

Teaching Online During the Pandemic: Teachers' Perspectives and Practices through the Lens of Transformative Learning Theory

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ABSTRACT

The recent global pandemic that the world has witnessed had forced schools and teachers to operate remotely and from a distance resulting in changes in the teaching-learning environment. Teachers were unprepared for this unanticipated and rapid online move in teaching and learning, which resulted in many challenges that were perceived by teachers', students' and parents' end. This research uses Mezirow's transformative learning theory as a framework to explore the transformative experiences of teachers during the shift to online teaching. The study aimed to explore teachers' challenges, support obtained and their learning experiences through the 10 stages of Mezirow's transformative theory. The methodology used in this study is an exploratory mixed-method approach and data was gathered through a teachers' survey (learning activity survey-LAS) and follow-up interviews. 115 teachers completed the survey, and 8 accepted to participate in the follow-up interview. The participants were teachers from different schools in Lebanon. The findings revealed that teachers have undergone a transformation in their adoption of technology as a result of using these tools during the pandemic. Furthermore, significant changes in their teaching roles and practices were perceived. However, the sudden shift to online teaching also surfaced infrastructure and student engagement issues and highlighted the demanding need for effective teacher professional development training to equip teachers with the needed technological skills and pedagogical strategies required for effective online teaching.

Keywords: Covid-19, teachers professional development, online education, technology integration, transformative learning theory, teachers' practices

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CHAPTER 1

INTRODUCTION

1.1 Introduction

Over the past decade, the world has experienced various natural disasters and health emergencies such as earthquakes, tsunamis, and the recent coronavirus pandemic. The recent Covid-19 pandemic created a key disruption in education, affecting 94% of students around the world (Burke et al., 2021). In March 2020, the World Health Organization (WHO) confirmed the Covid-19 outbreak a pandemic. This pandemic led to a complete shutdown in many countries, which caused significant changes in behavior, education, cultures, and economies. Like the rest of the world, schools went into lockdown, and educational institutions shifted to online learning with no preparedness on the teachers', students', schools', or parents' part (Zuo & Miller, 2020).

Many are familiar with the mantra “failing to plan is planning to fail”, and for educators, planning is a crucial segment of their job (Campbell et al., 2020). Educators were disoriented when attempting to meet learning needs while learners and teachers were asked to make sense of this new situation (Eschenbacher & Fleming, 2020). Therefore, learning routines that took place daily at school moved to learning at home. This new learning process compelled rapid learning transformations to overcome learning gaps (Fatkurochman et al., 2021). According to Murphy (2020), this sudden shift to online learning is best described as “emergency remote teaching” and a compromise between face-to-face and online learning.

The shift to online or remote learning included adjusting the teaching methods and curricula, diversifying the platforms teachers use to deliver content, creating

materials that are suitable for current learning needs, and providing a constructive, cooperative, and reflective learning experience for students (Chan et al., 2023). The need to adapt to this new dynamic also created responsibilities and demands that increased the time that teachers spent preparing lessons, ensuring good connection with their students, and understanding each student's needs (Chan et al., 2023).

The importance of integrating technology into education had been prevailing before the pandemic (Haleem et al., 2022). However, during the pandemic, schools committed significant resources to improve teacher and student access to information and communication technologies (ICTs) (Haleem et al., 2022). Some of the ways that were implemented are one-to-one device initiatives, expanded computer lab and classroom access, including desktop, laptop, tablet, and iPod models (Howard & Thompson, 2015).

During the pandemic, teachers were required to use technology in their teaching to facilitate the learning process. Online teaching and learning became more significant during Covid-19 (Sharna, 2022) which accelerated the implementation of educational technologies into teaching (Elnaj, 2021). Technology served as a mentor, an assessor, and a co-creator of information as well as a platform to share information. Covid-19 provided many benefits for teachers and changed their practices and perceptions (Sharma, 2022).

1.2 Statement of the Problem

Teaching online during the pandemic presented educators with unprecedented challenges, forcing them to adapt quickly to new modes of instruction. As a result, instructors and pupils alike had to navigate a fast-changing, digitized landscape with

limited resources (Zaalouk, 2021). Participating in an online learning environment and acquiring the necessary skills involves thinking pedagogically and practically, which impacts every facet of online education (Gudmundsdottir et al., 2023). In addition, the transition from a face-to-face to an online setting requires teachers “to adapt to new roles for creating effective and meaningful learning experiences” (Baran et al., 2011, p. 425). Due to the sudden shift, teachers did not have sufficient training in integrating technology into their practice and they lacked professional development training as well (Dmitrichenkova, 2022; Haleem et al., 2022). Research indicates that prior to the pandemic, over 95% of instructors had no prior experience teaching online, and many had not been trained in technology-based teaching techniques during their pre-service training (Dmitrichenkova, 2022).

When used properly, technology can be manipulated to increase access, participation, collaboration, and continued use of new skills in the classroom (Amspaugh et al., 2021). Given that the pandemic has forced educators to reconsider their presumptions and their roles in the classroom, it is plausible that the situational learning they experienced will carry over into the conventional classroom environment and that they will continue to use the same technology after the pandemic (Botturi et al., 2021). According to research findings, teachers are integrating a number of digital tools into their activities and have used technology in the classroom more since the pandemic (Li et al., 2023).

Professional development training is significantly important for teachers, and practice is key (Dmitrichenkova, 2022). The ongoing process of digitalization necessitates that educators not only use technology into their lessons to offer students

effective learning opportunities, but also engage in this style of learning for themselves (Daniela et al., 2023). Teachers need to get familiar with the use of technology in their teaching as well (Namara et al., 2023). Professional development of teachers shapes the benefits and opportunities available in the online learning environment (Borup & Evmenova, 2019). Even the most experienced teachers may find it difficult to adapt to a curriculum that is entirely online since it requires them to rework the courses and modify their pedagogical approaches in order to give students an engaged and thoughtful learning experience (Chan et al., 2023). Teachers' capacity to use technology is not only to interact with students and increase their resources but also to expand their quality of instruction (Amspaugh et al., 2021).

Like any other country around the world, Lebanon was affected by the coronavirus. Even before the pandemic, the country was becoming significantly weaker; Lebanon went through a series of civil protests, an economic collapse, and inflation. In this context, Covid-19 inflicted harm on various sectors, particularly education. According to the United Nations Educational, Scientific and Cultural Organization (UNESCO, 2020), the pandemic underscored major gaps in educational outcomes related to teachers, students, and parents and unequal access to the Internet that led to an uneven distribution of teaching materials. Despite these challenges, it is important to examine and understand how the emergency situation has impacted teachers' practices and more specifically their use of technology and what means they used to survive the crisis. As a result, this research will inform teachers professional development agendas and best practices for technology integration. Additionally, , this study will provide insights to better prepare teachers for emergency education.

1.3 Research Aim and Research Questions

Given the importance of developing teachers' technology skills and to better prepare them for 21st-century education and emergencies, this study aims to investigate how the pandemic and the subsequent shift to online teaching impacted teaching, learning and the professional development of teachers. The study seeks to examine whether the emergency experience of online teaching has led to any changes in the practices and attitudes of teachers towards teaching with technology and to assess what further support is required to effectively integrate technology into teaching.

The following research questions guided the study:

1. What challenges did teachers face as they shifted to online teaching during the pandemic?
2. What kind of support did teachers seek/receive as they shifted to online teaching during the pandemic?
3. How have teachers' practices shifted in the classroom as a result of an emergency online teaching experience?
4. According to Mezirow's theory of transformative learning, what support do teachers need to become more competent and self-confident, to integrate educational technologies into their teaching?

1.4 Rationale/Significance

The rationale of the study is grounded in the unprecedented shift to online teaching brought about by the Covid-19 pandemic, which forced educators globally to

adapt rapidly to remote instruction without adequate preparation. This research on teachers' transformative experiences during the shift to online teaching amid the pandemic will benefit a wide range of audiences; educational policymakers, school administrators, and teacher training organizations by providing valuable understandings into effective strategies for teacher support and professional development during crisis. Professional development is recognized as essential in preparing teachers with the needed skills and knowledge to be involved in the digital age (Lockee, 2021). Additionally, teachers will find the findings relevant as they adapt the integration of technology in their instructional practices. By incorporating technology into the classroom, teachers may help students acquire technical skills in a secure setting, enhance student learning, and get ready for a digital world (Abendan et al., 2023). Furthermore, the use of technology in teaching helps create an inclusive learning environment by providing an identical opportunity for each student with different capabilities to learn in the same place (Haleem et al., 2022). Understanding teachers perspective can help parents and students appreciate the difficulties of shifting to online learning and foster a more supportive learning environment at outside classrooms.

Using Mezirow's transformative learning theory, the study may contribute to a gap in the literature by examining the transformational experiences of teachers as a result of the shift to online instruction brought on by the pandemic. Before this research, there was limited understanding of how such a sudden transition affected teachers' pedagogical practices, their adoption of technology, and the psychological and professional support that were most effective during this period (Amini et al., 2023). This research contributes by documenting the stages of transformation teachers undergo in their teaching practices

under emergency conditions specifically during Covid-19, offering understandings into effective approaches for professional development and the integration of technology in teaching.

CHAPTER 2

LITERATURE REVIEW

This literature review will examine research related to teachers' shift to online teaching, adoption of technology, needed support for the adoption of educational technologies, teacher professional development, and the transformative learning theory as a theoretical framework for this study. Furthermore, this literature review will examine educational technology adoption in the Lebanese context.

2.1 Transformative Learning Theory

2.1.1 Donald Schon's Reflective Practice

In 1987, Donald Schon announced the concept of reflective practice as an important procedure for developing skills in a particular field. As defined by Schon (1996), reflective practice involves thoughtfully considering personal experiences while relating knowledge to practice under the guidance of experts in the field. Specifically, it happens when a person or group reflects before, during, and after applying what has been learned in a course to a field placement (Burnham et al., 2020). The importance of promoting reflective practice in teacher education programs is generally recognized and is being promoted as an essential part of initial teacher training programs. The emphasis on reflection comes from a belief that reflection inspires and enables the linkage between theory and practice and encourages critical thinking (Meierdirk, 2016). Reflection is considered a key component of a teacher's professional judgment as they reflect on their practice in the context of their knowledge and reflection on that knowledge (Meierdirk,

2016). Models addressing reflective practice focus on observing and experiencing an incident and how reflective thinking leads to new views and actions for development. In Kolb's model, reflective practice inspires teachers to be independent and self-directed learners. This autonomy lets the teacher engage in lifelong learning, learn from experience, and bond the gap between theory and practice (Sosibo, 2019). Reflection should address together individual and social dimensions since the Covid-19 crisis is considered a global and individual crisis (Burnham et al., 2020).

In reflecting on the teachers' experiences during the adoption of online teaching, it is necessary to include Donald Schon's ideas on reflective-in-action and reflective-on-action derived from his theory of reflective practice. The reflection-in-action process is related to thinking and adjusting in real-time when one carries out a task (Furstenau et al., 2023). In online teaching, this principle highlights the significance of teachers' skill sets in reacting spontaneously, changing instructional strategies, and finding solutions to technical difficulties that occur during online teaching. In contrast, reflection-on-action is a reflexive process following the action undertaken, allowing for a deeper understanding, learning, and improvement (Lefebvre et al., 2023). Teachers will be able to share their thoughts and experiences during the implementation of online teaching. They can identify what worked for them, where they struggled, and what should be improved (Lefebvre et al., 2023). This reflexive process gives educators the ability to improve their methods of teaching, develop technological and digital skills, and take into account the different learning needs of their students in future online teaching activities (Miller et al., 2020).

After Schon presented the concept of reflective practice, many schools, universities, and education departments started designing teachers' training and

professional development programs grounded on this concept (Burnham et al., 2020).

The concept of reflection and its association with teaching skills moves the teacher to a more profound level of transformative learning that encourages a sense of professional independence and allows teachers to make educational decisions on behalf of their students (Burnham et al., 2020).

2.1.2 Mezirow's Transformative Learning Theory

Transformational or transformative learning is an adult learning theory developed by Mezirow in the late 1970s and revised over 30 years. The core of the theory is the idea that adults undergo a catalyst, known as a disorienting dilemma, which prompts them to question their worldview and ultimately leads to a fundamental change in how they perceive the world (Kitchenham, 2012). The learner engages in critical reflection or critical self-reflection, which involves examining the influences that contribute to a change in worldview or examining those influences as they apply to oneself and one's worldview, respectively (Kitchenham, 2012). In 1987, Schön proposed that reflective practice is a crucial aspect of enhancing professional activity (Orsenigo & Selmo, 2014). Mezirow (1991) branded his theory of learning as transformative. Reflection is essential to the project of meaning-making that defines transformative learning (Orsenigo et al., 2014).

The fundamental principle of transformative learning is that transformation occurs through the learner's critical reflection on norms to understand the meaning of their experience and express their ideas (Chiyaka et al., 2023). Analytic reflection and discourse happen in the context of problem-solving, and it only takes place after students

become critically reflective of their past expectations, skills, principles, and beliefs (Chiyaka et al., 2023). Thus, transformative learning includes a specific purpose of reflection: reviewing the assumptions on which beliefs are built and acting on insights resulting from the transformed meaning perspective that results from such reassessments (Aboytes & Barth, 2020). Therefore, transformative learning theory is grounded on concepts from constructivism as well as humanist and critical social theory (Aboytes et al., 2020). In other words, Cranton (2023) claims that meaning happens within ourselves, not in external forms. Personal meanings are constructed by an individual's own experiences and are validated through collaboration and communication with others. The world is a consequence of insights of individual experiences (Cranton, 2023).

Transformative learning refers to the process of analyzing, questioning, verifying, and modifying one's perspectives. It involves a thorough examination of one's existing beliefs and a willingness to revise them based on new knowledge and experiences. In 2003, Mezirow wrote,

Transformative learning is learning that transforms problematic frames of reference—sets of fixed assumptions and expectations (habits of mind, meaning perspectives, mindsets)—to make them more inclusive, discriminating, open, reflective, and emotionally able to change. Such frames of reference are better than others because they are more likely to generate beliefs and opinions that will prove more true or justified to guide action.

(Mezirow, 2003, pp. 58–59)

According to Mezirow (1991), adult learners' understanding of the world, the ways in which social structures shape their experiences, and the resulting changes in them

are all defined by transformative learning. Accordingly, transformative learning emerged due to the experiences of women who entered or re-entered higher education, despite having family, employment, or other significant life changes (Mezirow, 2003). Mezirow (1978) describes how these learners engaged in a process of self-reflection, redefining their expectations and roles in life, in addition to the more conventional forms of learning, like memorization and demonstration of competence in a subject (Cox, 2017). Mezirow (1991) expands on this formative work by suggesting transformative learning as a new and comprehensive theory of learning. While constructing transformative learning theory, Mezirow draws from Habermas's (1984) research concerning fields of learning through which learners “achieve a deepening awareness of both the sociocultural reality which shapes their lives and of their capacity to transform that reality by acting upon it” (Cox, 2017, p. 10).

