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TEACHER PROFESSIONAL DEVELOPMENT & WELL-BEING IN THE ERA OF HYBRID AND REMOTE INSTRUCTION: CHALLENGES, OPPORTUNITIES, AND PATHWAYS FORWARD

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Abstract

The COVID-19 pandemic caused an immediate shift to remote and hybrid education, which in turn radically changed the needs and well-being outcomes of teacher professional development. This review paper reviews the current literature on teacher professional development (TPD) in hybrid and remote environments, explores the effects of mental health and well-being on teachers, and approaches to evidence-based solutions, which would help to provide quality instruction online and in a hybrid setting, long-term. Results have shown that educators had significant stress, burnout, and emotional exhaustion with high pedagogical requirements when engaging in emergency remote teaching (ERT). Although a portion of the teachers gained new digital abilities and learned new pedagogical prospects, a large number of the educators had difficulties with technology and professional seclusion and incompetence. The review has found that effective TPD in online and hybrid instruction involves key factors such as integrated systemic practices, communities of practice, technology training coupled with development of pedagogy, and organizational support that ensures the well-being of teachers. To proceed, the education system needs to find the balance between technological skills acquisition and humanistic aspects of instruction, taking the emotional and psychological needs of teachers as the key to sustainability of good hybrid and distance teaching.

Keywords: Teacher Professional Development (TPD), Well-being, Hybrid Instruction, Challenges, Opportunities.

Introduction

The COVID-19 pandemic brought disruption to education on an unprecedented scale, which necessitated immediate shifts in the mode of face-to-face education to emergency remote teaching (ERT) at scale at a scale that would never have happened otherwise. After weeks, hundreds of millions of educators across the world transformed their practice of traditional classroom-based instruction to technology-mediated one, with little preparation or professional growth (Lockee, 2020). This sudden shift demonstrated significant differences in teacher readiness to work online and in hybrid teaching and at the same time showed the inadequacy of institutional support systems and professional development infrastructure.

Two-years of pandemic-era teaching has shown with growing evidence that significant effects on professional development trajectories and well-being outcomes have occurred in teachers. Although other teachers have adopted technological innovation and found pedagogical opportunities in hybrid and distance settings, most of them felt stress, burnout, and demoralization like never before (Kotowski et al., 2022). Learning about such diverse experiences and finding the best practices that could aid teachers' growth and wellbeing in the conditions of hybrid and remote instruction are the areas of high importance in the educational policy and practice.

The review summarizes the 14 studies (maximum published in Q1 journals) that investigate: (1) the effects of remote and hybrid instruction on the professional development needs of teachers; (2) outcomes of well-being and burnout; (3) effective professional development strategies used in online and hybrid teaching;

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(4) teacher competencies that support quality technology-mediated instruction; and (5) organizational and systemic factors that help teachers to sustain themselves. The review makes a distinction between emergency remote teaching (ERT) which can be characterized as hasty and transient changes to online teaching with little or no planning and deliberate hybrid and online learning models that utilize pedagogically sound practices (Lockee, 2020).

2. Emergency Remote Teaching and Intentional Hybrid / Online Instruction: Differences that Matter.

2.1 The Emergency Context

An emergency remote teaching (also known as ERT), which is one of the features of the transition to the pandemic, is not similar to the planned, well-designed online and hybrid teaching (Lockee, 2020). ERT was developed due to the crisis situations where response was required with little time to plan, prepare or develop professionally. In most cases, teachers did not have prior experience in online teaching, did not have a proper technology infrastructure, or a system of institutional support. Such issues as poor internet access and lack of appropriate learning facilities and restrictions on digital devices were also a hindrance to the students.

These circumstances subjected educators to significant stress, requiring them to learn new skills quickly and ensure high-quality instruction despite all the uncertainties that have never occurred (Jeliska and Paradowski, 2021). In studies, ERT and purposeful online/hybrid learning are not equivalent since effective TPD models vary significantly in the presence of transitions as a temporary emergency management or a premeditated pedagogical strategy (Asif & Shaheen, 2022; Lockee, 2020).

2.2 Intentional Hybrid and Online Instruction Characteristics.

Considered model hybrid and online instruction integrates considerate pedagogy, infrastructural development of technology, and incremental preparation of teachers as opposed to emergency preparation. The latter methods normally entail:

1. Curriculum redesign Re-conceptualizing online/hybrid content and activities, not merely adapting face-to-face lectures to videos.
2. Planned technology implementation in terms of infrastructure and technical support systems put in place in advance.
3. Professional growth that offers teachers time to engage in the development of competencies prior to instructional changes.
4. Access to technology by students that would provide equal equipment and connectivity opportunities.
5. This is due to the institutional policies and frameworks that enabled sustainable online/hybrid learning.

