and (2) a constant strive to improve and develop methods to transfer knowledge to his students. This basic task to prepare future scholars and researchers requires good preparation and acquiring pedagogical knowledge" (Ministry of Higher Education and Scientific Research, 2016, p. 02).

### 2. *Pedagogical Training Programs for Newly Employed Teachers in Algerian Universities*

Based on its concept, 'art of teaching', the Ministry of Higher Education and Scientific Research considered that the curriculums in L.M.D. are centered on the student and achieving learning outcomes based on the general and specific competencies he acquires at the end of his academic path. There was an urgent need to move from a model

of education to a model of learning and from verticality to horizontality. Quality assurance should be vital in implementing curriculums (Ministry of Higher Education and Scientific Research, 2016, p. 10). The student is a mature partner responsible for his education (Ministry of Higher Education and Scientific Research, 2016, p. 22).

On this basis, the Ministry prepared a training plan for newly hired teachers to achieve the mentioned goals. This plan was based mainly on Ministerial Decree No. 932, dated July 28, 2016, which specifies the procedures for organizing pedagogical support for newly hired teachers at Algerian universities. This order came into effect starting with the 2016-2017 academic year to enable newly hired teachers to acquire skills in higher education during their probationary period. Decree No. 208-130 defines the newly hired professor trainee duties; it is divided into twelve (12) different missions. Fulfilling these missions lies at the core of the national training program. The decree also specifies the topics, objectives, activities, tasks, and the total number of total training hours, which is 130 training hours. The pedagogical training program consists of 22 axes. The decree also creates Training Cells in each higher education institution to establish a program and monitor the pedagogical support of newly hired teachers.

## *Methodology*

### *1. Sample and Data Collection*

This study uses a cross-sectional design conducted among newly employed university teachers during the academic year 2021-2022 in various Algerian universities, university centers, national schools, and higher schools across different faculties. The Ministry of Higher Education and Scientific Research scheduled the training in groups (group 1: February, group 2: March, and group 3: April 2022). This study uses data from an online survey sent via email to the total number of the 3 groups, 1,040 teachers. The survey was available in both languages (French/Arabic), so the teachers could choose the language in which to complete the electronic survey.

The questionnaire was designed based on the mentioned measurement methods and sent electronically twice. The questionnaire was sent to newly employed teachers on their personal and professional emails when the list of training groups was released. Then, it was sent for the second time after they completed their pedagogical training and their first professional year. At the beginning of the academic year 2022-2023 we asked the teachers in the first round of questionnaire distribution to answer relying on the basic modules they teach. In the second round, we asked them to keep referencing the same module they relied on in their first answers.

The first part of the questionnaire is the Approaches to Teaching Inventory (ATI), used to measure the teachers' approaches to teaching. The second part is the Motivated Strategies for Learning Questionnaire (MSLQ) used to measure the teacher's self-efficacy beliefs. We evaluate answers on a five-point Likert scale ranging from Strongly Disagree (1) to Strongly Agree (5). The third part was devoted to personal information. We distributed one thousand forty (1,040) online questionnaires in the first round, and 157 teachers answered, with an average response rate of 15.09%. Only 56 teachers responded to the questionnaire when distributed for the second time. The sample consists of 51.10 % males and 48.90 % females. 56.20 % of the sample is between 30 and 39 years old, and all hold PhD degrees.

### *2. Measures and Instruments*

We rely on the Approaches to Teaching Inventory (ATI) developed by Trigwell et al. (2005) to measure a teacher's teaching approach. The ATI consists of 22 items, each expressing an idea or a belief that reflects the instructor's vision of their teaching method. Eleven (11) items relate to the student-centered approach, and the other eleven (11) items relate to the teacher-centered approach, using a five-point Likert scale ranging from 1 (rarely) to 5 (always) for evaluation. The ATI is considered one of the most widely used methods for identifying the teaching approach; it is a well-designed tool that relies on the characteristics of psychological measurement (Poole & Iqbal, 2011). The two approaches – teacher-focused and student-focused – are independent measures where a teacher can score high in both equally (Gibbs & Coffy, 2004, p. 5).