According to Jack Mezirow's theory, transformative learning is an emancipatory process that helps learners identify conflicts in their worldview and search for a more rational set of rules to guide their future behavior (Fleming, 2018). In addition to Habermas's vision, Mezirow draws heavily on the American philosopher Richard Rorty's (1989) work. His work is based on re-description; it starts with re-describing ourselves and creating new vocabularies to transform our assumptions. Linking Mezirow's theory of transformative learning with Rorty's work, transformative learning fortifies its potential to support persons in dealing with challenges in their lives (Eschenbacher et al., 2020).

Jack Mezirow outlines ten phases as adults experience a new learning situation. Baldino (2023) explained each phase accordingly, as presented below :

Phase 1. Disorienting Dilemma:

The phase where individuals find that what they currently know is different from their experience, so there is a dilemma to be considered. It starts by discovering a challenge that tests one's beliefs and ideas, leading to confusion and fear of change.

Phase 2. Self-examination:

When individuals are faced with the decision to change their learning method, they enter into a phase of self-reflection regarding their previous understanding. This allows them to determine whether or not they want to accept the new method, based on their reasons. Typically, individuals will take the time to reflect on their current situation and evaluate themselves within that context.

Phase 3. Critical Assessment of Assumptions :

This phase is the one where people feels as if he or she is a part of or separated from the usual being of self or identity due to the crisis; it is a critical stage where individuals review comprehensively and accept that previous understandings are not appropriate and are open to receiving new information.

Phase 4. Recognition:

This phase is marked by a greater willingness among people to open up and share their problems with others. As they do so, they often come to realize that others have had similar experiences, which can help them feel less alone and more validated.

Phase 5. Exploration of New Roles:

In this stage, people tend to doubt their ways of doing things and behavior in the face of a crisis. In the transformative learning process, for example, teachers can find online learning suitable to their skills. Increasingly, they explore to find out more about

newfound learning such as online learning. At this stage, teachers discover new practices that they have not used before.

Phase 6. Planning a Course of Action:

In the transformation stage, people build trust, confidence, and understanding about online learning. Thus, they tend to plan future steps by including their acceptance of online learning. If it turns out to be difficult to adapt, people will prefer to stick with the previous learning method.

Phase 7. Acquiring Knowledge & Skills for Implementation:

At this stage, individuals proceed to put their plans into effect if equipped with the right competencies. This is where the real learning takes place as individuals carry out their plans further in transformative learning.

Phase 8. Trying out new roles:

Individuals experiment different roles and behaviors while applying online teaching to find out how they work. They can make their own decisions and have confidence in themselves.

Phase 9. Building Confidence in New Ways:

Many people gain confidence from trying something new and adopting a new way of thinking or behaving. At this stage, individuals gain self-confidence by trusting their judgment, capacities, and abilities. Confidence is built through newly discovered information.

Phase 10. Reintegration:

In this phase, individuals begin to live out their new perspectives and integrate these changes into their lives in a way that reflects their transformed view. This phase is about

applying the new understanding and skills they have acquired through the transformative process to their everyday actions and interactions.

2.2 Transformative Learning Theory during Emergency Online Teaching

For many teachers, teaching online has been an unfamiliar, disorienting, and sometimes unpleasant experience (Crick et al., 2021). Research identified four different themes from teachers' perceptions, understanding, and meaning-making of their teaching during Covid-19, using Mezirow's transformative learning theory : Covid-19 as a disorienting dilemma, emotions and learning, reorientation, and transformation (Bano et al., 2022). Through transformative learning, an individual crisis could be turned into a learning opportunity that addresses both the individual and culture. In other words, transformative learning perceives that a learner goes through periods, from disorientation to reflecting on one's expectations, preparing a course of action, acquiring knowledge and skills based on their plan, and reintegrating the new information into life (Campbell et al., 2020).

The main disorienting dilemma during Covid-19 is that teachers, students, and the community faced a rapid transition to online learning with no preparation. Teachers were required to adapt to this condition which made them experience a process of transformative learning. This process led to significant changes in their professional learning and personal growth (Chiyaka et al., 2022). There was a significant discrepancy between what was expected and what was experienced by educators. The situation triggered a sense of confusion and prompted teachers to reflect on their practices and

make adjustments, ultimately making them more receptive to online teaching (Oliveira et al., 2021).

2.3 Online Teaching versus Traditional Face-to-Face Teaching

Online learning has provided an alternative to traditional teaching methods with technological advancements and learning management systems like Blackboard and Moodle which have influenced the growth of e-learning (Mouchantaf, 2020). In fact, the pandemic accelerated the integration of technology in teaching physical classes as it accelerated the digitization of the education sector by five to ten years (Farsaciu et al., 2021).

If designed effectively, both traditional and online learning can offer a similar quality of education. According to a survey, around 70 percent of chief academic officers consider online learning an essential part of long-term educational strategies (Abrami et al., 2014). However, both modes of learning have their advantages and disadvantages (Mouchantaf, 2020).

One of the major differences between online learning and traditional learning is the mode of delivery. The traditional teaching system emphasizes direct instruction through listening and observation (Chellama et al., 2020). In traditional learning, teachers provide face-to-face instruction to students as they attend classes in a real classroom. The work is completed through written assignments, exams, and homework (Van Doorn & Van Doorn, 2014). Online learning, on the other hand, is led entirely through the internet, with students accessing instructions, readings, and other resources through their

laptops or mobile phones. As Chellama et al. (2020) argue, current teaching focuses on the development of soft abilities which include skills such as active listening, written communication, visual literacy, critical thinking, and creative imagination. These skills are of great significance in online learning where students need to be skilled in watching and listening to audiovisual content, writing and expressing themselves through written mediums, collaborating and working with digital materials, developing their creativity, and critically evaluating online information sources (Chellama et al., 2020).

According to Anderson et al. (2001), online teaching requires different tasks than traditional teaching as it involves updating the curriculum and course materials to create an effective learning environment. Online learning offers flexibility in scheduling, allowing students to work and study simultaneously, with more lenient deadlines (Almahasees et al., 2021). However, in a traditional class format, there is often a lack of flexibility, and students are committed to strict schedules and deadlines (Gillis & Krull, 2020). Furthermore, students can develop greater independence and mastery over their education by taking online classes. It is essential to have a high level of self-discipline and motivation when following an online program (Suryanti et al., 2022). Students need to be able to motivate themselves to complete the required readings and assignments, and they should also be accountable for these tasks. There is a common misconception about online coursework that it does not require any interaction (Cavinato et al., 2021). Online classes frequently employ collaborative tools, such as video conferencing, to encourage communication, discussions, and brainstorming.

In online teaching, the development of online pedagogies is a must for teachers to properly manage the digital learning environment (Albrahim, 2020). It is the teacher's

responsibility to design effective strategies to keep the students engaged during sessions and ensure that the content is transferred in the virtual classroom (Albrahim, 2020). They should provide additional ways to transmit the lesson and ensure that all students are understanding (Hako et al., 2021). While using digital means, students will be able to upload and create their own content, work in groups, evaluate each other's work, make links to the real world, and shift toward co-learning through the use of digital tools (Haleem et al., 2022). In line with this, schools should ensure that students are provided with needed organizational and participatory skills for better online learning experiences (Albrahim, 2020). In addition to that, teachers should also improve their content creation abilities to come up with learning goals that can be customized to the various elements of the online learning environment (Albrahim, 2020). Consequently, it is important for online instructors to be technologically proficient and able to make use of various online tools and resources with ease. Furthermore, teachers need to give more attention to their social and communication skills by realizing that communication, as well as the development of a social presence, are the keys to successful engagement and interaction in online learning spaces (Albrahim, 2020).

2.4 Challenges and Opportunities of Online Teaching

The online teaching environment poses several challenges for teachers, both regarding teaching and learning, since teachers now work in a new learning environment (Bano et al., 2022). Teachers do many extra tasks in addition to their teaching duties as a

result of the constantly changing nature of online education, which in some cases leads to an increase in their professional work (DeAngelis, 2022).

Online teaching presents difficulties for some teachers, especially those who are not quite familiar with platforms like WhatsApp and email. It is key for teachers to be computer adept and to develop the ability to connect technology successfully to their teaching programs (Newhouse, 2002). The lack of practice using technological tools may imply that teachers are not prepared to provide their students with the knowledge they may need. Therefore, their competence and efficacy at their job may be slightly undermined (Kulikowski, 2021).

The dilemmas that teachers faced during the pandemic made it even more difficult for successful online teaching. Teachers faced difficulties to access digital teaching materials that were suitable to the learning environment (Decoito & Estaiteyeh, 2022). The access to relevant online resources was conditioned by the lack of resources and the fact that they weren't accessible, while the preparation time was very short which caused stress and pressure for educators (Campbell et al., 2020). Participation in online teaching in the absence of familiar classrooms and recorded lecture formats not only complicated but also intensified the process of adjusting to the new instruction paradigm (Campbell et al., 2020).

The Covid-19 pandemic made the distinction between personal and professional life much less obvious, thus leading teachers to have subjective responses as they used online learning and technology integration (Bano, et al. 2022). The emotional impact of teaching and learning in virtual environments is, therefore, where the difficulty lies.

Teachers experienced anxiety and frustration while shifting to online teaching due to

inadequate knowledge regarding the needed skills and strategies to adopt while teaching online (Naylor & Nyanjom, 2021). Additionally, the problems related to task performance, equity and access, motivation, and policy implementation were much more evident when teaching online (Code et al., 2022). These problems reinforced the difficult environment that online education has to confront and the conflicting consequences it might have for both teachers and learners (Bano, et al. 2022).

Despite the challenges, many teachers recognized the advantages of integrating technology into their teaching during the Covid-19 pandemic. For some, it presented an opportunity to enhance their teaching tools and undergo digital transformation (Chapparo-Pelaez et al., 2021). This shift not only broadened their teaching repertoire but also elevated their professional development, allowing them to explore new pedagogical approaches and improve student engagement (Meirovitz et al., 2022).

Furthermore, integrating technology into learning is perceived as more meaningful for students, offering opportunities for independent work and personalized feedback (Meirovitz et al., 2022). The flexibility of online classes, allowing students to balance work and studies simultaneously, is also recognized as a significant benefit (Almahasees et al., 2021). However, this flexibility demands a high level of self-discipline and motivation from students, as they must take ownership of their learning journey and adhere to deadlines and responsibilities independently (Almahasees et al., 2021). Students find technology integration in learning more interesting because it allows them to work individually and receive personalized feedback (Meirovitz et al., 2022). The convenience of combining work and studies simultaneously is a major benefit of online classes (Almahasees et al., 2021). However, this independence requires students to

be responsible for their learning, making discipline and motivation essential for managing their education and meeting deadlines.

2.5 Theories that Support Online Learning

Online learning design is supported by two learning paradigms: Constructivism and socio-constructivism.

Constructivism, rooted in the work of Jean Piaget, posits that learners construct their own understanding and knowledge of the world through experiences and reflecting on those experiences (Swan, 2005). This approach encourages critical thinking, creativity, and the ability to make connections between different pieces of knowledge. In a constructivist classroom, the teacher acts as a facilitator, guiding students through inquiry-based learning activities that promote exploration and discovery. In online learning, this theory is demonstrated through interactive activities, problem-solving tasks, and opportunities for learners to explore content at their own pace, fostering a deeper, more personalized understanding of the material (Embi & Hamat, 2010). Instead of passively receiving information, learners actively participate in the learning process, exploring concepts, asking questions, and applying their understanding in various contexts (Swan, 2005). This learner-centered approach not only fosters deeper comprehension but also empowers students to take ownership of their educational journey, developing skills that are essential for lifelong learning (Embi & Hamat, 2010).

Socio-constructivism, influenced by Lev Vygotsky, extends the idea of constructivism by emphasizing the crucial role of social interaction and collaboration in

the learning process (Adam et al., 2023) . According to this theory, learning occurs as individuals engage in dialogue, share perspectives, and build upon each other's ideas within a community (Pacciano, 2017). Online learning platforms facilitate this by providing tools for communication, such as discussion forums, video conferencing, and collaborative projects, allowing learners to co-construct knowledge in a socially rich environment.

Together, these theories highlight the importance of active engagement and social interaction, both of which are integral to effective online learning experiences.

2.6 Teachers' Professional Development in Emergency Situations

In times of crisis, such as during natural disasters, pandemics, or conflicts, the necessity for effective professional development for teachers becomes important yet challenging. Traditional educational settings and methods often become invalid, requiring educators to swiftly adapt to the new learning setting (Abu-Thalam & Alsaaideh, 2019). Professional development emerged as a key factor in sustaining online education during crises. Such professional development is supposed to prioritize equipping teachers with the necessary skills to handle their stress and that of their students, while also enabling them to apply adaptable teaching strategies in rapidly evolving situations (Abu-Thalam et al., 2019). However, powerful teachers' professional development that has a high impact on teachers emphasizes collective participation, collaboration, and reflection among teachers (Avalos, 2011).

As the pandemic demonstrated a crisis on a global scale, its emergencies have not only accelerated the integration of technology in education but have also underscored the imperative for continuous teacher professional development to meet the dynamic demands of the digital era (Anis, 2024). In response to the changing demands of the digital age that happened due to the pandemic, various models of teacher professional development have emerged. Each model addresses specific facets of teacher learning and adaptation (Anis, 2024).

1- Individualized learning plans: Individualized learning plans have gained popularity as an effective model for teacher professional development due to recognizing the diverse needs and skill sets of educators (Garet et al., 2016). The pandemic amplified the necessity for self-directed learning as teachers worked remotely without prior preparation (Moris & Rohs, 2021). Subsequently, individualized learning plans are considered tools that help teachers develop self-directed learning skills, inspire them to reflect on their goals, evaluate their understanding and abilities, and recognize growth opportunities (Drake et al., 2021). Individualized learning plans allowed teachers to identify specific areas where they needed improvement or new skills relevant to shifts caused by the pandemic, such as remote work technologies, digital communication tools, or health and safety practices. By customizing learning objectives, professionals could focus on acquiring skills that were immediately applicable to their changing work environments (Drake et al., 2021).

2- Collaborative learning communities: This model distinguishes the value of social learning and inspires the development of a professional network that extends further than individual classrooms. Nevertheless, collaboration communities have been identified as

the most influential type of teacher professional development (Mankki & Raiha, 2022).

The pandemic emphasized the role of peer support while shifting to online teaching. This support contains encouragement to continue teaching online, helping each other in using the needed devices and tools, as well as organizing the material that will be given during the online classes (Aliyyah et al., 2020). Therefore, collaborative learning communities offer a platform for teachers to connect, share understanding, and support each other's development. Peer-to-peer connections in these communities allowed the sharing of varied perspectives and answers to common challenges faced during the pandemic, such as adapting to remote work environments (Aliyyah et al., 2020).