Online and hybrid education cannot be effectively taught in the same ways as face-to-face education since it demands radically different pedagogical strategies (Paesani, 2020). Successful online learning places a high value on active learning, high frequency of interaction, clarity of communication patterns and careful asynchronous design in lieu of trying to replicate classroom interactions through video conferencing.

3. Teacher Professional Development Needs in Remote and Hybrid Contexts

3.1 Technological Competencies and Digital Literacy

The case of emergency transitions demonstrated that there was a high degree of variability in the existing digital competencies of teachers. Although there were educators with a significant experience in the technology field, many of them had a low exposure to learning management systems, videoconferencing tools, or digital content creation platforms (Code et al., 2020). The development of professionals should consider the use of technology at more than one level without using strategies that presuppose the digital skills of teachers.

The best TPD in online teaching includes:

1. **Videoconferencing platform skills:** Knowledge of Zoom, Microsoft Teams, Google Incorporating videos, or other tools used; operating controls in virtual rooms, recording videos, blurry backgrounds, and virtual backgrounds; leading interactive engagement in live events.
2. **Learning management systems:** Browsing course management systems, structuring course content, administering course assignments and grading, asynchronous discussions.
3. **Creation of digital content:** Creation of interactive presentations, recording instructional videos, creating multimedia content with the help of tools.

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4. **Technology of assessments:** The use of online evaluation tools, the ability to track the detection of plagiarism, digital feedback.
5. **Accessibility and universal design:** Online instruction must be supportive of different learning needs by using captioning, alt text, or using accessible document formatting.

Nevertheless, studies note that technology training is not enough without an equal pedagogical advancement (Paesani, 2020). Lack of technological expertise coupled with ignorance of how to use the technology in design of pedagogically sound learning results in poor instructional outcomes.

3.2 Pedagogical Competencies for Online and Hybrid Teaching

Online and hybrid instruction may not necessitate the use of pedagogical approaches that are similar to face-to-face teaching (Paesani, 2020). The major pedagogical competencies are:

Asynchronous design: The design of learning experiences that facilitate effective interaction between instructors and learners when they do not coexist in time must be designed with special attention to communication structures, scaffolding, and support mechanisms.

Community building: How to create psychological safety, a sense of belonging, and a culture of collaboration in an online setting even in the face of physical distance and diminished nonverbal cues.

Interaction design: Creating means of student-content, student-instructor and student-student interaction; realizing that interaction does not happen naturally online, but that it must be facilitated.

Synchronous facilitation: The control of videoconference dynamics such as: pacing, attention management of the disembodied on-line space, participation.

Active learning techniques: The adaptation of active learning methods to the online mode; understanding that video delivery of lectures is not any different in interaction and learning outcomes than the face-to-face lectures.

Digital feedback: Making effective and timely feedback online; becoming comfortable with the written feedback and asynchronous communication to engage in substantive interaction.

Studies of teacher educators negotiating through asynchronous online instructional settings have shown that creating authentic interaction and developing student interactivity are enduring issues that necessitate expert pedagogical understanding (Ó CEALLAIGH, 2021). Professional development should focus squarely on these pedagogical aspects as opposed to believing that the teachers can somehow introduce the existing face-to-face practices to online environments without some form of interventions.

3.3 Subject-Specific Challenges in Online Instruction

Various fields have various obstacles to moving to online and hybrid modes. The teachers of technology education cited some specific challenges with supporting the practical competencies development in virtual classrooms (Code et al., 2020). The sciences that are based in the laboratory, teaching clinical health care, teaching music with performance in an ensemble, and teaching physical education present serious design challenges in completely online delivery.

Discipline-specific issues should be covered by the professional development. As a case in point, language teachers will need specific assistance in the creation of meaningful interaction opportunities, and the principle of language learning is based on the realistic practice of communication (Kern, 2024). Engineering and technical professions require leadership in acclimating design undertakings and practical expertise advancement to hybridized situations. Online special education teachers need help that would guarantee relevant individualized learning and intervention.

On the other hand, there are certain fields that find it beneficial to teach through the internet. Learning writing encourages a critical revision and feedback by the process of asynchronous interaction. Education in humanities that utilizes a variety of digital resources and online discussion forums can contribute to intellectual activity. Online instruction can be taught flexibly to learners with different needs.