ATI has been translated into many languages to be used in different countries. Goh, Wong & Hamzah (2014) translated (ATI) into the Malay language; Lindblom-Ylänne et al. (2006) into the Finnish language; Pedrosa-de-Jesus & da Silva Lopes (2011) and Rosário et al. (2013) into the Spanish language; Stes et al. (2010) into the German language, and Zhang (2001) into the Chinese language. However, according to our knowledge, this method has not been translated into Arabic in previous studies. Therefore, the questionnaire items were translated into the Arabic and French languages as described by the World Health Organization's Translation Process (WHO, 2005). It is worth noting that although the questionnaire items are simple and the language is clear and direct, we relied on a bilingual expert to review them; he contrasted the back-translated versions with the original English ones. The translation's discrepancies were examined and settled. Finally, 15 volunteers took part in a pilot test of the translated measures. Some items thus needed minor linguistic correction.

In our measurement of university teachers' self-efficacy beliefs, we used four statements on a five-point Likert scale for evaluation. These phrases were adapted from the Motivated Strategies for Learning Questionnaire (MSLQ) by Pintrich et al. (1989), modified to fit the teaching profession instead of learning. These statements measure the extent of the teacher's confidence in their role and teaching skills. Previous studies have shown that self-efficacy beliefs are related to the long training period (exceeding 45 hours); the training period for newly employed university teachers in Algeria is 130 hours, which we consider to be a long period of training.

### *3. Data Analysis Approach*

The differences in the three variables: teacher-centered approach, student-centered approach, and the teacher's self-efficacy beliefs were measured before and after participation in pedagogical training using appropriate tests: paired t-tests for normally distributed differences and Wilcoxon signed-rank tests for non-normally distributed differences.

## *Results*

Below, we present the results of the study. First, we answer whether the pedagogical training courses affect newly hired teachers' approaches to teaching. We then go on to compare the before-training and after-training results in the teachers' self-efficacy beliefs.

**Table 1.** Changes in the three variables before and after pedagogical training

| | N | Mean | Std. Deviation | Std. Error Mean | Minimum | Maximum |
|---|---|---|---|---|---|---|
| Teacher-centered (before training) | 50 | 4,0992 | ,47920 | ,06777 | 3.18 | 5.00 |
| Teacher-centered (after training) | 50 | 4,0864 | ,49710 | ,07030 | 3.09 | 5.00 |
| Student-centered (before training) | 50 | 3,7880 | ,58785 | ,08313 | 2.45 | 5.00 |
| Student-centered (after training) | 50 | 3,6954 | ,61587 | ,08710 | 2.45 | 4.90 |
| Self-efficacy beliefs (before training) | 50 | 4,2550 | ,48046 | ,067795 | 3.00 | 5.00 |
| Self-efficacy beliefs (after training) | 50 | 4,3150 | ,52443 | ,07417 | 3.00 | 5.00 |

1. *Were Newly Hired University Teachers' Approaches to Teaching Affected?*

### *Teacher-centered Approach Before and After Pedagogical Training*

**Table 2.** t-test for the teacher-centered approach

| | Paired Differences | | | | | t | df | Sig. (2-tailed) |
|---|---|---|---|---|---|---|---|---|
| | Mean | Std. Deviation | Std. Error Mean | 95% Confidence Interval of the Difference | | | | |
| | | | | Lower | Upper | | | |
| Teacher-centered approach (before training) – teacher-centered approach (after training) | ,01280 | ,58425 | ,08263 | -,15324 | ,17884 | ,155 | 49 | ,878 |

To analyze whether there are differences in teacher-centered approach before and after attending pedagogical training, we measured changes using a paired t-test. There

was a difference in the mean of teacher reliance on the teacher-centered approach before (4.0992) and after (4.0864) the training, indicating a decrease in reliance on the teacher-centered approach. However, this difference was not statistically significant at a significance level of 5%. Therefore, the null hypothesis H1 is accepted: There are no statistically significant differences in the reliance on the teacher-centered approach among newly employed teachers before and after pedagogical training.

### *Student-centered Approach Before and After Pedagogical Training*

**Table (3):** Wilcoxon's test of the student-centered approach

| **Test Statistics** [a] | |
|---|---|
| Student-centered approach (after training) - Student-centered approach (before training) | |
| Z | -1,282[b] |
| Asymp. Sig. (2-tailed) | ,200 |
| a. Wilcoxon Signed Ranks Test | |
| b. Based on positive ranks. | |

To analyze whether there are any differences in the student-centered approach before and after pedagogical training, we measured changes using the Wilcoxon test. There was a difference in how much teachers relied on the student-centered approach before (3.7880) and after (3.6954) their training. However, this difference was not statistically significant at a 5% level of significance, as the level of reliance of 26 teachers decreased after the training compared to 19 teachers who increased their reliance on this approach. Five (5) teachers remained at the same level. Thus, the null hypothesis H2 is accepted: There are no statistically significant differences in the reliance on the student-centered approach among newly employed teachers before and after pedagogical training.