3- Online Courses and Workshops: Online courses often blend multimedia resources, interactive elements, and asynchronous participation, providing teachers with opportunities for self-paced learning and exploration (Anis, 2024). In light of the pandemic's obligatory transition to online learning, teachers' ability to continue providing high-quality online education to their pupils depends on their ability to provide effective professional development (Reimers et al., 2020). Online workshops became a vital link to professional development throughout the pandemic, adapting to social distancing limits and promoting ongoing learning. Geographical obstacles were eliminated by these remote sessions, which gave teachers essential access to training and skill enhancement from the comfort of their homes (Juozitis, 2020). They made it possible for teachers to stay up to date with the quickly changing demands of the workplace and breakthroughs in technology by providing an affordable, adaptable means of interacting with peers and industry experts worldwide (Juozitis, 2020).

These models of effective teacher professional development acknowledge the evolving and varied learning requirements of educators in the digital era. Whether it's through individualized learning plans, online courses, collaborative communities, or coaching initiatives, each approach helps to cultivate a robust and flexible teaching workforce equipped to handle the complexities of modern education (Anis, 2024).

2.7 Teachers' Perceptions of Online Learning During the Pandemic

Teachers' perceptions of online learning are influenced by various factors, including the cognitive load associated with technology-rich environments and the challenges posed by synchronous video tools (McGrane, 2022). During the pandemic, educators expressed positivity about the online system's easiness and usefulness. Still, during the pandemic, some teachers didn't agree with online learning's effectiveness (Rahayu & Wirza, 2020). They believed that the quality of communication and interaction between teachers and students was insufficient and that it made the online learning system less effective. Meanwhile, some teachers faced challenges when using ICT to design and explain educational materials, assess student learning, and provide feedback. These challenges led some teachers to believe that teaching online was neither practical nor convenient for education.

Teachers demonstrated a positive attitude toward incorporating technology into their online teaching practices amid the Covid-19 pandemic. They expressed a strong intention to use technology in their online teaching and were actively involved in it (Rahayu et al., 2020). Teachers realized the significance of enhancing their digital skills, indicating their acknowledgment of the importance of technology in their teaching

practices. During the pandemic, the ability of instructors to innovate in creating and gathering materials, using new teaching strategies, and choosing the best applications that complemented the materials and approaches was essential to the success of online learning (McGrane, 2022).

In conclusion, teachers' perceptions of online learning are shaped by the cognitive challenges, social dynamics, privacy concerns, and pedagogical complexities associated with synchronous video technologies. The significance of targeted support and training to enhance instructor's capabilities in online teaching environments should be underscored (Majeed et al., 2022).

2.8 Sudden Shift to Remote Learning in Lebanese Schools

As of March 2020, numerous schools in Lebanon were already aware of online learning, with students spending an average of 15 school days at home before the lockdown due to the shutting of schools during the revolution. Lebanon first closed its schools on February 29, a week after the first coronavirus case was perceived, and started with distance learning on March 17 (Rahhal, 2020). Several weeks after the school lockdowns, the government acted swiftly and trained public school teachers on Microsoft Teams, but they were free to use any available platform. Teachers utilized different methods to transfer information to students amidst the pandemic. These methods included sending content through WhatsApp, conducting classes through Zoom, sending suggested readings and assignments via email, and transferring content to a learning management system if the school had access to such a facility (Mouchantaf, 2020). According to a survey of 7,095 students, parents, and teachers in Lebanon, approximately 70% of

schools practiced online learning for the first time during the Covid-19 pandemic, and almost 60% attended online classes through their cellphones (Chi et al., 2022).

Additionally, the pandemic caused a change in teaching and learning methods, to which teachers and students needed to adjust. Due to this shift in teaching, students and teachers agreed that the quality of education weakened after implementing distance learning methods during the pandemic (Hammoud, 2021). The weak quality is due to a reduction in overall teaching days, teachers' limited knowledge of technology, and difficulty in preparing distance learning lessons (Hammoud, 2021). In Lebanon, several challenges were perceived due to this fast transition to online learning and the existing economic crisis. Among the main obstacles to the proper implementation of online learning are infrastructure issues including electricity, Internet connectivity, and tools availability. Parents were not able to afford the needed equipment for remote learning such as laptops and tablets (Hammoud, 2021).

Father Boutros Azar, secretary general of the General Secretariat of Catholic Schools and coordinator of the Association of Private Educational Institutions in Lebanon stated that additional training is compulsory for everyone involved in online education. Training for teachers or administrators is a must, but also for parents to be able to assist their children (Rahhal, 2020). Students should have been mentally prepared to pursue their education online, but the sudden implementation created some confusion. Though teachers were not taught to teach in virtual settings before Covid-19, they have been considered beginners in providing online sessions and required assistance in applying pedagogical approaches and models. Furthermore, there is no easily accessible digital

information that matches the Lebanese curriculum utilized in all public and private institutions and fits the Lebanese system (Assaf & Nehmeh, 2020).

During and post-Covid, several local instructional technology companies such as Lebanese Alternative Learning, the founder of Tabshoura online learning tool (<https://tabshoura.com/>) and Kamkalima (<https://kamkalima.com/>) started creating digital content that could be used to blend learning and to prepare for emergencies especially with the influx of Syrian refugees to Lebanon. Similarly, the Center for Educational Research and Development (CERD) that is part of the Ministry of Education issued an online learning platform, Mawaridi (<https://edusub.crdp.org/>) to provide online resources and support for students of public schools primarily. This suggests that online learning is being embraced by the Lebanese culture and is here to stay and support traditional education. Therefore, there is a need for teacher training and effective technology integration into education to enhance the teaching and learning process.

CHAPTER 3

RESEARCH METHODOLOGY

This chapter presents the research design, participants, context, instrumentation, procedures, and data analysis of this study which explored teachers' learning and professional development through the lens of the transformative learning theory as the shift to online teaching was made during the Covid-19 pandemic. More specifically, the goal of this research is to study how the pandemic and the shift to online teaching impacted the learning and professional development of teachers , and more specifically whether this emergency situation of online teaching led to changes in teachers' practices towards teaching with technology and to assess what further support is required to effectively integrate technology into teaching.

3.1 Research Approach

This is an exploratory study that aims to examine teachers' experiences as they shifted to online teaching during Covid-19. The aim of an exploratory study is to explore a phenomenon , create understandings and initial thoughts rather than testing predefined hypothesis (Aggarwal, 2024) .The purpose of this study is to explore the nature of an issue to gain a more thorough understanding without providing conclusive solutions (Lewis, 2012).

A mixed methods approach for data collection was used to investigate the research questions using a survey and interviews. Since mixed-methods research combines quantitative and qualitative data in a single study and yields better conclusions

than utilizing each methodology separately, it has grown in favor among researchers (Creswell & Creswell, 2018). In other words, a mixed-methods paper aids to comprehend the complete image by combining meanings obtained from interviews or observations with the prevalence of traits in a population obtained from surveys (Creswell et al., 2018). This approach also enables researchers to examine research questions from various perspectives, leading to a more comprehensive understanding of the subject being studied. Overall, the combination of qualitative and quantitative methods can result in more robust and comprehensive research findings (Abonyi et al., 2008). By utilizing qualitative and quantitative research methods, researchers can strengthen the validity and reliability of their findings. This process is known as triangulation, where multiple methods are used to confirm and support results (Creswell et al., 2018).

More specifically, in this study, a sequential mixed method approach is applied to develop the next set of tools and make progress toward the overall goal of the research (Creswell et al., 2018) First, the survey was prepared based on the learning activity survey (LAS). Following the results of the survey, the interview questions were written. This study necessitates the utilization of this particular research approach not only to explore teachers' learning and professional development as they shifted to online teaching during the pandemic, but also to examine their teaching practices post COVID 19.

This research study is aligned with the constructivist model as it aims to explore teachers' learning and professional development through the lens of the transformative learning theory as teachers shifted to online teaching during the Covid-19 pandemic (Lo, 2023). A constructivist model emphasizes individual experiences and processes, allowing

each participant to make sense of their own experiences over time (Lo, 2023). In addition, this research demonstrates alignment between the instruments used and Mezirow's transformative learning theory, guaranteeing that the data collection methods effectively capture the transformative experiences of teachers as they shifted to online teaching during the pandemic.

3.2 Research Context

The research context of this study is centered in Lebanese schools, targeting teachers and educators from various grade levels who experienced the shift to online teaching during the Covid-19 pandemic. Before Covid-19, all learning took place in classrooms as the Lebanese Ministry of Education and Higher Education (MEHE) does not recognize degrees completed through online learning and discards their equivalence (Assaf & Nehmeh, 2022). The method of instruction in Lebanon is mostly traditional; teachers spend time lecturing, reading assignments to students, and correcting exercises completed in the classroom (Ghozayel, 2022).

The schools represented both private (88.3%) and public (11.7%) schools across different regions of Lebanon. This diverse selection aimed to capture a wide range of perspectives on the challenges and transformations faced by teachers in adapting to emergency remote teaching.

3.3 Participants

The participants in this research consisted of $n=115$ school teachers who were randomly selected and were teaching in both private and public schools in Lebanon during the time of data collection. In this study, random sampling was done to ensure an unbiased, representative, and equal probability of selection within the given population (Golzar et al., 2022). Random sampling is widely used in quantitative studies that integrate survey instruments since the objective is to gather as many perspectives as possible to identify how teachers perceived online teaching during Covid-19 throughout schools in Lebanon.

The majority of the participants were female teachers from schools in North Lebanon, aged between 25 and 55 years old. Most of the participants taught online during the pandemic. More specific background information about the teachers such as degrees, grade levels taught, years of experience, and how they describe their teaching practice during the pandemic are presented in Chapter 4 in Table 4.1.

The survey invited participants to indicate their willingness to participate in follow-up interviews. Eight teachers expressed their willingness to do so and consequently participated in the interviews.

3.4 Data Collection

To answer the research questions, the following instruments were used for data collection: The Learning Activity Survey (LAS) and an interview. The teacher survey was administered first followed by interviewing teachers who expressed their willingness to be interviewed.

3.4.1 Teacher Online Survey

The Learning Activities Survey (LAS) developed by King (2009) was adopted in this study and modified according to the research questions of the study to be able to collect data about the participants' online teaching experiences as a result of the pandemic. The purpose of the learning activities survey is to gather feedback from participants about their experiences with a particular learning activity or program. This feedback can help educators and program developers assess the effectiveness of their activities, identify areas for improvement, and make informed decisions about future learning initiatives (Romano, 2018). The Learning Activity Survey (LAS) is a tool used to assess the quality of learning activities based on the principles of the transformative learning theory. The transformative learning theory, established by Jack Mezirow, focuses on the process of "perspective transformation" whereby learners critically reflect on their expectations and beliefs, which helps them arrive at a new way of understanding the world (Romano, 2018).

The LAS (see Appendix A) was used to generate quantitative data that concentrated on three aspects related to the learning processes. The survey questions were designed to reflect Mezirow's ten stages of transformative learning, from experiencing a disorienting dilemma to integrating new perspectives into a teacher's teaching. Each question will prompt teachers to reflect on specific aspects of their transformation, such as shifts in their teaching approaches, adoption of new roles, or reassessment of previous assumptions. The first part produced information on the demographic characteristics of the participants. Mezirow's ten phases of perspective shift were employed in the second part of the survey to record the experiences of the

participants. The third part of the survey focused on opinions of four factors, what might have produced perspective transformation experiences that occurred during online teaching, the influence of training received, the impact of colleagues or the support received, and modifications that occurred in teachers' life.

The survey included 20 questions: two open-ended questions that gathered the teachers' perspectives on their involvement in different aspects, such as their online teaching experience during Covid-19, transformative learning, and professional development. The first seven questions were related to teachers' demographic backgrounds; questions 13, 14, and 15 concentrated on the stages of perspective transformation. Question 13 is a five-point Likert scale which included five responses : strongly agree, agree, neutral, disagree, and strongly disagree and it comprised 13 statements. The Likert scale is a used in surveys and research to measure attitudes, opinions, or perceptions (Bhandari & Nikolopoulou, 2020). In this study, it was used to assess teachers' experiences and perceptions regarding the shift to online teaching. It helped quantify their level of agreement with various statements related to Mezirow's transformative learning stages, providing a structured way to measure and analyze the extent of their transformative experiences during the pandemic. Questions 16 to 19 focused on components of transformative learning. The last question was intended for participants who were willing to join the interview.

To collect data, the LAS was developed online through "Google Forms", a survey administration software. The survey was conducted to collect feedback from teachers; the researcher used available phone numbers or email addresses of schools to contact their Human Resources office and ask for the possibility of sharing the online survey with

teachers. A link was sent by email to the school, so they could share it with their teachers through email or WhatsApp. Teachers were given the choice to either fill out the survey or ignore it.

3.4.2 Interviews

Interviews are commonly used for assessing transformative learning (Romano, 2018). Interviews can emphasize on participants' stories of a specific experience to gain insight into the methods or outcomes of learning, as well as to track learners' perspective changes (Feriver, Olgan, Reid & Teksoz, 2016). This study adopted a structured interview approach. This approach minimizes interviewer bias and ensures that each participant is asked the same questions in the same order, providing a clear framework for assessing the perspectives and experiences of teachers during the shift to online teaching (George & Merkus, 2022). Throughout the interview, the research participant should be encouraged in an unbiased way to describe their understanding of their personal experience regarding the subject of the research (Hunter, 2012). The final question on the LAS survey asked participants to enter their email if they wished to participate in a follow-up interview. The interview script mirrored the LAS survey questions but allowed the interviewer to explore deeper responses of the participants' responses. (see Appendix B). The questions were reviewed by the research supervisor and checked for validity.

The structured interview consisted of 11 questions, similar to the LAS; it was formed of two dimensions corresponding to the research questions of the study. The first dimension was related to Mezirow's 10 stages of perspective transformation (e.g.

‘Thinking back over your online teaching experience, have you experienced a time when you realized that your teaching philosophy, methods or techniques had changed? How so?’). The second dimension focused on attributions in perspective transformation (e.g. ‘Do you know what triggered this change in your philosophy, methods, and teaching strategies? If so, please explain’). Interviews were conducted online on Zoom on a one-on-one basis. Each lasted between 20 – 30 minutes and was recorded and transcribed on Microsoft Word for data analysis. The purpose of each interview was clarified to the participant and oral consent was obtained before conducting the interview.

3.5 Data Analysis

Mezirow’s transformative learning theory guided the analysis of the data.

3.5.1 Survey Analysis

The survey was analyzed quantitatively. “Quantitative approaches focus on measuring a parsimonious set of variables to answer theory-guided research questions and hypotheses” (Creswell et al., 2018, p. 243). Descriptive statistics were generated to reflect the levels of agreement of the participants to the transformation stages. Ratings were presented by percentages, and questions were analyzed and sorted into tables and figures for a better understanding of the data results. The demographic background of the participants was analyzed and presented in Chapter 4, Table 4.1. Answers to question 13 were classified according to statements that are linked to Mezirow’s 10 stages of transformative theory to further identify teachers’ perceptions while engaged in online teaching during the pandemic. Open-ended questions were analyzed qualitatively by identifying common patterns and generating themes.

3.5.2 Interview Analysis

Data gathered from interviews was analyzed thematically. Themes were identified by looking for patterns and overarching ideas that emerged from the categories. Each theme represented a significant aspect of the teachers' experiences and perspectives. The themes were linked to Mezirow's stages of transformative learning, ensuring that the analysis aligned with the theoretical framework of the study.