3.4 Professional Development Structures and Communities of Practice.

Studies note that TPD in online teaching cannot be conducted using the conventional workshop frameworks. One-time training with instruction based on technology skills but without constant support is insufficient to long-term professional development (Murai and Muramatsu, 2020). Rather, the good structures are:

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Groups of teachers sharing online teaching resources, collaborating to develop expertise, many of these groups also share their experiences, troubleshoot and refine practice together (Murai and Muramatsu, 2020). These groups offer long-term interaction, moral support and learning with peers after groups are isolated.

Joint professional development: initial training will be combined with continuous support online and in-person, during which the teacher will be able to test new methods and ask questions and challenges related to the implementation (Murai & Muramatsu, 2020).

Cohort based learning: Bringing teachers together in groups moving together through professional development, providing support to each other and sharing of problems.

Action research and reflection: Teachers that are involved in the systematic analysis of their teaching practice online, gathering evidence of success, and repeatedly improving their methods.

Subject-specific and role-specific support: Understanding that various teachers need various development depending on the discipline, level of experience, and student populations, and in contexts of teaching.

Leadership and coaching: Coaching and mentoring teachers in new online and hybrid practices.

A study of creative learning implemented in blended TPD in computer science education has shown that educators who participated in perpetual communities of practice overcame greater expertise and implemented new practices more readily compared to educators who acquired training alone (Murai and Muramatsu, 2020). Those teachers who were able to collaborate with other teachers, learn by working on projects, benefiting through continuous support and feedback, acquired true ownership of the new practices.

4. Teacher Well-being and Mental Health Impacts of Remote and Hybrid Instruction

4.1 Stress, Burnout, and Exhaustion During Emergency Remote Teaching

The abrupt switch to distance learning had a great impact on the stress and burnout of teachers. A study carried out one year after the pandemic revealed that 72% of educators have been very or extremely stressed and 57% have been very or extremely high in burnout (Kotowski et al., 2022). High percentages of educators had a problem regarding work-family balance, and 37% indicated that they never or almost never attained adequate balance and only 20% occasionally did so (Kotowski et al., 2022).

These stress and burnout levels were significantly higher than rates of teachers before the pandemic (when the baseline was close to zero), which means that there is a significant psychological burden of pandemic-era teaching (Kotowski et al., 2022; Usama et al., 2022). Several aspects of distant learning added to the high levels of stress such as technological requirements of learning, pedagogical ambiguity, social separation, work-life boundary blurring, and additional workload keeping the balance between various instructional services.

4.2 Specific Stressors in Online and Hybrid Contexts

A study singles out the stressors that define remote and hybrid instruction:

Technological necessities and insufficient technical services: Instructors with low levels of digital skills had significant learning requirements in the course of instructional tasks. The lack of technical support by institutions also added to frustration in case technology failed to work at some point during instruction (Ó Ceallaigh, 2021).

Screen overload, zoom fatigue: Prolonged videoconferencing leads to mental work overload, psychological pressure, and physical fatigue (eye strain, posture problems). Teachers have complained that virtual meetings were exhausting due to the intensity and absence of environmental change (Wiederhold, 2020). Neurophysiological studies record that videoconferencing requires an increased cognitive load on the nonverbal processing of communication via screens, handling self-presentation issues, and a lack of environmental stimulation in contrast to face-to-face communication.

Remote isolation and decrease of collegiality: Remote teaching killed informal teacher-teacher interaction, hallway talk, and joint planning. Educators all claimed that they felt lonely and a lack of belonging to the professional community (Trikoilis and Papanastasiou, 2020). Spontaneous peer support and collaborative problem-solving that would have traditionally been found in schools was not possible due to physical distance.

Pedagogical uncertainty: Online instruction has been raising doubts among many teachers, especially

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instructing hands-on courses and younger learners (Code et al., 2020). The fact of not knowing the quality of the instructional conditions in the emergency conditions brought about moral distress in teachers who believed in quality education.

Increased work-family boundary erosion: The home-based work eroded business and personal boundaries. The teachers had difficulties with setting boundaries between work and family, as home was transformed into a classroom, office, and living room at the same time (Kotowski et al., 2022).

Growth in workload: Despite the belief that remote instruction could be less stressful, many teachers had grown to experience significantly more workload balancing between various formats (synchronous/asynchronous, in-person/online), coordinating with other teachers, troubleshooting technology, and offering more support to struggling students and families (Sayer & Braun, 2020).

4.3 Emotional Intelligence and Metacognition as Protective Factors

A study on resilience among teachers working remotely during the pandemic that investigated stress and burnout underlines the protective role of emotional intelligence and metacognition in reducing the stress and burnout (Iacolino et al., 2023). Those teachers who had higher emotional intelligence such as self-awareness, emotion regulation, empathy, and relationship management had reduced stress and burnout despite comparable remote teaching demands.