2. *Did Newly Hired University Teachers Become More Confident in Their Role as Teachers?*

### *Self-efficacy Beliefs Before and After Pedagogical Training*

**Table (4):** Wilcoxon's test of the teachers' self-efficacy beliefs

| **Test Statistics** [a] | |
|---|---|
| Self-efficacy beliefs (after training) - Self-efficacy beliefs (before training) | |
| Z | -,775[b] |
| Asymp. Sig. (2-tailed) | ,438 |
| a. Wilcoxon Signed Ranks Test | |
| b. Based on negative ranks. | |

Changes were measured using the Wilcoxon test to analyze whether there are any differences in teachers' self-efficacy beliefs before and after pedagogical training. There is a difference in teachers' self-efficacy beliefs before (4.2550) and after (4.3150) training, with an increase in the level of self-efficacy beliefs among the teachers. However, this difference is not statistically significant at the 5% significance level, as self-efficacy beliefs decreased for 14 teachers, increased for 18, and remained the same for 18. Therefore, the null hypothesis H3 is accepted, which states that there are no statistically significant differences in the confidence of newly employed teachers in their roles as university teachers before and after the pedagogical training.

## *Discussion*

The study aimed to determine the impact of pedagogical training on newly employed university teachers' approaches to teaching, focusing on whether the training helps teachers center their teaching approach more around the student rather than focusing solely on information transfer. Additionally, the study aimed to determine the effect of these training programs on the teachers' self-efficacy beliefs and the extent to which they feel confident in their teaching skills and role as university teachers.

In line with Hypothesis 1, the study found no statistically significant differences in the Information Transfer/Teacher-Focused Approach (ITTF) among newly employed university teachers in teaching before and after completing pedagogical training. In line

with Hypothesis 2, the study found no statistically significant differences in the Conceptual Change/Student-Focused Approach (CCSF) among newly employed university teachers in teaching before and after completing pedagogical training. What is noticed is that there is a negative impact of the pedagogical training on the teachers' reliance on the student-centered approach; there was a difference in the mean of how much teachers relied on the student-centered approach before (3.7880) and after (3.6954) their training, even though the difference was not statistically significant at a 5% level of significance. This result contradicts previous findings (Gibbs & Coffey, 2004; Postareff et al., 2007; Stes & Petegem, 2011; Nevgi & Löfström, 2015; Bailly et al., 2015). We can tell from this study that pedagogical training does not help newly employed university teachers to center their teaching approach more around the student rather than focusing solely on information transfer. At the same time, in line with Ödalen et al. (2018), we could argue – as suggested by Postareff et al. (2007) – that approaches to teaching are hard to affect in a short-time perspective.

The study attributes this insignificant centeredness around the student to poor understanding of the training goals; newly employed teachers still consider expertise in their field of spatiality as the distinguishing characteristic of a university teacher, and since scientific research is the focus of university activities, obtaining a PhD degree and publishing in scientific journals are the primary criteria for a successful academic career. Teachers also consider their mastery of the module and the large amount of knowledge they have as the basis for teaching it well. Most teachers need more connection between the subject matter of the module they teach and the pedagogical and educational aspects. Another reason could be the negative feedback expressed by the surveyed trainee teachers; some consider the training to be exhausting since it coincides with their academic career beginning.

In line with Hypothesis 3, the study found no statistically significant differences in newly employed teachers' self-efficacy beliefs before and after completing pedagogical training requirements. We could argue, as Norton et al. (2005), that this result suggests that genuine development will come about only by addressing teachers' underlying conceptions of teaching and learning.

In this study, the pre- and post-measurement design allowed us to determine the impact of pedagogical training on teaching approaches and self-efficacy beliefs in higher education among newly employed university teachers. However, this approach has some limitations that should be considered when interpreting the results. First, the data analyzed was collected through self-report questionnaires. Second, it is difficult to conclude the effectiveness of the pedagogical training program, as the study design did not include a control or waitlist control group because of the obligatory character of the pedagogical training for newly hired university teachers in Algeria. We have also raised the sample size problem, which is always a challenge in studies with faculty members; further research should survey a larger number of participants. Finally, it is important to note that the difference in the field of specialty and the difference in teaching methods vary considerably between hard disciplines and soft disciplines; this might make our results concerning approaches to teaching not entirely straightforward and further research should consider the field of study in studying approaches to teaching.

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