All the data collected was analyzed to gain insights into the participants' experiences, and the challenges they faced during online learning. Data from the interviews was sorted out in a table to reflect the different variables of this research based on five components related to the research questions of the study and based on the answers of the eight interviewees: support, practices, perceptions, support needed to become more competent in online teaching, and other comments mentioned by the interviewee. Open coding was conducting to identify themes that are relevant to these variables resulting in several themes categorized into 4 groups.

3.5.3 Triangulation

The use of a mixed-method approach provided a more comprehensive understanding of the issues linked to teachers' perceptions of online teaching. Findings from the interviews and the survey were triangulated to add reliability to the study. This method was implemented to assess the findings from diverse perspectives, decrease biases, improve validity, and add importance to the research (Stake, 2008). The end results that answered the research questions were triangulated from both data sources.

3.6 Ethical Consideration

Ethical considerations are a crucial part of a study where the researcher needs to be sure that the information used is authentic and that the study is credible (Chetty, 2016). Additionally, following ethics permits, researchers apply a collaborative methodology of their study with the support of their peers and other contributors to the study (Chetty, 2016).

Ethical considerations were carefully addressed while conducting this study to ensure the protection of participant rights and well-being. Informed consent was obtained from all participants and responsible parties were fully briefed of the research topic and details. Participants had the right to choose whether or not to participate in the study. Confidentiality and anonymity were maintained throughout the study. Participant identities were protected, and their responses were kept confidential. Data were only accessible to the researcher.

CHAPTER 4

FINDINGS & DISCUSSION

My study aimed to explore teachers' learning and professional development through the lens of transformative learning theory as instructors shifted to online teaching during the pandemic. More specifically, my study explored whether the emergency experience in online teaching has transformed teachers' practices, challenges they faced while teaching online, and the support that is further needed to integrate online teaching and educational technologies into teaching.

Four research questions guided my study:

1. What challenges did teachers face as they shifted to online teaching during the pandemic?
2. What kind of support did teachers seek/receive as they shifted to online teaching during the pandemic?
3. How have teachers' practices shifted in the classroom as a result of an emergency online teaching experience?
4. According to Mezirow's theory of transformative learning, what support do teachers need to become more competent and self-confident, to integrate educational technologies into their teaching?

4.1. Findings

4.1.1 Survey Findings

The Learning Activity Survey (LAS) adopted in this study is divided into three major parts: demographic characteristics of the respondents, stages of perspective transformation, and components of transformative learning.

A total of N=115 responses were collected from teachers from different schools around Lebanon. Questions 1-7 ask teachers for general information about their gender, age, and years of teaching experience, education, school type and location. Table 4.1. represents this data in percentages.

Table 4.1: Demographic Distributions by Percent of Survey Respondents

	n	Percent %
Age		
Under 25	1	0.9
25-34	39	33.9
35-44	51	44.3
45-54	19	16.5
55 and above	5	4.3
Gender		
Male	15	13
Female	98	85.2
Prefer not to say	2	1.7
Education		
Bachelor's degree	20	17.14
Master's degree	42	36.5
Teaching diploma	43	37.4
Doctorate	5	4.3
TS	2	1.7
BT	3	2.6
Teaching experience		

Less than a year		
1-3 y	19	16.5
4-6 y	30	26.1
7-9 y	17	14.7
10+ y	46	40
45 y	1	0.9
33 y	1	0.9
17 y	1	0.9
School Type		
Private	99	88.4
Public	13	11.6
School area		
North Lebanon	102	91.1
Mount Lebanon	3	2.6
South Lebanon	1	0.9
Bekaa	2	1.8
Beirut	4	3.6

Table 4.1 shows that 85.2% of the participants are female and the minority 13% are male participants. The majority of the participants' age (44.3%) ranges between 35 and 44, followed by the age group 25-34 (33.9%) showing that most of the participants are young in age. Moreover, many of the participants have a Teaching Diploma (37.4%) and Master's Degrees holders consist of 36.5% of the teachers. Of the 115 teachers who participated in the study, more than 60% have more than 4 years of teaching experience. The majority of the participants, 88.4% teach in private schools around Lebanon, and only 11.6% teach in public schools. Mainly, teachers from North Lebanon are 91.1% whereas other teachers from Beirut are 3.6%, 2.7% are from Mount Lebanon, 1.8% are from Bekaa, and 0.9% are from South Lebanon.

Question 8 asks teachers about the mode of teaching they were following right after the pandemic.

Figure 4.1: Teachers' Current Mode of Teaching

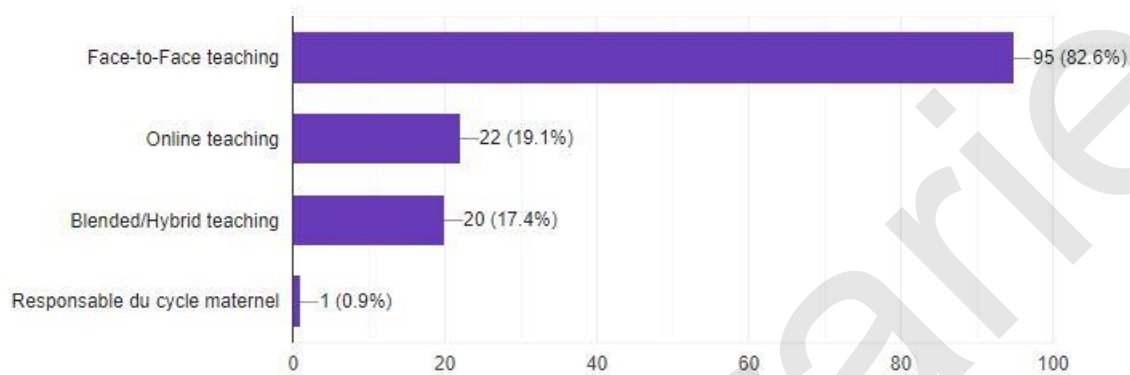


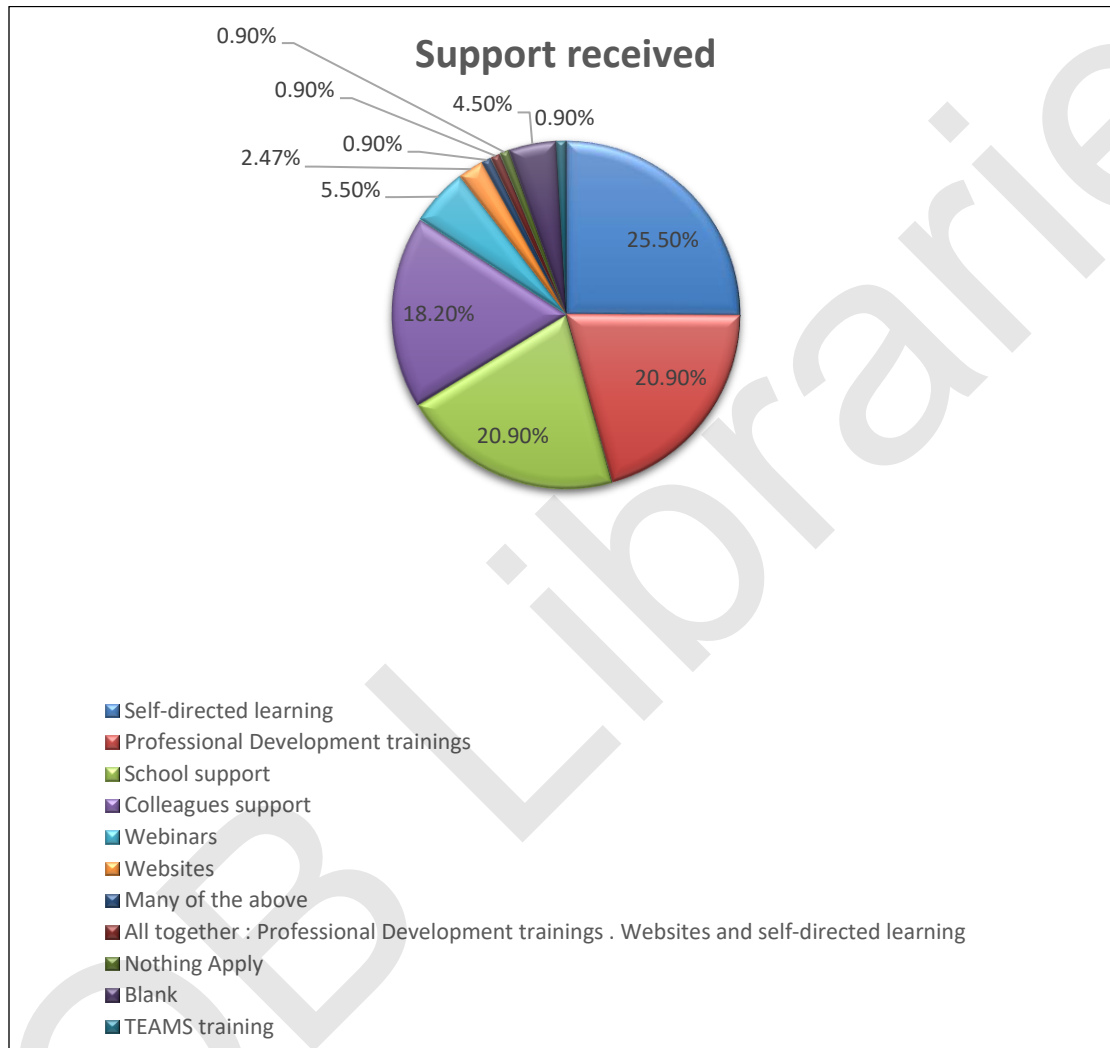
Figure 4.1 shows that 82.6% of the participants are teaching face-to-face while 19.1% of teachers are still teaching online and 17.4% are following a blended learning approach.

Question 9 asks teachers whether they were teaching online during the pandemic or not; 96.5% of the teachers' responses stated they were teaching online and only 3.5% stated they did not teach online at that time. While question 10 asks teachers if they were prepared to teach online during the lockdown, 57% of teachers responded that they were not prepared to teach online whereas 43% were prepared to teach online during Covid-19.

Question 11 asks teachers if they received any kind of support when they shifted to online teaching (see figure 4.2). 66.7% reported that they received support during that period and 33.3% did not receive any kind of support. As per the kind of support they received, 25.5%, reported that they relied on self-directed learning during the shift to online teaching, while 20.9% reported that they were receiving professional development training when transitioning to online teaching; 20.9% reported that the school provided

support, and 18.2% selected peer support and discussions as helpful in transitioning to online learning.

Figure 4.2: Support Received as Teachers Shifted to Online Teaching During Covid-19



Question 13 in the survey probed participants to reflect on their experiences while engaged in online teaching during Covid-19. Participants rated 13 statements related to transformative learning on a 5-point Likert scale (1-SA = strongly agree, 2-A Agree, 3-N Neutral, 4-D Disagree, 5- SD strongly disagree).

Planning a course of action	I tried to figure out a way to adopt these new ways of teaching	17.39	49.56	25.20	2.60	5.21
Acquiring Knowledge and Skills for implementation	S10 I gathered the information I needed to adopt these new ways of teaching	17.39	44.34	25.20	7.82	5.21
Trying out new roles	S8 I tried out new teaching methods so I would become more comfortable and confident in them	15.65	51.30	25.20	2.60	5.21
Building competence and self-confidence in new roles	S11 I began to think about the reactions and feedback from my new teaching methods	12.17	56.52	23.47	3.47	4.34
Reintegration	S12 I took action and adopted these new ways of teaching	10.43	50.43	25.20	8.69	5.21
	S13 I do not identify with any of the statements above	4.34	9.56	32.10	30.43	23.47

The results of these statements showed that more than 50% of the participants agreed or strongly agreed (combined) on ten of the statements indicating that teachers experienced a perspective transformation while they shifted from face-to-face teaching to online teaching.

According to Mezirow's first stage of transformative learning, teachers experience a disorienting dilemma when faced with a new practice. In the results above, 53.03% of the participants agreed or strongly agreed that online teaching made them question their ideas about their role as teachers.

According to the second stage of Mezirow's theory of transformative learning, participants practiced self-examination while teaching online with 56.51% and 54.77% agreeing or strongly agreeing with statements 1 and 4 respectively. These findings suggest that online teaching made them question the way they normally teach and at the same time it made them reflect on their beliefs or teaching practices.

The third stage of Mezirow's transformative learning stages showed that the majority of the participants experienced a critical assessment of assumptions, since 42.6% of the participants agreed or strongly agreed that they felt uncomfortable with professional expectations as their job responsibilities or work roles around teaching and instructions shifted while teaching online.

In the fourth stage "Recognition," 53.03% of the participants agreed or strongly agreed with the idea that other people (their colleagues) also questioned their beliefs about their teaching roles and responsibilities indicating that teachers recognized the fact that the experience was shared among peers which helps them recognize the transformation.

The fifth stage of transformative learning represents the exploration of new roles; 64.34% of the participants agreed or strongly agreed with the fact that they experienced new roles while teaching online, as stated in statement 6. It made them think differently from their usual teaching beliefs and roles.

Planning a course of action is the sixth stage of transformative learning; 66.95% agreed or strongly agreed that during their online teaching, they tried to figure out a way to adopt the new ways of teaching to adapt to the new learning environment.

Furthermore, “acquiring knowledge and skills for implementation” represents the seventh stage of Mezirow’s transformative learning stages. This stage aligns with statement 10 where 61.73% agreed or strongly agreed with this statement that they “gathered the information I needed to adopt these new ways of teaching.” 66.95% of the teachers agreed or strongly agreed with the idea that they tried out new teaching methods so they become more comfortable and confident with the new mode of teaching. This idea is linked to the eighth stage of transformative learning.

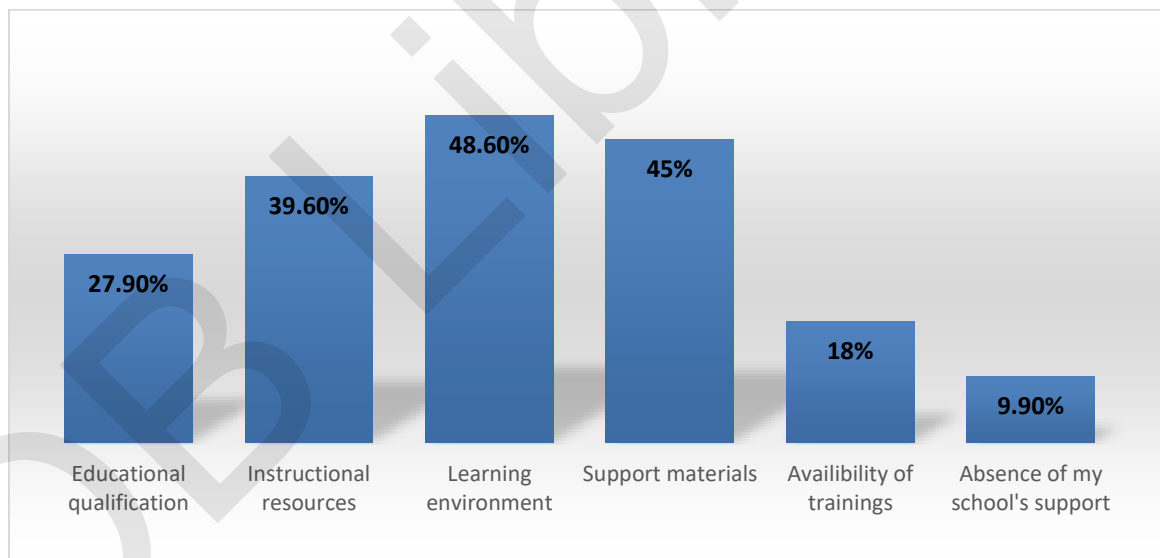
Statement 11 reflects the ninth stage of transformative learning which is teachers' perspectives regarding their reactions and feedback from their new teaching methods; 68.69% agreed and strongly agreed that they started to think about their new teaching methods. The tenth and final stage of Mezirow’s stages is “reintegration” characterized by statement 12 where 60.86% of the respondents agreed that they started to take action and adopted new ways of teaching.