Metacognition- the reflection of thinking processes and learning of the self-teachers were able to identify stress responses, strategically deal with emotions, and change coping strategies. Educators who have adopted metacognitive mechanisms such as mindfulness, intentional focus on teaching practice and conscious emotion regulation were more resilient and well (Iacolino et al., 2023).

These results indicate that institutional resources and professional learning that target both the emotional and psychological aspects of the teaching process, rather than just the technical skills, are helpful in sustaining teacher well-being when teaching under demanding instructional settings (Iacolino et al., 2023).

4.4 Disproportionate Impacts on Specific Teacher Populations

It has been found that effects of remote and hybrid instruction differed significantly according to the demographics of teachers, the subject areas, and the student groups. EFL teachers experienced specific problems. Emergency remote transitions posed significant communication overcrowding to multilingual families, and schools usually did not offer much of translation or accommodation to non-English-speaking parents (Sayer & Braun, 2020). Educators had a hard time helping students acquire language in front of a screen that provided no meaningful peer communication and minimal stimulus of environmental context to help the language acquisition (Sayer and Braun, 2020).

Educators who taught low-income students said they experienced extra stress dealing with digital inequalities, accessing devices, and dealing with food insecurity and housing instability exacerbated by pandemic factors (Sayer and Braun, 2020). The teachers in special education found it hard to individualize teaching and offer the services needed in online platforms (Sayer and Braun, 2020).

Secondary obstacles were teachers of applied subjects and laboratory-based sciences who expressed significant concern about the quality of education when the development of hands-on competencies went online (Code et al., 2020). Women teachers went on to express greater burnout than their male colleagues, possibly indicating the household burden that added to the impact of the pandemic (Kotowski et al., 2022).

4.5 Mental Health Support and Institutional Responses

Although it had a significant effect on teacher well-being, most schools offered a limited amount of mental health or stress management services to educators (Kotowski et al., 2022). Not many institutions formalized the strategy of teacher health or actively pursued the danger of burnout. The teachers did not always have access to counselling, stress management training, or organizational recognition of challenges related to the pandemic.

The studies highlight the fact that the approaches to teacher well-being that are urgent nowadays involve mental health services, workload management, boundary protection, collegial support systems, and acknowledgment of the emotional labour of teachers (Miguel et al., 2021). A limited number of studies provide support in terms of interventions such as mindfulness training, support groups of peers, and organizational changes that could decrease unnecessary work demands and secure planning time (Iacolino et al., 2023).

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5. Positive Dimensions and Opportunities in Remote and Hybrid Teaching

5.1 Pedagogical Innovation and Experimentation

Pedagogical Innovation and Experimentation emphasizes the importance of the pedagogical experiments and the innovations.

Contrary to great odds, there is some literature on positive dimensions that arise with remote teaching during the emergency and pandemic times. The educators indicated that they found pedagogical opportunities in online settings, such as the increased capacity to apply active learning methods, differentiated instruction, recording lessons that can be reviewed asynchronously, and the opportunity to pace the instruction flexibly to meet the needs of the varied learners (Miguel et al., 2021).

The instruction that was mediated by technology allowed the exploration of new teaching methods. Video links that allowed them to interact in real-time with native speakers allowed language teachers to find authentic international relationships where it was once impractical due to the limitations of classroom-based learning (Kern, 2024). Educators used break out rooms and collaboration online resources to promote peer-to-peer learning in new formats.

According to some teachers, the need to design online instruction brought them to the problem of questioning the basic purpose of pedagogy and made them wonder whether face-to-face practices were the best practices or not (Paesani, 2020).

5.2 Increased Accessibility for Some Student Populations

Online and hybrid classes became more accessible to some students. Anxious learners also at times excelled in the more regulated online classes. The disabled students enjoyed flexibility in pacing, less against the environment overstimulation and could use assistive technologies more naturally in the online environment. Recorded lessons offered an opportunity to review lessons in support of students who required the extra processing time.

The focus on universal design as a learning and accessibility in online learning allowed professional development to help teachers to make their learning environments more inclusive than many had tried to do previously (Ó CEALLAIGH, 2021).

5.3 Family Engagement and Home-School Connections

Remote teaching enhanced the visibility of instructional practices and student learning by the family. Parents also received insight into the classroom activities, curriculum content, and the learning difficulties of their children (Sayer and Braun, 2020). Other studies report improved home-school relationships that have cropped up as a result of heightened family consciousness of the academic procedures.

But the visible family also introduced new problems such as parent complaints, monitoring of teaching and other communication pressures on the teachers- this is not a totally positive result.