Notably, the survey results showed that there was a good percentage of neutrality in all statement ranging from 22-37% indicating that some teachers had mixed feelings about the online teaching modality. 36.52% of the participants were neutral in statement 3 where teachers rated that they no longer agreed with some or all of their beliefs or teaching practices suggesting that some teachers still favored their traditional teaching methods. Moreover, even though in statement 7, 42.7% strongly agreed or agreed, 30.43% showed neutral opinions about whether online teaching made them feel uncomfortable with professional expectations which shows that teachers were not prepared and trained to teach online while they shifted from face-to-face to online teaching. A minority of the participants did not experience transformative learning while

teaching online which shows that teachers did not shift their perspectives, beliefs, and assumptions.

Question 16 asked participants to choose which factors influenced their beliefs in online teaching during Covid -19. Based on the results presented in figure 4.2, the majority of the participants selected the learning environment (48.6%) as the factor that mostly influenced their beliefs in online teaching. 39.6% expressed that support materials influenced their beliefs while 45% reported that instructional resources had an influence. Furthermore, 27.9% of the participants agreed that their educational qualifications influenced their beliefs as well.

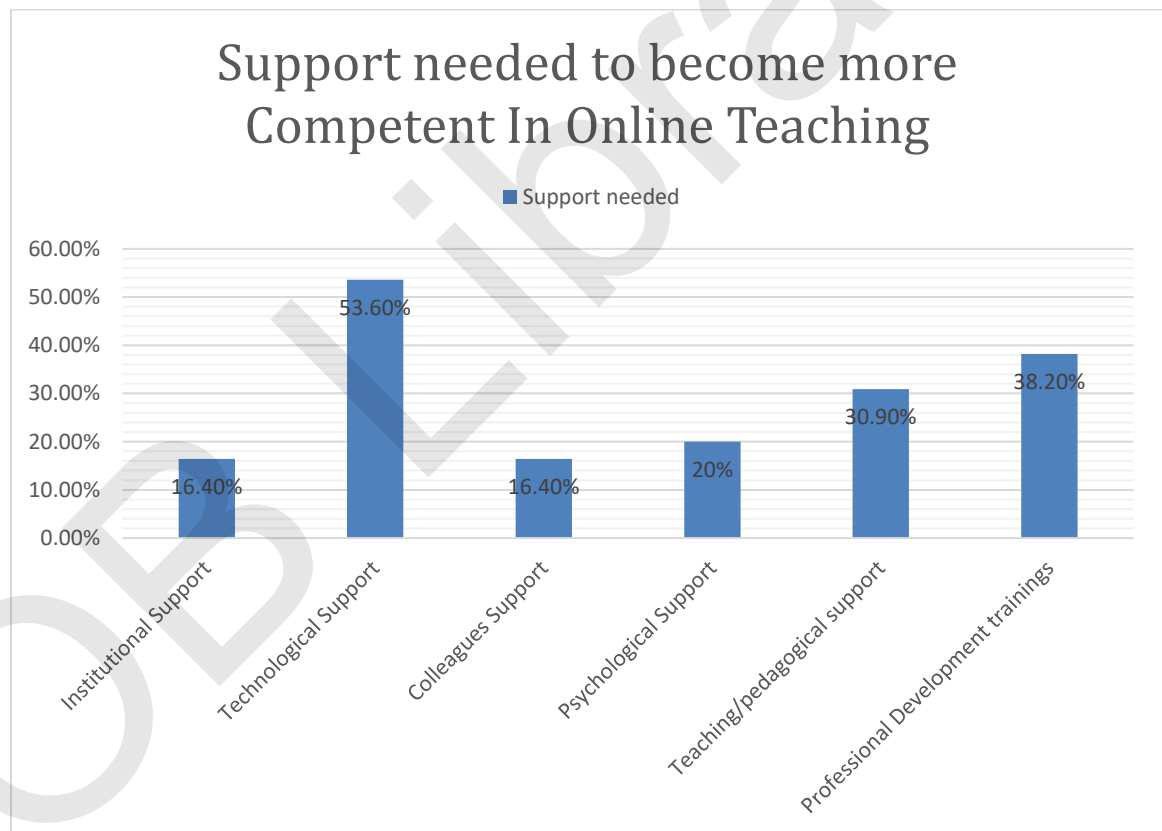
Figure 4.3: Statements that Influenced Teachers' Beliefs while Teaching Online



Question 18 asked the participants if they “Would you characterize yourself as one who usually reflects on decisions made before?” 54.6% responded yes, 36.1% maybe, and 9.3% responded no which shows that many teachers were reflecting on their teaching when they were teaching online.

Question 19 in the questionnaire explored the support teachers need to become more skilled at online teaching as represented in figure 4.3. The majority of teachers, 53.6% agreed that they mainly needed technological support, followed by Professional Development training 38.2%, and teaching/pedagogical support 30.9%. Since everyone was in lockdown, 20% of teachers reported the need for psychological support to become more skilled. Institutional support and collegial support represented an equal percentage of 16.40%.

Figure 4.4: Support Needed to Become More Competent in Online Teaching



In question 14, participants were asked whether their values, beliefs, opinions, and expectations have changed since they experienced online teaching. 41.3% of the participants agreed that they experienced a change while 19.3% did not experience a

change and 39.4% reported maybe. This question was followed by two open-ended questions to gather qualitative input about this question. Question 15 asked teachers to describe any changes in their values, beliefs, opinions, and expectations while shifting their teaching practices while question 17 asked them to describe how their teaching practices shifted as a result of online teaching. Both questions were analyzed qualitatively to identify common patterns expressed by the teachers regarding their teaching practices during Covid-19. The following findings were the result of this analysis.

4.1.1.1 Shift in Teaching Methods from Face-to-Face to Online Teaching

Based on the survey responses, most of the participants reported that they had to adjust their teaching methods in response to the new teaching requirements due to the pandemic. Apart from adopting new ways to teach, explain, and achieve their goals, some teachers also believed that online teaching requires several changes to be implemented, including a shift in the teaching approach, to ensure a positive learning experience in virtual classrooms. As mentioned by one teacher, “since starting to teach online, I have adopted new ways to teach and new ways to reach new goals with my students, new ways to explain any process and ideas”. Moreover, the majority of teachers believed that teaching online made their classes more student-centered whereas teaching face-to-face was more teacher-centered. “It has become more student based,” said one teacher.

Additionally, several teachers thought that this new way of teaching shifted their practices in a better and more positive way, especially after merging the traditional methods with the newer methodologies. “I am trying to balance what is necessary from traditional teaching practices with what is beneficial from blended learning using digital tools, to give students the best of both for this generation of students,” explained one

teacher. They also reported that the technology they used helped keep their students interactive and engaged since teachers involved entertaining tools to keep the students always focused. One teacher stated, “because I discover many methods and ideas that help me to involve my students in explaining the lesson and increase their enthusiasm”.

Another common point in the shift in teaching methods is that the participants started to incorporate technology more frequently to give their students different avenues and ways to understand the concepts being taught. Teachers mentioned, “My approach has changed; I had to use different techniques to create a positive learning environment in online classes.” Moreover, another teacher had a similar opinion. “Many new sites are now being used to help students comprehend through online visuals and evaluations.” This demonstrates how teachers had to modify their teaching methods to adjust to the new mode of teaching while exploring new techniques and utilizing various technologies.

4.1.1.2 Challenges

4.1.1.2.1 Lack of Student Engagement

Student behavior was a common pattern expressed by participants in the survey as they shared their online teaching experience. The new teaching method gave teachers a hard time keeping all students at the same pace since “each student has his way of expressing himself, retaining information and practicing the notions needed” as claimed by one teacher. One of the issues mentioned by the teachers concerning student discipline was the lack of student-teacher interaction and student motivation in the online sessions. Some participants believed that they lost control while teaching through screens because they did not have access to follow up with all their students, which made some students

lazy and careless about what was going on during classes. “You lose control of the students,” stated one teacher while another teacher mentioned, “teaching face-to-face and interaction with students is no longer the case – sometimes the attendees are muted and without video.” Other opinions were that online teaching created a passive learning environment with ineffective interaction and low performance. Students became inactive since they stopped seeing everyone they used to see every day at school.

4.1.1.2.2 Lack of Teachers’ Preparedness for Online Teaching

The majority of the participants claimed that the situation was not only difficult for the students but also difficult for them as teachers because they did not have any prior training to online teaching. “Most teachers are required to move to online teaching almost immediately with no training or tools,” stated one teacher while another teacher mentioned, “the situation is not difficult only for students, but it is challenging for teachers equally. They are facing challenges in managing timetables with students and fellow teachers”. “Teachers and students were forced to conduct online education regardless of their level of preparation for it,” and some teachers said that they had not even considered using technology other than for social media. Additionally, some teachers expressed that both teachers and students were obliged to engage in online learning regardless of their level of preparedness; they found it to be a stressful experience.

4.1.2 Interview Findings

As a follow-up to the survey, an interview was conducted with eight teachers to generate deeper data regarding their online teaching experiences. The interviews took place virtually via Zoom and were transcribed word for word and analyzed to identify common patterns resulting in four main themes, their corresponding subthemes and then linked to Mezirow's stages of transformative learning, as presented in Table 4.3. Teachers are referred to by pseudonyms T1, T2, T3, T4, T5, T6, T7, and T8 to protect their identity.

Table 4.3: Interview Themes Linked to Mezirow's Stages of Transformative Learning

Themes	Sub-theme	Mezirow's Stage of Transformative Learning
Support mechanisms for teachers in shifting to online teaching	The role of the school in supporting teachers in shifting to online teaching	Self-examination
	Teachers' reliance on self-directed learning	Building competence and self-confidence in new roles
	Reliance on peer support as a learning method	Recognition
Technologies used while teaching online	Role of interactive games to promote online learning	Planning a course of action
	Use of multimedia to facilitate online learning	Exploration of new roles
	Online formative assessment to assess students' learning	Trying out new roles
		Reintegration

Teachers perceptions during online teaching	Teachers' mixed feelings about online teaching	Critical assessment of assumptions
	The transfer of teaching practices from the online to the face-to-face classroom setting	
	Teachers' need for Professional Development to develop online teaching practices	
	Shift from traditional to online lesson plans	
Challenges of shifting from face-to-face to online teaching	Lack of student autonomy	Trying out new roles
	Poor infrastructure	

4.1.2.1 Support Mechanisms for Teachers in Shifting to Online Teaching

4.1.2.1.1 The Role of the School in Supporting Teachers in Shifting to Online Teaching

As reported by all the interviewees, a sudden shift was experienced from face-to-face to online teaching without any preparedness. However, they all agreed that their school provided support through its information technology unit (IT) as was expressed by the 8 interviewees. The schools also sent them motivational emails and provided them with the necessary online training. T7 said, “they gave us a brief tutorial on Zoom on how to use.” Similarly, T4 from a different school, stated that “the online professional development training provided was very useful as we worked on different tools and applications like Edmodo and Teams. It was obligatory to comprehend, apply and master these techniques to better interact with my students”. As teachers reported, schools were always available to provide teachers with the necessary tutorials regarding the platforms they used while teaching during the pandemic.

Therefore, IT support was made available through tutorials created for teachers or virtual support which made their shift smoother. T3 said, “They provided us with lots of tutorials for the platform that we used.” Likewise, T4 thinks “they were helpful because they were available the whole time and if we needed anything or if we had any doubt or any question, we were free to call and interact with any person from the IT team; they were available all the time.” Similarly, T5 explained that the IT teacher created a tutorial for teachers to use Microsoft Teams which was helpful. They organized a special video on using all of the necessary tools on Teams. The IT teacher was always available for all questions.

Furthermore, two of the interviewees mentioned they sought the help of their coordinators in shifting to online teaching. T1 stated, “First, I went to my coordinator. Can I do that? She said, you can do whatever you want as long as it’s related to the lesson plan”. T3 had a similar opinion but she added that her coordinator was not able to follow up with all teachers all the time, but she was able to guide them at first. “I had my coordinator at first who helped me at the beginning, but she had seven or eight teachers and she needed to follow up with them although she didn’t have enough time to look at every single thing I was doing.”

4.1.2.1.2 Teachers’ Reliance on Self-Directed Learning

According to the participants in this study, even though some schools provided support through the IT department, teachers still had to learn by themselves the approaches and strategies required for successful online teaching. As a result, self-directed learning played a significant role in the professional development of teachers as

they switched to online teaching. T1 mentioned, “I went online to Google and started asking questions to know what to do because I didn’t have any idea about it.” Most teachers claimed that most of the time they had to learn individually or attend webinars or online workshops on online teaching and the use of technology to better facilitate their transition. Some teachers tried to imitate everything they saw as expressed by T3:

I also started developing my own teaching skills. I attended workshops and training sessions. I was learning and teaching at the same time. I worked on improving my skills, my professional skills because no one had a clear idea what “online” was. I started surfing the internet, watching YouTube videos, and trying to imitate everything.

Another teacher T2 reported that Google and daily online research were always helpful. “Whenever I faced any obstacle, I sought help from Google. I also did loads of daily research on effective online teaching techniques.” This shows that support provided from schools was not enough, and teachers had to go the extra mile to seek strategies for the new mode of teaching.

4.1.2.1.3 Reliance on Peer Support

All teachers agreed that peer support was essential during the switch from face-to-face to online teaching. They collaborated to develop helpful methods to make the lessons more engaging and interactive and discussed them afterwards. T2 said:

We came up with various techniques and methods and discussed the results later after giving the classes. We conducted almost 3 trials of each method, three

sessions on a certain method. Then, we discussed the outcome and its effect on the students.

As mentioned by T8, for better collaboration between teachers, each teacher searched for new online tools that could be helpful during lessons and they scheduled daily meetings to discuss and check if everything was working well. Discussion among teachers was always a way to promote teachers' skills regarding online teaching. According to T7:

It was a lot of me and my parallel teacher talking every day and searching for what should be in the next session. One week, she would put together a PowerPoint presentation and the next week I would do it. Then, we would work together on it to figure out how we were going to teach.