6. Evidence-Based Approaches to Teacher Professional Development for Online and Hybrid Instruction

6.1 Coherent, Systemic Professional Development Frameworks

As online and hybrid teaching are taught, effective TPD involves consistent and planned methods that combine various elements instead of workshops (Lockee, 2020). There should be frameworks that include:

Specific institutional vision and objectives of online and hybrid instruction that were consistent with student learning outcomes and institutional mission.

Needs assessment that determines the current competencies of teachers, learning needs and implementation barriers.

Holistic development of competencies on the technological, pedagogical, subject matter, and emotional aspects of online instruction.

Constant support and follow-up after the first training in form of continuous coaching, access to resources, and involvement of the community.

Assessment and systematic review of TPD performance and application and improvement of methods.

It becomes necessary at an institutional level, including institutional commitment and resource allocation, as successful TPD needs specific time, money, staff, and space where teachers can study and practice new skills without growing overload with new tasks (Lockee, 2020).

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6.2 Coherence and Sustainability in Online Teaching Professional Development

Studies prioritize the need to be coherent in all the professional development activities, to be consistent in the first training, continuing support, classroom practice, and assessment (Paesani, 2020). Incoherent TPD Training that focuses on constructivist and student-centered training methods and evaluating based on traditional content knowledge causes confusion and discourages the real change in practice.

Sustainability involves constant encouragement not only in early stages of implementation. The educators who experiment with new methods face the challenges which cannot but be solved by problem-solving, encouragement, and altered strategies. Teacher development and practice are maintained in professional learning communities that offer ongoing contact, support, and mutual improvement of practices after the initial excitement.

6.3 Technology Training Integrated with Pedagogical Development

Effective TPD does not separate technology skills development and pedagogical training, as these two are integrated. The teachers do not only need technical expertise with the tools but knowledge about how technology can be used to aid learning, and how one can purposely design learning to take advantage of technological opportunities, which are known as technological affordances (Paesani, 2020).

The studies on language teacher professional development in online teaching focus on the necessity that successful strategies an instructor will employ to train teachers in use of technology basing on disciplinary basis and distinctive to language learning pedagogy. Educators gain insight into the ways in which videoconferencing can facilitate the idea of authentic communication, how asynchronous discussion forums can contribute to developing the language skills of writing, and how recording tools can help students to view and analyze the language they produce (Paesani, 2020).

Decontextualized technology training is not as effective as problem-based professional development when educators use emerging technologies in solving real-life instructional problems (Murai and Muramatsu, 2020). Design-based TPD programs taught teachers used practical project work to develop online lesson content, got feedback and coaching, solved problems together, and constantly optimized methods depending on the experience of implementation.

6.4 Addressing Subject-Specific and Context-Specific Needs

Successful TPD understands that online learning needs are significantly different in different fields. The issues of teaching practical skills in virtual space, such as hybrid methods of delivering the virtual instruction with the use of limited in-person laboratories, supervising student projects remotely, and the use of virtual demonstration methods should become the focus of professional development in the field of technology and applied areas (Code et al., 2020).

TPD in language education ought to be focused on establishing interactive communication channels and controlling the effects of diminished social interaction. The professional development of science education should refer to simulations and virtual laboratories and consider the limitations in comparison with the physical laboratories. The concerns that should be dealt with in the early childhood education TPD are the issues of screen time, the tendency of parents to prefer face-to-face teaching, and the developmental suitability of web-based learning.

Professional growth should attend to the valid concerns of teachers concerning the limitations of online instruction with their respective student groups and subject matter instead of regarding the concerns as opposition to change.

6.5 Supporting Teacher Educators in Online Contexts

Asynchronous online environments need particular professional development of teacher educators themselves. The studies indicate that teacher educators have unique issues with designing asynchronous interactions, building authentic engagement when there is less physical presence and more synchronous interactions, and the development of scholarly community in all-online structures (Ó CEALLAIGH, 2021).

Proper TPD of teacher educators focuses on approaches to building teaching presence and immediacy in the asynchronous setting, structuring the interaction around real academic assignments, supporting student-student interaction in the academic direction, and sustaining student engagement in the absence of additional face-to-face interaction.

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7. Essential Elements of Sustainable Hybrid and Remote Instruction

7.1 Balancing Synchronous and Asynchronous Instruction

The studies acknowledge that the successful hybrid and distanced learning integrates both synchronous and asynchronous elements in a calculated and tactical manner instead of applying a single modality (Miguel et al., 2021). Wholesale synchronous education mimics the classroom time constraints, which are applied to the web and are contributing to Zoom fatigue due to too much screen time. Only asynchronous instruction involves no real-time interaction on the part of the learner and can be isolating to the learner and the instructor.