This shows that teachers' peer learning was a natural method and key in times of crisis when formal and structured channels of support were absent.

4.1.2.2 Technologies Used While Teaching Online

4.1.2.2.1 Role of Interactive Games to Promote Online Learning

Teachers' practices during online teaching were complemented by the online technologies they used. A variety of platforms were mentioned by the interviewees that helped them in online teaching. All 8 teachers mentioned interactive activities and game-based websites, such as Kahoot, Quizzlet, YouTube, Gomath, Nearpod, Flipgrid, and Google Hangout as a way to simplify online learning. Teachers explained that the use of these interactive software promoted student engagement, motivation, and kept them focused on the lesson. T3 mentioned Kahoot and Quizlet as an example and she explained,

I realized that the students were a bit motivated more than in the classroom because we are using interactive activities; we are using games. I assigned homework on websites; that's what I used to do, and you have no idea how motivated and interested they were.

Likewise, T6 stated,

we had to do a lot of games, activities and pop-up questions to just keep them with us...we used spin the wheel, for example, to make them more engaged, to keep them focused, to see if their name would pop up”.

In addition, T1 mentioned that she used a Whiteboard “so I can write on the board because it's boring all the time just to sit in front of the screen doing nothing and just share the PowerPoint” whereas T6 mentioned that she used Nearpod and Flipgrid as “we tried to use anything that could help us, especially if it was free.”

4.1.2.2.2 The Use of Multimedia to Facilitate Online Learning

During the interviews, teachers shared that they used videos and YouTube mostly for the edutainment value they bring to the classroom. Some of the videos were shown during synchronous sessions while others were used in a flipped classroom approach. T8 expressed that “it was a way to make the lesson more entertaining; students waited for the sessions we used YouTube so they could focus and enjoy the lesson.” While using technologies during their online teaching, teachers noticed that all the visuals, videos, and multimedia they used were necessary to facilitate the delivery of information in a more concrete and informative way. T2 stated

I saw a difference in the way students interacted. The objective of the lesson was delivered faster and with the use of visuals the ideas were engraved in their minds for a longer time. They were hooked and they maybe concentrated more throughout the lesson than in the traditional method.

T2 also added that she started using the flipped classroom approach during online teaching. She stated that the flipped classroom made the sessions more active and student-centered. From her point of view, T2 thinks that:

It is structured around the idea that students gather information about the lesson before they come to the classroom, so during the online session I record a lecture and I send it to the students before the actual class. It is one of the most effective methods I adopted during-online teaching.

These findings suggest that the online mode forced teachers to experiment with resources and methodologies that they did not use in face-to-face teaching which shows that they were experiencing a transformation in a way.

4.1.2.2.3 Online Formative Assessments to Assess Students' Learning

As there were no other ways to assess the students during the pandemic, teachers claimed that online formative assessments were the best solution to assess their students' learning. It provided them with an evaluation of the students' achievement of the learning outcomes while learning online. T4 mentioned, "I used a lot of technology back in my class for the online formative assessment as Kahoot, and graded group work as well." As reported by teachers, it was the most reliable method while teaching online, since they

were able to have a clear idea about whether the student is achieving the learning objectives of the session. T8 used the online formative assessment as well. “I used Kahoot and Quizlet so I can create quizzes for my students because it was the only way to check if they were understanding.” This also shows that teachers resorted to strategies that were not needed during face-to-face teaching, and online formative assessments were one of these new strategies.

4.1.2.3. Teachers’ Perceptions about Online Teaching

4.1.2.3.1 Teachers’ Mixed Feelings about Online Teaching

In the interviews that were conducted with teachers, opinions about online teaching varied as each teacher had her own approach. The majority found it very hard at first to start integrating technological tools into their lessons using a new platform to teach, and following up with their students. Participants mentioned that it was a big responsibility since they had to develop all the classes by themselves but afterwards, after practicing and using interactive technologies, they were able to easily manage their classes. T8 explained, “it had its challenges and opportunities on all levels.” T6 also believed, “It was a little bit hard at the beginning because we didn’t have a lot of experience in the subject, but as we trained, as we used it frequently and daily it became easier and easier.” T4 had the same opinion as T8 and T6. She reported, “it wasn’t easy but it was doable because we were all scared and emotionally unstable with all the news and doubts about Covid-19.” The findings show that as teachers accepted online teaching after adapting to this new mode of teaching.

4.1.2.3.2 The transfer of Teaching Practices from the Online to the Face-to-Face Classroom Setting

Based on the analysis of the interviews, most teachers agreed that the online teaching conducted during the Covid-19 pandemic helped them develop teaching skills that could be used in their face-to-face teaching. T2 reported, “they were effective and I decided when I was giving the online sessions to apply these techniques or methods later in the classroom”. T3 also expressed, “technology is something very efficient during the learning and teaching process; you enjoy it and the students enjoy it as well; it was more like having fun while teaching and the students having fun while learning.” T3 also reported that it helped her work on multiple intelligences since “some students like to listen; others like to look at pictures whereas others like to move and touch. So using technologies was very efficient to meet all their needs and all kinds of intelligence.” T6 also added that her practices during the pandemic have transferred to the face-to-face classroom post-pandemic as she started using them even after going back to school. “My method of teaching changed when I started using them even after we went back to school; they were really important to us.” Hence, teachers experienced some kind of transformation in their teaching practices.

4.1.2.3.3 Teachers’ Need for Professional Development to Develop Online Teaching Practices

The sudden transition to online teaching during the pandemic raised questions about teachers' readiness to teach online. In the interviews, the teachers reported that they had very basic digital skills, and they only used technology for social media, such as Facebook and Whatsapp. Thus, the most common answer concerning the support that teachers needed to become more competent in online teaching was more training sessions related to the technological tools that they would be using while teaching online, devices that they would be using, and training for how to teach online. T6 reported, "more trainings on using technologies, the devices we need to use, the websites, everything we had to use during covid-19 and during lockdown would have made it easier for us." T2 explained, "we were not trained; we were just thrown in front of the screens and left there to face whatever came into our faces." T7 also thinks, "we could have been better prepared, like we could have had more trainings for the teachers especially the new teachers and more sessions on how to use technology devices."

4.1.2.3.4. Shift from Traditional to Online Lesson Plans

Throughout the shift to online teaching due to the Covid-19 pandemic, lesson plans had to be modified from their traditional format to fit the requirements of online teaching. This generated a need for teachers to reformulate their existing lesson plans to suit the new teaching modality. As described by the participants in this study, the lessons became more student-centered in order to maintain the students' focus. T7 said, "it was like trying to involve more technologies into it, to get the kids used to games and online." "We adapted all the lessons according to the online methods we used; we included games and videos during the lessons," claimed T8. T2 also had a similar view, and she explained

that “lessons have become more student-based where we used something called the inquiry method where the students are forced to read about the lesson before they come to the session.” In this way, teachers helped their students engage in the lesson by making real connections through exploration, questioning, and problem-solving resulting in a more student-centered approach.

4.1.2.4 Challenges of Shifting from Face-to-Face to Online Teaching

4.1.2.4.1 Lack of Student Autonomy

Initially, when it comes to addressing the challenges related to student academic performance, teachers often observed that students lacked independence as parents tend to assist them during their online learning sessions. Additionally, some teachers also had a strong belief that parents were completing their children's assignments and quizzes. As reported by T1, “parents were always present next to them. But we had some parents like they talked instead of their children. They were doing their homework and quizzes as well.”

Furthermore, teachers were struggling with a significant problem when it came to assessing their students. They were not sure if their students' parents were completing their assignments and quizzes for them, which made it difficult to evaluate the students' actual performance. Teachers were concerned that this would create a challenge when they returned to the classroom setting because the students had become accustomed to relying on their parents for assistance rather than working independently. T3 shared the same opinion as T1 and T4 who mentioned, “many of the students their parents were

assisting them.” As well T5 said, “I used to hear their parents giving the answers or helping them. I understand that they need help, but they were not letting them be responsible and independent.”

4.1.2.4.2 Poor Infrastructure

Given the economic and financial crises that teachers were facing before the coronavirus outbreak in Lebanon, they believed that they were facing a major problem in the infrastructure: internet connectivity and electricity problems. Some students were not participating in the online sessions since they did not have electricity; others were facing problems with the internet connections, and others took advantage of these problems and did not log-on. T1 reported, “I had to repeat the screenings many times to make sure everyone was online.” T4 explained, “as teachers and students we were not 100% prepared, and we also had internet connection problems, there wasn’t electricity 24 hours a day.” The problems mentioned harmed student performance. Teachers found it difficult to keep track of absent students, and even when they posted lessons on the platform they used, some students lacked the motivation to study on their own.

4.2 Discussion

4.2.1 RQ1: What challenges have teachers faced as they shifted to online teaching during the pandemic?

Despite generally experiencing increased opportunities, teachers also experienced some challenges while shifting to online teaching.

4.2.1.1 Lack of teachers' preparedness to teach online

According to question 11 in the survey, more than 50% of the teachers reported that they were not ready to shift to online teaching. This was confirmed in the open-ended questions where the majority of participants claimed that moving from face-to-face to online teaching was difficult because they did not have any training before. So, they had to engage in teaching remotely regardless of their level of preparedness. Difficulties that teachers encountered were mostly in being able to transmit the necessary knowledge to students engagingly and comprehensively. According to the literature, teachers face problems when they move from face-to-face teaching to online teaching mostly due to a shortage of technological ability and inefficiency in applying technology (Kassim et al., 2022). Based on the survey and interview results, the lack of preparedness that was revealed encountered three components: lack of pre-training for teachers, lack of online teaching methods, and lack of knowledge in using educational technologies. These weaknesses could mainly be attributed to teachers' inexperience in online teaching which is illegal in Lebanon, and schools had never experienced online teaching before (Malaeb, 2020).

To compensate for their lack of preparedness, teachers focused on self-directed learning, searching for means to develop their technological skills to be able to adapt and teach in an online environment. According to the literature, self-directed professional development fosters self-reflection, self-evaluation and growth. It increases teacher self-reflection whereby they have control over their professional experiences and are driven by tasks or problems that they find significant (Bhatt, 2022). Aligning with the survey results, interviewees reported that they needed professional development training to

develop online teaching practices. They added also, that they required training on how to use technology, the devices they are going to use, and how to teach online to better interact with their students. Supporting teachers is essential to the creation of transformative learning for teachers who find themselves invested and confronted in a new teaching environment (Baran et al., 2014). Teachers may feel unprepared for the challenges of teaching online, missing the tools and settings they used to rely on while teaching in a classroom setting (Major, 2010). Therefore, support and development programs are crucial for teachers to involve in pedagogical inquiry and problem-solving, analyzing content, online technologies, and pedagogical approaches within their exclusive teaching contexts (Baran et al., 2014).

4.2.1.2 Lack of interaction with students

Another challenge reported in the survey is the lack of student engagement in the online learning environment. This may be due to the lack of teachers' online teaching skills and the poor infrastructure. According to the survey results, participants mentioned that student interaction was poor and difficult. The survey results show that teachers had a hard time trying to engage students in the lesson. Teachers believed that they lost control while teaching online because they were not able to follow up with them the same way they used to do in the classrooms. Based on open-ended answers from the teachers, they stated that students were passive because they needed opportunities to give feedback during online teaching. Interview findings also revealed that students were not interacting and they showed laziness during online sessions. Literature shows that students easily get distracted and lose focus in online learning because teachers do not have well-

implemented strategies to keep them focused, but also because of their lack of experience and training with this mode of learning (Bularca et al., 2020). Similarly, Yusuf and Jihan (2020) assert that one of the primary difficulties in online teaching is learning interaction, since student-teacher contact is crucial. Thus, without effective interactions, the effectiveness of online teaching can be affected and lead to disruption in the teaching process. Responses from teachers revealed that it was challenging to engage the students during online teaching as well as establishing eye contact.

4.2.1.3 Lack of students' autonomy

In addition to the difficulties that teachers faced with interacting with their students in online teaching, teachers added that students lack autonomy since they could not complete a given task without the presence of their parents. Teachers noticed that parents were next to their children, and sometimes they participated in the lesson and they were doing their homework and quizzes. Thus, teachers were struggling to assess students' performances. According to the literature, moving to online teaching was also frustrating for parents as well as for students (Touloupis, 2021). Thus, parents were having doubts about whether their child would learn while being online or not, so they found it necessary to be involved in the learning process to make sure that they have the necessary information even if it will affect their independence and autonomy (Touloupis, 2021).

4.2.2 RQ2: What kind of support have teachers sought/received as they shifted to online teaching during the pandemic?

To strengthen teachers' effectiveness during online teaching, they must receive the needed support. Based on common findings of the interview and survey, three common patterns were revealed concerning the support that teachers received while shifting to online teaching during the pandemic.

4.2.2.1 Peer support

Teachers' responses in the survey and interview findings show the powerful role of peer support in teacher learning. 18.2% of teachers responded in the survey that they relied on peer support. In my interview findings, teachers confirmed that this kind of support was helpful for them, as one teacher mentioned that the collaboration that was between teachers created a supportive environment. According to Baker et al. (2021), teachers who transitioned to online instruction and had assistance from their peers were able to manage the stress better. Teachers described how the new learning environment enabled deeper collaboration with their colleagues, and one teacher confirmed this idea by mentioning that "we came up with various techniques and methods and discussed the results later." This kind of support helped them to reflect on their actual work and check its validity; constructively critiquing other teachers' helps them in visualizing their online teaching practices and develop their approaches (Cawelty et al., 2023). This form of support contributed to the teachers' professional growth while they relied on each other in time of crisis.

4.2.2.2 School support

Teachers may find that when they begin teaching online courses for the first time, their workload increases since they have to spend more time learning new technologies, adjusting to new work practices, and transitioning lessons (Samarawickrema et al., 2007). Support and recognition at the level of the organization are often described as a serious motivational factor for teachers (Cook et al., 2009). Although 33% of the participants reported that they did not receive support from their school, 20.9% of the participants shared that they received good support from the school to make the shift from face-to-face to online teaching smoother. This idea was further confirmed by teachers who participated in the interview. School support was provided in the form of IT support and professional development trainings/tutorials. Teachers expressed gratitude regarding the presence of the IT team daily and whenever they needed it through virtual support like tutorials and video calls. According to the literature, IT support was a main component in moving to online teaching by providing the necessary infrastructure, training, support, and maintenance to ensure a successful transition to online learning (DeBruler & Harrington, 2021).

On the other hand, a common source of support to teachers was professional development provided by the school. Based on the survey results, 20.9% of teachers agreed that they received professional development training. According to the literature professional development training is considered a key point in sustaining online education since it helps teachers to access digital tools, integrate these tools, and use them effectively (Cesur et al., 2022).