Good hybrid and distance learning is usually a mix of:

1. Community building, complex discussion, real-time feedback and interaction session where immediate responsiveness is needed. It has been recommended that continuous video conferencing should not be prolonged to avoid mental overload (Wiederhold, 2020).
2. Activities in asynchronous learning that can support flexible pacing, allow time to process complex ideas, multimedia-based, and other modalities (reading, writing, multimedia), and different schedules and time zones.
3. Expansive participation opportunities to allow students to participate in real-time when the situation permits but offer asynchronous alternatives that allow all students to contribute no matter the technical constraints or other situations.
4. Professional development should be built to build attributes of teachers that plan coherent synchronous-asynchronous combinations instead of considering them as distinct or inferior/superior modalities.

7.2 Reducing Cognitive Overload and Preventing Burnout

Remote and hybrid instruction should be long-lasting and sustainable, which means that it is necessary to ensure that teachers are not overburdened with work and subjected to cognitive overload that predisposes them to burnout. Strategies to be applied practically will involve:

Certain regulations about working hours: It will be important to set expectations concerning the response time to emails, scheduled synchronous meetings, and availability during the non-working hours. The flexibility of remote instruction may be a liability in case teachers operate indefinitely.

Realistic workload expectations: It is important to understand that it will take a long time and planning to design quality online instruction, and not to expect teachers to achieve similar content coverage during their learning of new instructional modalities.

Less meeting burden: Eradicating the unnecessary virtual meeting; conserving time to concentrate on productive work by decreasing the obligations of a synchronous meeting.

Technology breaks and technology sabbaticals: By arranging regular disruptions in virtual training: days with no videoconferencing, weeks with fewer hours of intensive interaction, etc.), it is possible to avoid cumulative fatigue.

Providing tools fairly: Teachers should be given the opportunity to work with high-quality technological equipment, sufficient bandwidth, and technical support instead of being asked to use their own resources to perform work-related tasks.

Policies in institutions and direct authorization of such practices are necessary-goodwill about limits is not enough without organizational safeguards and administrative role modeling.

7.3 Fostering Community and Collegial Connection

Although remote learning is remote and physically distant, professional community and collegial bond have to be carefully nurtured to ensure sustainability. Strategies include:

Frequent live interactions of personnel: Short virtual faculty meetings, departmental meetings and informal social time allow collegial connection even though geographically separated.

Peer mentoring and buddy systems: Experienced and novice online teachers who are assigned to work together help to promote learning and emotional support.

Communities of practice: weekly or monthly gatherings of teachers of similar disciplines or courses online to present resources, discuss difficult issues and problem-solve as a community.

Rewards and recognition: The overt recognition and appreciation of the effort of teachers, getting

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them to celebrate and confirm difficulties keep morale high and commitment intact.

It is stressed by research that professional isolation is a major stressor in remote teaching; institutional concern of community and belonging becomes a protective factor against burnout and demoralization (Trikoilis and Papanastasiou, 2020).

7.4 Post digital Pedagogies and Sustainable University Teaching

New studies suggest that there is a necessity to have post digital pedagogies that cross binary lines between digital and non-digital, online and face-to-face learning. The post digital approaches acknowledge that successful teaching in modern settings involves fluency based on both digital and non-digital practices in context-dependent but meaningful combinations (Markauskaite et al., 2023).

Instead of defining digital competences as the technical skills that allow using technology, post digital frameworks focus on ecological competences that involve knowledge of how digital tools are embedded in human practices in educational ecosystems at macro (policy), meso (institutional), and micro (classroom) levels (Markauskaite et al., 2023). The concept of sustainable university teaching presupposes the ability of teachers to engage in an agentic manner with the mission-oriented toward the future of an institution instead of just technical expertise with tools (Markauskaite et al., 2023).

It is the viewpoint that changes the orientation of professional development to encompass not digital competencies, but encompass holistic professional practice that includes technological, pedagogical, emotional, and ethical aspects and considers larger sustainability and societal issues and needs (Markauskaite et al., 2023).

8. Organizational and Systemic Supports for Teacher Well-being and Professional Development

8.1 Institutional Infrastructure and Technical Support

Good remote and hybrid teaching would need strong institutional support such as:

Access to the Learning management system: All teachers and students should have access to functional supported learning management systems.

Stable internet connection: Having sufficient bandwidth that allows people to participate in videoconference and deliver content at the same time.

Hardware provision: This involves supplying teachers with the right machines, cameras, microphones, and other technology instead of leaving this to be individually supplied.