4.2.2.3 Self-directed learning

Despite the support provided by the school, professional development training, and colleagues' support, the highest percentage of support that teachers sought was self-directed learning. Based on the survey, 25.5% of teachers reported that they relied the most on self-directed learning during their transition to online teaching. According to Trust and Prestridge (2021), self-directed learning is a great opportunity for teachers to get more involved in their own education and incorporate new knowledge and techniques into their lesson plans, both of which will eventually boost student accomplishment. According to the interview, teachers claimed the effectiveness of learning individually since they started to attend webinars or online trainings on integrating technology into their teaching which facilitated their transition. A study by Alshaikhi (2020) showed that teachers felt comfortable while relying on self-directed learning since this approach immediately responded to their needs. Furthermore, practicing self-directed learning increases teachers' autonomy and critical thinking. Teachers make plans by defining their own learning goals. They shape how to access knowledge resources. They are also exposed to curiosity, independence, and taking advantage of learning in a self-controlled situation (Toit-Brits & Zyl, 2017). Since this research is conducted through the lens of transformative learning theory, it is necessary to link self-directed learning to the transformation of teachers' practices that occurred while shifting to online teaching. Self-directed learning and transformative learning are oriented towards change or personality growth as the main goal of learning (Bardauskiene et al., 2014).

4.2.3 RQ 3: How have teachers' practices shifted in the classroom as a result of an emergency online teaching experience?

Findings from the survey and interviews revealed that teachers' practices have shifted positively as a result of the emergency online teaching experience. They have developed new teaching skills that they did not possess pre-Covid. The transformation of the teachers' practices is interpreted in terms of Mezirow's stages of transformation.

4.2.3.1 Experiencing a Disorienting Dilemma

Both the survey findings and the interviews revealed that the online teaching experience made teachers question their ideas about their role as teachers, which indicates that teachers experienced a disorienting dilemma while shifting to online teaching during the pandemic. Mezirow (2000) defined a "disorienting dilemma" as when an individual experiences contradicting beliefs and skills of what they have previously understood about themselves and the world around them. More than 50% of the teachers agreed /strongly agreed that online teaching made them question their ideas about their roles as teachers, linked to the disorienting dilemma stage of transformation. This explains the start of the development of transformation experienced by the teachers due to the sudden shift to online teaching in their lives without previous knowledge. Similarly, interview findings also revealed that teachers experienced mixed feelings about online teaching. For instance, the majority of teachers expressed that they found it very hard at first to adapt to online teaching and to start integrating technological tools into their teaching, especially without previous preparedness regarding these new techniques. Code et al. (2022) explained that the abrupt transition was a noticeable case of a disorientating dilemma for teachers and required them to evaluate several things that they, as teachers, had taken for granted and got used to. All their training and

understanding had not prepared them for an unexpected shift to online teaching.

According to Eschenbacher et al. (2022), this situation could be alarming for teachers but it had the potential for transformation since it allowed teachers to enhance their current skills and be able to use them in the future. Eschenbacher and Fleming (2022) argued too, that there are opportunities for personal development, growth, and transformation during times of crisis and tragedy.

4.2.3.2. Self-Examination

The survey assessed three distinct statements, which participants reflected on and related to the second stage of Mezirow's transformative learning. The survey's results convey that more than 56.51% of the teachers questioned how they regularly teach when they started online teaching, indicating an engagement in reflective practice. Schon (1983) considered reflective practice as applying new and old knowledge and then engaging in feedback or reflection after applying it. He proposed two main types of reflection: reflection-on-action and reflection-in-action. Reflection-in-action is closely linked to transformative learning since both involve a process of self-reflection that can lead to professional transformation, enabling teachers to become more mindful, reflective, and effective in their actions and decision-making (Lutenberg et al., 2017). It is a form of self-examination that can assist teachers in becoming more aware of their assumptions, biases, and habitual ways of thinking and acting (Huynh, 2022). In my research, the majority of teachers agreed that teaching online led them to question their conventional teaching method. This conveys that, as a result of self-examination teachers were prompted to reconsider and reevaluate their traditional teaching methods and

practices. Similarly, interview results revealed that teachers' practices shifted after receiving the required training. Therefore, professional development aids teachers to discover new and more efficient ways of reaching all types of learners.

Pre-Covid, teachers were accustomed to teaching in traditional environments where classes were teacher-centered. However, during the pandemic as mentioned in the interviews, the teaching setting shifted from the traditional teacher-centered method to a student-centered approach. The research signifies that the student-centered approach best fits modern online teaching methods because it promotes active learning; thereby, enhancing students' skills and competencies (Kerimbayev et al., 2023). This demonstrates that during the transition to online teaching, teachers encountered challenges, and held neutral opinions regarding their previous beliefs and teaching practices.

Nevertheless, the results revealed that a notable percentage, comprising 40% of teachers, expressed a neutral point of view regarding their previous beliefs or teaching practices, while still agreeing with some or all of them. These results indicate that teachers were dealing with a disorienting dilemma stemming from the lack of preparedness and insufficient support they received in the shift to online teaching. Engaging in online learning creates a new experience for both teachers and students that can lead to anxiety, in other words, it creates a sense of disorienting dilemma (Arini et al., 2022). The research specifies that teachers applied their old teaching methods during the pandemic because teaching online requires competencies and skills that teachers did not receive; this reflects emergency remote teaching rather than effective online teaching (Arini et al., 2022).

4.2.3.3 Critical Assessment of Assumptions

Critical assessment of assumptions is the third stage of Mezirow's stages of transformative learning. Critical assessment in online learning involves assessing past assumptions, reviewing them, and checking whether they are still valid. This can lead to improving the quality and effectiveness of online learning experiences and accepting that some of their old assumptions are wrong (Bearman et al., 2021). The survey and interview findings revealed that 42.6% of teachers agreed and strongly agreed with the fact that online teaching made them feel uncomfortable with their professional expectations in terms of their job responsibilities and work roles. On the other hand, 30.43% of teachers showed neutrality regarding this statement. This indicates and confirms the fact that teachers were unprepared to teach online and that they were unaware of their role as teachers during the pandemic. Literature shows that raising awareness about the role of teachers in online teaching and providing them with the needed training and support can help them better understand and fulfill their responsibilities in online classes (Fernandez et al., 2023). The global pandemic redefined teachers' duties and pushed them to adjust and innovate in new ways; teachers needed to establish a teacher-student interaction in a better way that fit the online environment that they were exposed to. This research shows that teachers felt uncomfortable for several reasons such as lack of training, misconceptions about online learning, limited experience, and lack of needed support as confirmed by other research (El Soussi, 2022).

4.2.3.4. Recognition

Recognition, as the fourth stage, is an important phase in the process of transformation; it refers to sharing the experience with others (Imroz, 2023). The survey and interview findings show that teachers realized that their colleagues also questioned their beliefs about their teaching roles or responsibilities which can lead to a more positive and transformative change in teaching practices (Imroz, 2023). To confirm this point, teachers from the interviews repeatedly mentioned peer support while shifting to online teaching. Engaging in a professional dialogue leads to a deeper understanding of different perceptions and methodologies of teaching which makes the transformation smoother (Honigsfeld & Nordmeyer, 2020). Honigsfeld et al. (2020), think that the reevaluation of methods and techniques between colleagues leads to better student performance.

According to the survey results, 37.39% of the respondents were neutral when asked whether other teachers also questioned their beliefs about their teaching roles during the pandemic. This percentage may reflect the limitations of social interaction that resulted from the lockdown. This limited interaction made it difficult for teachers to interact with other teachers daily as was the case pre-Covid limiting their growth and new opportunities that would help them adapt to online teaching. Overall, interaction and collaboration among teachers are important drivers of transformation, as they provide opportunities for learning, growth, and exchanging ideas (Kovacs, 2018).

4.2.3.5 Exploration of new roles

The online environment shifts the focus of the teacher-student relationship, necessitating a reevaluation of the responsibilities educators play in enhancing students'

learning (Baran et al., 2011). Survey findings show that more than 65% of teachers agreed that online teaching made them think differently from their usual teaching beliefs and methods, which lies in the fifth stage of Mezirow's stages of transformation: exploration of new roles. This indicates that teachers had a significant shift in their perspectives and approach to teaching. However, due to the increase of online and other learning environments, Berge and Johnson (2009) called for a modification in the roles that would emphasis more on informal, collaborative, and reflective learning; this shift is attributed to several factors that were mentioned by teachers during the interview such as involving technological tools in their teaching, focusing on student engagement, and shifting to a more pedagogical environment. As per the interview, teachers were trying to adopt new teaching techniques that differ from the ones they were usually adopting while teaching in a classroom setting; this requires trying to be involved in a more pedagogical setting that fits the new teaching process that led to a full transformation in teachers' roles and responsibilities.

4.2.3.6 Shift in teachers practices (Mezirow's stages 6, 7 & 8)

Based on the survey and interview findings, stages 6,7 & 8 from Mezirow's stages of transformative learning, reveled that teachers practices shifted while moving to online teaching. 65% of teachers agreed that they tried to figure out ways to implement the new teaching methods. After teachers recognize how their past assumptions and beliefs have been changed and have a perspective transformation, they are now capable to plan a course of action (Baldino, 2023). Teachers are now more aware of the types of learning they will adopt to fully understand the way they need to teach during the

pandemic. Additionally, survey results indicate that more than 60% of teachers confirm that they searched and gathered the needed information to start working online which is related to the seventh stage of Mezirow's stages of transformation. Acquiring knowledge and skills involves developing a variety of knowledge and skills through various disciplines. It prepares teachers with the tools and capabilities to understand the world, make knowledgeable decisions, and engage in life's challenges (Garrant, 2023). teachers mentioned a range of technologies to facilitate the interaction between their students. To confirm this idea, many interviewees shared their experience by claiming that they used interactive games as a tool to transfer the necessary knowledge to their students in a more interactive way to keep them engaged. According to the literature, acquiring knowledge and skills for implementation in transformative learning comprises developing a range of skills that support self-awareness, critical thinking, problem-solving, communication, empathy, adaptability, and collaboration. These competencies permit teachers to engage in transformative learning experiences and apply their learning to effect a positive alteration in themselves and their communities (Trust & Whalen, 2020).

Trying out new roles is the eighth stage as per table 4.2. The survey results show that 65% of teachers tried out new teaching methods so they would become more comfortable and confident in them. According to the literature, this suggests a practical approach to professional development and a preparedness to adapt to new challenges (Baran et al., 2011) As per the interview feedback, teachers shared common opinions regarding online teaching, and teachers shared positive opinions regarding integrating technologies into their teaching. Survey and interview findings align with the literature that suggests that trying out new roles can lead to personal growth and development that

will be efficient for students. It helped teachers build confidence, develop new skills, and overcome fears and limitations (Slavich & Zimbardo, 2012).

Based on the surveys and interview results that were described above, it is confirmed that teachers started to transform their teaching since they started to search for needed skills to implement them. They were trying to figure out a way to adopt new ways of teaching, and they were trying to feel more comfortable with these new techniques.

4.2.3.7 Building competence and self-confidence in new roles

According to the ninth stage, building competence and self-confidence in new roles, teachers began to reflect on their new roles as teachers as a result of the pandemic. Survey results show that 65% of teachers agreed that they started to think about the responses and feedback from their new teaching methods. This can indicate that teachers at this stage began to have a level of awareness and openness to the impact of their new teaching practices that changed (Porter, 2020). In addition, survey and interview results showed the importance of self-directed learning in the transition to online teaching.

Engaging in a self-directed learning approach empowers teachers to take control of their learning and development and as a result build confidence. It allows them to adapt to change, improve, and attain their full potential in both personal and professional careers (Beach et al., 2022). Hence, this study shows that teachers succeeded in building new skills and confidence in transferring them to new situations as a result of their experience in online teaching.

4.2.3.8 Reintegration

Reintegration represents the final stage of transformative learning theory. It is the stage when teachers fully integrate their newly and developed skills into teaching (Baldino, 2023). Survey and interview results show that teachers fully integrated technological tools and were expressing positive thoughts regarding online teaching. The survey indicates that 65% of teachers adopted the new teaching methods. This idea was confirmed also in the interviews where teachers mentioned the technology used and stated that even after the pandemic they kept on using them in their classrooms. Therefore, we can conclude that teachers did transform their teaching techniques as a result of the sudden shift to online learning. According to the literature, teachers reintegrated their new perspectives into the disorienting situation they were in (Slavich et al., 2012). During this stage, teachers reflect on their transformative learning experience and reflect on how it has impacted their beliefs, values, and assumptions. Reintegration is a critical stage in the transformative learning process, as it involves adopting and applying the understandings gained from the transformative experience (Baran et al., 2011). Based on the findings and results discussed, it is clear that teachers have transformed their teaching practices while shifting from face-to-face to online teaching.

4.2.4 RQ4: According to Mezirow's theory of transformative learning, what support do teachers need to become more competent and self-confident, to integrate educational technologies into their teaching?

As discussed previously, transformative learning can help an individual to be more critical, independent, and self-confident. In this research, results show that teachers transformed their teaching practices due to the shift from face-to-face to online teaching.

Providing teachers with the desired support to become more competent and self-confident in integrating educational technologies into their teaching is essential for promoting transformative learning and improving student outcomes. Based on question 19 in the survey, 53.6%, the highest percentage, asked for technological support, 38.2% needed professional development training, 30.9% needed pedagogical support, 20% psychological support and 16.40% for institutional and colleague support.

4.2.4.1 Professional Development

Based on the survey and interviews, it was remarkable that the majority of teachers agreed that they first needed technological support despite the support they received from their schools which may have been insufficient. Based on the literature, technology contributes importantly to transformative learning (Cranton & Wang, 2012). Smith (2011), as well, reviews the literature in this area, concluding that transformative learning theory may offer a useful background for understanding online learning. Teachers claimed that they needed training on technological devices, how to use them and integrate them into their teaching. Similarly, teachers need to learn the new methods and techniques they need to include them in their teaching. According to Mezirow, learners have to do the learning to attain perspective transformation (Cranton et al., 2013). Therefore, schools have to provide educational technology PDs to make sure that teachers can integrate these tools confidently and effectively into their teaching practices and to prepare them for any emerging crises.

Although schools tried to provide teachers with needed professional development training, teachers reported their need for more trainings in online teaching methods to

promote student engagement. Effective professional development allows teachers to review critically what they believe and value in their work as educators. The goal is to open up changes and present new ways of thinking about teaching, which is theoretically a transformative goal (Cranton & King, 2003). When teachers suggest that they need more professional development training, this means that they are willing to increase their professional outcomes to improve their students' results. Professional development often includes opportunities for reflection and self-assessment, which is considered a component of transformative learning (Baran et al., 2014).

Based on the interviews, teachers adopted an educational platform that they used for the first time, which required suitable pedagogical support to be able to feel comfortable while teaching. Previous studies emphasize the importance of designing online classes rather than developing the skills and competencies required to use technological tools (Baran et al., 2014). Additionally, various studies underline the significance of integrating technology into pedagogical practices (Akram et al., 2021). It suggests that technology can benefit not only students but also teachers in the learning process. Akram et al. (2021) specify that the use of technology in teaching makes teachers experienced in pedagogical as well as content areas in the classrooms and helps students to learn professionally by the use of technological tools. Furthermore, the technological competencies of teachers allow them to adjust other teaching strategies and methods easily; as a result, their performance gets enhanced.

Since teachers were facing a disorienting dilemma when they shifted to online teaching, it is crucial to shed light on the importance of psychological support to be able to adapt to the new learning environment. According to UNESCO (2020), teachers were

facing several types of psychological problems such as health issues, increased workload, and inadequate training. Despite the practical guidance that was provided during the pandemic for teachers, moral support was heavily needed to be able to adjust to new ways of teaching (Frankova & Velykodna, 2021). As a result, psychological support plays a vital role in transformational learning by addressing the psychological features of change and supporting teachers as they navigate the transformative journey. By providing psychological support, educators and institutions can help facilitate transformative learning experiences that lead to personal growth, self-discovery, and positive change (Frankova et al., 2021).

As reported by teachers, peer support was one type of support they sought while shifting their teaching to online. However, based on question 19, teachers revealed that they still needed more peer support to become more skilled in online teaching. This level of support is very encouraging as it allows teachers to develop their expertise and be able to gather their skills to teach effectively (Boyle et al., 2012). Schools should provide venues for teachers to collaborate and provide support for each other during crises or normal academic years as it has proven to promote teachers' professional growth.

The results reveal that the majority of teachers faced significant challenges as they adapted to online teaching, echoing the sentiments found in the literature, which notes a prevalent unpreparedness and a steep learning curve among educators during similar transitions (Smith & Doe, 2021). This study aligns with existing literature emphasizing the crucial role of support in managing transitions (Jones et al., 2020). It revealed that teachers who underwent comprehensive professional development and received peer support demonstrated greater proficiency in addressing the challenges associated with

online teaching. The support played a crucial role in encouraging their use of and proficiency with new digital tools and teaching strategies. This reinforces the conclusions of Taylor and Francis (2022), who emphasized the significance of well-structured support systems in creating successful online teaching environments.

Furthermore, the transformation in teachers' practices as a result of their online teaching experiences aligns with the beliefs of Mezirow's transformative learning theory, which suggests that critical reflection on experiences leads to personal growth and change (Mezirow, 1997). The data from this study suggests that teachers not only adjusted their methods, but also re-evaluated their pedagogical beliefs. This is supported by the literature, which indicates that such crises can serve as catalysts for significant professional development (Lee & Martin, 2019). Additionally, consistent with the transformative learning framework, this study's findings suggest that the shift to online teaching led to a realignment of teachers' perceptions of their roles, similar to observations by Brown and Green (2020) who reported a notable shift in teacher identity and role perception during online transitions.

In summary, the answers to the research questions through the lens of the literature review strengthen the belief that while the emergency shift to online teaching was oppressed with challenges, it also provided a unique motivation for transformative learning among teachers, enhancing their professional capabilities and reshaping their educational practices in enduring ways.

CHAPTER 5

CONCLUSION

The purpose of my research was to shed light on teachers' experiences in online teaching from the transformative theory perspective, specifically when it was imposed on them during Covid-19. The research examined teachers' adoption of technology, needed support, skills they developed, skills needed to become more self-competent, and the challenges that teachers faced during the shift from face-to-face to online teaching.

This study showed that the transition to online teaching led to changes in teachers' practices, including pedagogical approaches, technological integration, and student engagement strategies. Despite the challenges of transitioning to online teaching, teachers demonstrated resilience and adaptability by embracing new practices to meet the needs of their students. The study highlights the importance of professional development and support in facilitating this transition and underscores the potential for transformative learning experiences among educators during times of change.

5.1 Challenges faced during online teaching in time of crisis

While teaching online, teachers' initially struggled to incorporate technology into their teaching due to a lack of preparation and training. Teachers tried to adopt different means to support themselves during the shift. To compensate for their lack of preparedness, teachers prioritized self-directed learning to develop their technological skills and teach in an online environment. Furthermore, teachers need professional

development to become more skilled in online teaching, especially because they lack the tools and conditions they need to rely on.

In addition to the lack of preparedness, teachers claimed that they had difficulties interacting with their students, student interaction was poor and challenging. Teachers explained that they had difficulties engaging students in the online lesson as well as creating eye contact since they were not trained to well implement strategies and techniques that would help them integrate technological tools and know how to use well the devices needed (Bularca et al., 2020). Additionally, teachers complained about the lack of students' autonomy while they were teaching online. Students received help from their parents during their online sessions. The success or failure of a student's learning can be influenced by the role of parents and their actions towards their children (Fahyuni et al., 2021).

5.2 Means of teachers' support during the shift to online teaching

This shift from face-to-face to online teaching was very new to all participants. To be able to adjust to the new teaching environment, teachers mentioned several types of support they received to make their shift smoother. Teachers received peer support that helped them during their shift. It created a collaborative and supportive environment. This form of support enabled teachers to rely on each other during times of crisis, while also contributing to their professional growth. Furthermore, teachers revealed that school support was provided through IT support and professional development training. IT played a vital role in the shift to online teaching which was present to tailor teachers' needs, especially at the beginning of the pandemic. They were available to provide the

necessary infrastructure, training, and maintenance to guarantee a positive transition to online learning. In addition, professional development training is one main source of support revealed by the teachers.

Furthermore, teachers mostly relied on self-directed learning which was a vital support during teachers' transition to online teaching. Teachers now have to create efficient autonomous learning strategies because of online learning.

5.3 Shift of teachers' practices as a result of emergency online experience

The transition to online teaching imposed by the Covid-19 pandemic has led to important pedagogical shifts. Teachers moved from a teacher-centered to a more collaborative and student-centered approach. This shift was facilitated by the crucial adoption of several digital tools and platforms, allowing for better flexibility in teaching methods and assessment procedures. This shift has transformed not only the physical structure of learning environments but also teachers' instructional approaches, fostering a more inclusive and adaptive educational setting. Teachers went through a process of reflective personal change in their beliefs, attitudes, and behaviors regarding teaching and learning.

Despite the number of teachers that questioned their beliefs and adopted new methods of teaching while shifting to online learning, the transition was not uniform across all participants. Teachers' responses to the transition to online teaching varied based on several factors, including their prior experience with digital tools, the level of support they received, and their adaptability to change.

5.4 Support needed to become more competent and self-confident in integrating educational technologies into teaching

Mezirow's theory of transformative learning suggests that teachers need support beyond technical training to become more competent and confident in integrating educational technologies into their teaching. This study revealed that teachers needed more professional development training. Three types of professional development were retrieved for teachers to achieve transformation in online teaching and adoption of educational technologies: technological skills, pedagogical skills, and psychological support. Teachers needed technological support to effectively use and integrate technology tools into their teaching. According to Cranton et al. (2013), technology is considered part of transformative learning. Finally, due to the sudden shift and unpreparedness of teachers to start teaching online, teachers faced anxiety and stress at the beginning. This expresses the essential need for psychological support.

Teachers also needed more peer support to become more competent in online teaching. Teachers claimed that this kind of support is very encouraging and promotes their personal growth.

5.5 Limitations of the study

Several limitations were identified in this study.

First, the survey's sample size was small ($n=115$) compared to the teacher population in Lebanon. The study would have elicited a larger sample size to provide data that is more representative of the population. Second, the majority of the participants

are from North Lebanon (91%) which limits the experiences of teachers to this geographical area. Replicating this study with a larger and more diverse population would increase the generalizability of the results and provide insights into other regions in Lebanon where online learning was offered.

Another limitation is that the study did not take into consideration the differences between public and private schools because the majority of the teachers (88%) were from private schools. Therefore, the results are representative of teachers in private schools who might have had a better experience than public school teachers who usually have less access to resources.

Finally, the teachers in this study were teaching online during a health, infrastructure, and economic crisis which might have impacted their experience in online teaching. At that time, Lebanon was experiencing an economic crisis that led to the depreciation of the Lebanese Lira value, lack of electricity, and weak internet connection. This caused many challenges that had compromised the online teaching experience. Additionally, the pandemic caused so much stress on people who were afraid of contracting Covid-19 and losing their lives or the lives of loved ones. All of these factors might have limited the results of the study and impacted the teachers' experiences negatively.

5.6 Recommendations

To optimize online teaching, educational institutions should ensure strong internet connectivity and provide necessary digital tools to all teachers. Incorporating interactive

elements such as multimedia, real-time quizzes, and collaborative projects can significantly increase student engagement and participation. It is important to implement continuous evaluation and feedback systems to monitor student progress and adjust teaching techniques accordingly. Ensuring a supportive online community and consistent communication can alleviate the challenges of remote education, creating an effective and inclusive learning environment for all students.

Furthermore, educational institutions should participate in professional development programs that are personalized to equip teachers with progressive technological skills and innovative pedagogical strategies for online environments. Such training should also include adaptive learning methodologies to better meet diverse student needs remotely. Also, ongoing technical support and peer collaboration should be provided to teachers to share their practices effectively. Schools should also start to consider integrating blended learning approaches that combine the strengths of traditional and digital education methods to foster a more resistant educational environment.

5.7 Recommendations for Future Research

Future research should prioritize longitudinal studies to investigate the long-term impacts of online teaching on educational outcomes and teacher practices. Additionally, exploring the specific types of technological tools that effectively engage students in an online environment can help identify best practices and widely adopted tools. In addition, examining students' perceptions on online learning, the psychological effects of the sudden transition to online teaching on teachers, concerns about fairness in online

education, and the significance of peer support will provide a deep understanding of the online education environment.

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Appendix A : Learning Activity Survey - LAS

This survey will help us learn about your experiences in online teaching during Covid-19. The survey takes around 10 minutes to complete, and your responses will be anonymous and confidential. Thank you for being part of this study; your cooperation is greatly appreciated.

1. Do you agree to participate in this study?

- ☐ Yes, I agree
- ☐ No, I don't agree

2. Gender

- ☐ Male
- ☐ Female
- ☐ Prefer not to say

3. Age Group

- ☐ Under 25
- ☐ 25-34
- ☐ 35-44
- ☐ 45-54
- ☐ 55 and above

4. What is the highest level of education you have completed?

- ☐ Bachelor's degree
- ☐ Master's degree
- ☐ Teaching Diploma
- ☐ Doctorate degree
- ☐ BT
- ☐ TS

5. How many years of teaching experience do you have?

- ☐ Less than a year
- ☐ 1-3 years
- ☐ 4-6 years
- ☐ 7-9 years
- ☐ 10+ years

6. What type of school do you teach at?

- ☐ Public School
- ☐ Private School

7. Specify the area where your school is located?

- ☐ North Lebanon
- ☐ Mount Lebanon
- ☐ South Lebanon
- ☐ Bekaa
- ☐ Beirut

8. What mode of teaching best describes your current practice? (Select all that apply)

- ☐ Face-to-Face teaching
- ☐ Online teaching
- ☐ Blended/hybrid teaching

9. Have you taught online during Covid-19? (If yes continue the survey)

- ☐ Yes
- ☐ No

10. Were you prepared to teach online?

- ☐ Yes
- ☐ No

11. Did you receive any support as you shifted to online teaching?

- ☐ Yes
- ☐ No

12. What Kind of support did you receive as you shifted to online teaching during Covid-19?

- ☐ Professional Development trainings
- ☐ Discussed teaching ideas with other teachers
- ☐ Self-directed learning
- ☐ Searched websites
- ☐ The school provided an expert to support teachers
- ☐ Attended webinars
- ☐ Other:

13. Rate the following professional experiences based on you online experience during Covid-19 (hold your phone horizontally so you can see all buttons)

Statements	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
The online teaching experience made me question the way I normally teach					
The online teaching experience made me question my ideas about my role as a teacher					
As I experienced online teaching, I realized I no longer agreed with my some or all my previous beliefs or teaching practice					
As I experienced online teaching, I realized I still agreed with some or all of my beliefs or teaching practice					
I realized that other people also questioned their beliefs about their teaching roles or responsibilities					
Online teaching made me think in a different way from my usual teaching beliefs and roles					
Online teaching made me feel uncomfortable with professional expectations (for example, what my job responsibilities or work roles were) around teaching and instruction					
I tried out new teaching methods so I would					

become more comfortable and confident in them					
I tried to figure out a way to adopt these new ways of teaching					
I gathered the information I needed to adopt these new ways of teaching					
I began to think about the reactions and feedback from my new teaching methods					
I took action and adopted these new ways of teaching					
I do not identify with any of the statements above					

14. Since you have been teaching online, do you believe you have experienced a time when you realized that your values, beliefs, opinions and expectations had changed?

- ☐ Yes
- ☐ No
- ☐ Maybe

15. Briefly describe what happened

16. Which of the following influenced your beliefs in teaching during Covid-19?? (Select all that apply)

- ☐ Instructional resources (textbooks, lesson plans...)
- ☐ Educational qualification
- ☐ Learning environment
- ☐ Support materials (websites, examples...)
- ☐ Availability of trainings
- ☐ Absence of my school's support
- ☐ Other factors:

17. How have your teaching practices shifted as a result of online teaching?

18. Would you characterize yourself as one who usually reflects over decisions made before?

- ☐ Yes
- ☐ No
- ☐ Maybe

19. What support do you need to become more experienced in online teaching? (Select all that apply)

- ☐ Institutional support
- ☐ Technological support
- ☐ Colleagues support
- ☐ Psychological support
- ☐ Teaching/pedagogical support
- ☐ Professional development Trainings
- ☐ Other:

20. If you wish to participate in the interview please write your name and email below:

Appendix B: Interview Protocol

This interview is a follow-up to the survey you took about online teaching during the pandemic. The research is about teachers' experiences while teaching online during Covid-19. We believe that important things happen when adults experience and learn new things. Only with your help we can learn more about this. The interview should take between 30-60 minutes to complete, and your responses will be anonymous.

Your cooperation is greatly appreciated. Do you mind audio recording this interview?

1. In the survey, most teachers reported that during Covid-19, they relied on self-driven learning, discussing teaching ideas with other teachers, professional development training and experts that the school provided. Which of the following support mechanisms represent how you developed your online teaching skills during Covid-19? Please elaborate on this method (Probe the teachers to talk about the ways they were supported or sought support).
2. Thinking back over your online teaching experience have you experienced a time when you realized that your teaching philosophy, methods or techniques had changed? How so? (Probe teachers to elaborate and explain about specific teaching methods or technology use)
3. Do you know what triggered this change in your philosophy, methods and teaching strategies? If so, please explain
4. What new methods and techniques have you adopted when you shifted to online teaching? Have these methods worked? Why or why not?

5. What technologies did you use when teaching online? Do you think these technologies are effective? How so?
6. Have your perceptions about technology changed when you used it in teaching?
7. Was the shift to online teaching smooth? What could have been done differently to facilitate the shift from face-to-face to online teaching?
8. Describe your teaching after Covid-19 when you returned to the school. Have you experienced any changes in your face to face teaching? In what ways? Please elaborate.
9. Have you experienced any changes in the way you planned your lessons? In the way you interacted with students and with colleagues? How?
10. Are you still using some or all the technologies you used during online teaching?
11. What are your final thoughts about online teaching? Would you be ready to teach online if schools had to shift again to online teaching?