Technical assistance services: Dedicated staff technical assistance: Services to provide quick response in case of technical issues on the part of the teachers.

Protections against data security and privacy: The introduction of systems that safeguard the data of students and privacy of teachers in cyberspace learning.

Most of the institutions did not adequately respond to these infrastructure requirements during the transition to emergencies, and teachers were required to supply their own resources, troubleshoot issues of their own, or use substandard technology. A long term remote and hybrid teaching practice will demand institutional investment in infrastructure as critical educational infrastructure in the same way that physical facility investment is.

8.2 Policy Supports and Workload Management.

The institutional policies define whether remote and hybrid instructions are sustainable or they lead to teacher burnout. Important policies include:

Online instruction time requirement in workload allocation: Providing teachers who prepare to teach online instruction with sufficient preparation time instead of expectations to learn to teach new formats without adding the same to current workloads.

Things are clear about synchronous requirements: it is essential to form institutional policy that will determine permissible teaching loads and safeguard against unlimited virtual meeting requirements.

Flexible scheduling policies: Allowing more flexible institution of literature not duplicating conventional bell schedules where such flexibility is more beneficial to education.

Provision of professional development time: Provision of teachers with specific time to engage in TPD without taking time at the expense of instructional or planning time.

Performance assessment systems that appreciate quality online teaching: Assuring that evaluation

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systems are able to value and appreciate excellent online teaching and not just valuing traditional face-to-face teaching.

Individual teachers will not be able to maintain healthy boundaries and realistic workload without the support of a policy; institutional commitment is needed.

8.3 Leadership and Administrative Support

Leadership conduct and institutional focus has a significant impact on teacher well-being and professional progress in remote and hybrid conditions. Supportive leadership incorporates:

Clear vision and communication: While teachers need clarity in institutional vision of hybrid/online instruction and openness regarding the decision made about their work.

Adequate resource allocation: This involves having enough funding, people and technology to teach well instead of implementing cutbacks when changing administrations.

Observable administrator involvement: Involvement in professional development with teachers; showing by example that remote/hybrid education is a priority at the institutional level.

Recognition of obstacles: Recognition of conditions of difficulty in the pandemic-era transitions and acknowledgement of the validity of the concerns of the teachers instead of downplaying or excluding the legitimate challenges.

Voice of teacher in decision making: Involving the teachers in coming up with policies and practices that concern their work and not dictating to them on how things should be done.

Mental health and wellness support: Counseling, resources on stress management and direct emphasis on teacher well-being.

In schools that reported the supportive behaviors exhibited by administrators, teacher morale was higher, burnout rates lower, and the implementation rates more successful than in schools with authoritarian methods.

9. Implications for Future Hybrid and Remote Instruction

9.1 Moving Beyond Emergency Response to Intentional Design

With the shift of educational systems to hybrid and online instruction, lessons learned are of an important aspect to be considered, and future strategies must be developed on the basis of evidence. Instead of imitating the emergency chaos, institutions ought to make planned hybrid and online programs that include:

The pedagogical design that is student-centered with explicit learning outcomes and activities that clearly exploit the affordances of the online and hybrid modals instead of simply portraying face-to-face approaches.

Full-scale professional development of all including teachers involved, long before instruction changes can occur and during implementation.

Protecting sustainability and well-being against burnout and teacher turnover.

Fair access and accommodation to allow all students to be involved at full capacity without consideration of the availability of technology, language, learning requirement, and socioeconomic status.

Quality rather than coverage: Giving priority to depth of learning and meaningful engagement as opposed to trying to cover the same amount of content.

9.2 Blended Approaches and Flexibility

There is an indication that the most effective teaching in most situations with respect to both online and face-to-face delivery is purposeful mixing of both online and face-to-face elements (Kern, 2024; Miguel et al., 2021). Blended approaches enable:

Adaptability to a variety of situations: Students with transportation problems, employment issues, health-related complications can learn online; others in-person.

Capitalizing on all modalities strengths: Face-to-face time to have complex conversations, practical tasks, building relationships; the internet time to have individualized learning, asynchronous learning, pacing.

Lower facility pressures: There are cases where institutions found the capacity to accommodate a larger number of students under hybrid models without increasing the physical facilities.

Improved access: Hybrid solutions can allow students who are physically separated or not able to travel to attend day-to-day face-to-face courses.

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But, blended instruction is complex and needs advanced design and professional growth. The mere provision of optional online substitution to face-to-face teaching without redesigning pedagogical elements generally yields less good results than planned hybrid solutions.

9.3 Language and Disciplinary Evolution

The monitoring of our ancient languages is essential for understanding the development of the ancient world and especially the evolution of ancient states. Language: The tracking of our ancient languages is vital in explaining how the ancient world evolved and primarily how the ancestral states evolved.

Further studies and professional growth ought to take into consideration the changing language regarding online teaching and professional growth. It is better to move past the term emergency remote teaching or distance learning towards a more accurate term such as hybrid instruction, online learning or technology-mediated instruction. The use of loaded language that implies online instruction as something temporary or inferior assists in the process of moving toward the consideration that a variety of modalities may be equally useful, provided they are designed properly (Kern, 2024).

Further, disciplines need to remain in the process of coming up with discipline-based professional growth and pedagogical models as opposed to general online instructional models. The particulars of challenges and opportunities of disciplines are particular to language, laboratory sciences, performing arts, clinical healthcare, and engineering.

10. Recommendations for Educational Policy and Practice

10.1 System-Level Policy Recommendations

1. Continuing priority post pandemic emergency: Invest heavily in teacher professional development of online and hybrid instruction.
2. Require consistent TPD models that are technology, pedagogy, emotional support, and community building based and not workshops-only.
3. Determine infrastructure investment needs such as learning management systems, connectivity, hardware provision, and technical support.
4. Leadership of support teachers and voices in designing hybrid and online instruction, making sure that the teachers are involved in making decisions about their work.
5. Guarantee teacher health by job regulation, psychological health provision, and demarcation.
6. Demand continuous evaluation and enhancement of online and hybrid education instead of the status quo.

10.2 Institutional-Level Recommendations

1. Create systematic professional development plans that meet every phase of teacher development in online and hybrid education.
2. Build communities of practice that offer long-lasting collegial interaction as well as peer learning.
3. Ensure that there is sufficient technical support to allow teachers to concentrate on teaching and not on technical troubleshooting.
4. Establish clear policies with expectations, workload, synchronous expectations and performance assessment.
5. Introduce wellness programs to deal with teacher mental health and burnout prevention.
6. Not only compliance in evaluation, but excellent online and hybrid teaching should be rewarded.
7. Seek teacher feedback, in an organized manner and act upon concerns and recommendations.

10.3 Teacher-Level Strategies

1. Participate actively in the process of professional development understanding that to be effective in online and hybrid teaching, one has to learn a lot.
2. Engage in communities of practice with colleagues who teach the same subjects or subjects; use group problem-solving.
3. Establish and ensure limits that guard against work-life, as well as burnout.
4. Test and experiment online and hybrid practices; understand that the first attempts might not be perfect with constant improvements enhancing the effectiveness.

5. Connect and engage the students more than cover the content; you must keep in mind that meaningful engagement contributes to the learning process more than transmission of as much content as possible.

Take care of oneself and get help when in distress; understand that difficulties are not signs of weakness but are considered as normal and it is professional to find help.

11. Conclusion

COVID-19 pandemic The swift move to remote and hybrid delivery emphasized the imperative to meet the teacher professional development infrastructure, institutional support networks, and the focus on educator well-being. Although the emergency response proved the flexibility and resilience of teachers, the human cost of it, such as high stress levels, burnout, demoralization, and the desire to leave the job, also require immediate consideration.

It is increasingly being proven that remote and hybrid teaching entails significant changes in professional development compared to traditional face-to-face teaching, and it combines several dimensions: technological, pedagogical, emotional, and community. Single sessions of technology training are not sufficient, and coherent, long-term strategies that combine primary formation, continuous mentorship, teacher community, and institutional resources are required to ensure quality teaching and teacher well-being.

It is important to note that technology, in itself, does not pre-determine the quality of instruction or security of teachers. Instead, the manner in which technology is adopted, i.e., the emergency response process not followed by preparation or deliberate planning using pedagogical concepts, impacts immensely. To sustain remote and hybrid learning, the well-being of teachers must be perceived as the core of quality and not an incidental issue because burned-out and demoralized educators cannot efficiently work with students no matter how sophisticated the technology is.

As educational systems keep adopting the elements of hybrid and remote instruction in their instruction portfolio, evidence-based practices that include holistic professional growth, institutional support, investment in technology infrastructure, workload security, community development, and a clear focus on the welfare of educators can provide access to the possibilities of sustainable models that benefit both the student and the educator. The pandemic has forever changed the educational environments; making the struggle to get to this point and keep the educators alive is the duty of the collective global value of education systems.

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Informed Consent Statement

The participant in the study gave their informed consent.

Statement of Data Availability

The corresponding author can provide the data used in this study upon request.

Conflict of Interest

The authors declare no conflict of interest.

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