Doctoral thesis submitted to
the Faculty of Behavioural and Cultural Studies
Heidelberg University
in partial fulfillment of the requirements of the degree of
Doctor of Philosophy (Dr. phil.)
in Education

Title of the publication-based thesis

How do teachers' emotions impede or facilitate transformative learning?

presented by
Yin Yung Chiu

year of submission
2025

Dean: Prof. Dr. Guido Sprenger
Supervisor: Prof. Dr. Anne Sliwka

Acknowledgements

Words cannot express my gratitude to my professor and mentor, Anne Sliwka, for this journey, which would not have been possible without her. She has been very kind and understanding with me, and I cannot even count the number of times she has given me a helping hand when things seemed dark and difficult. She is also one of the most devoted academics I personally know, and her enthusiasm for truth and knowledge has always inspired me deeply.

I also could not have undertaken this journey as far as I have without Professor Ted Fleming, who generously shares his knowledge and expertise in transformative learning, shows me how to be a responsible researcher and an inquisitive writer, consistently takes the time to answer all my questions and queries (big and small, professional and personal), and so genuinely shares with me his well-rounded perspectives.

Additionally, this work was made possible with the support of a scholarship from the German Academic Exchange Service (DAAD). Thanks should also go to the study participants who trusted me and openly shared their life stories and experiences with me. Their openness has provided me with a wealth of inspiration for my writing.

I would like to extend my sincere thanks to my parents and friends who believed in me and supported me in pursuing my dreams, especially CK, Ahmad, and my sister Yvonne, who are always there when I need guidance, advice, or a shoulder to cry on, whether in life, at work, or the gym. Most importantly, I would like to express my deepest appreciation and gratitude to my boyfriend. Aloïs has always been there for me, with me, through every email that brings me on and off a roller coaster, with every conference to which I feel hesitant to send an abstract. He has always been the one who encouraged me to give things a try no matter what. His, my sister's and my friends' belief in me has kept my spirits and motivation high during this process.

Table of Contents

Declaration in accordance to § 8 (1) c) and d) of the doctoral degree regulation of the Faculty

FAKULTÄT FÜR
VERHALTENS- UND EMPIRISCHE
KULTURWISSENSCHAFTEN

UNIVERSITÄT
HEIDELBERG
ZUKUNFT
SEIT 1386

Promotionsausschuss der Fakultät für Verhaltens- und Empirische Kulturwissenschaften der Ruprecht-Karls-Universität Heidelberg / Doctoral Committee of the Faculty of Behavioural and Cultural Studies of Heidelberg University

Erklärung gemäß § 8 (1) c) der Promotionsordnung der Universität Heidelberg für die Fakultät für Verhaltens- und Empirische Kulturwissenschaften / Declaration in accordance to § 8 (1) c) of the doctoral degree regulation of Heidelberg University, Faculty of Behavioural and Cultural Studies

Ich erkläre, dass ich die vorgelegte Dissertation selbstständig angefertigt, nur die angegebenen Hilfsmittel benutzt und die Zitate gekennzeichnet habe. / I declare that I have made the submitted dissertation independently, using only the specified tools and have correctly marked all quotations.

Erklärung gemäß § 8 (1) d) der Promotionsordnung der Universität Heidelberg für die Fakultät für Verhaltens- und Empirische Kulturwissenschaften / Declaration in accordance to § 8 (1) d) of the doctoral degree regulation of Heidelberg University, Faculty of Behavioural and Cultural Studies

Ich erkläre, dass ich die vorgelegte Dissertation in dieser oder einer anderen Form nicht anderweitig als Prüfungsarbeit verwendet oder einer anderen Fakultät als Dissertation vorgelegt habe. / I declare that I did not use the submitted dissertation in this or any other form as an examination paper until now and that I did not submit it in another faculty.

Vorname Nachname / First name Family name	Yin Yung Chiu
Datum / Date	07.04.2025
Unterschrift / Signature	The Dean's Office of the Faculty of Behavioural and Cultural Studies has a signed version of this declaration dated 07.04.2025.

1. Introduction:

"All thoughts start from emotions." — Leonardo da Vinci.

We are in an era of rapid sociopolitical and technological changes, which are emotional. In an era of emotions, education must extend beyond the phase of knowledge transmission, and the irreplaceable purpose of education is to foster profound, transformative experiences (Fleming et al., 2019). Transformative learning (TL) is crucial in today's world, as it encourages learners to critically reflect on their assumptions and engage with the world in a meaningful way. TL serves as the foundation for lifelong learning and personal growth. TL occurs not only to students but to everyone, including educators of all ages. Educators face immense pressure in our VUCA (volatility, uncertainty, complexity, ambiguity) world, making it crucial to navigate complexity and change. This thesis examines the emotional dimension of transformative learning by addressing a key question: How do teachers' emotions facilitate or impede transformative learning? While TL is often associated with critical reflection, which is perceived as a rational process in Mezirow's framework, this thesis argues for the need to reassess critical reflection through the lens of Franz Brentano's mental phenomena. Emotions are inseparable from thinking; emotions are, in fact, a way of thinking per se. Although TL is often anchored in Mezirow's critical reflection, which tends to be framed as a rational process, this thesis argues for a re-examination of critical reflection through the lens of Franz Brentano. The concept of mental phenomena sheds a new light on critical reflection; emotions are not separate from cognition and may indeed be a form of thinking. This thesis will explore this proposition in depth, tracing how emotions are not just add-ons to thoughts but the medium itself, especially in the context of TL.

Critical reflection is similar to a process in which individuals hold up a mirror to their beliefs and assumptions; it is itself an emotion-inducing and emotion-driven experience. This research examines whether these emotions serve as catalysts or barriers to transformation. The COVID-19 pandemic is presented as a disorienting dilemma that has brought unprecedented challenges to educators worldwide, and their professional identities and pedagogical approaches are being fundamentally challenged. While emotions play a critical role in this experience, educators' emotional experiences have been downplayed, as they are expected to appear emotionless to be professional (Chen, 2019). In the digital era, where technology increasingly mediates education, distinguishing between humans and machines becomes increasingly indispensable.

This research examines empirical data from 38 educators in 10 countries, revealing the complex interplay among emotions, TL, and digital education. Digital humanism is more essential than ever, and educators' humanistic features, such as the ability to feel and think simultaneously and engage emotionally, should be recognised and valued. Educators shape learning through emotional engagement, creating a space for critical thinking, deep reflection and transformation. This thesis is publication-based, comprising six peer-reviewed publications that collectively address essential aspects of the key research question. The first section covers the literature review, and the theoretical framework is introduced after the research gap has been identified. The potential of TL is further discussed below before an overview of the methodology and data analysis of the six articles are presented in detail. Several limitations of the thesis are then addressed, after which the articles are introduced individually. An overall discussion is written to summarise the research. This thesis ends with reflections, conclusions, and suggestions for future research.

2. Literature Review:

This section aims to achieve three objectives: to define the scope of the research, provide an overview of transformative learning, and explore its potential in the digital era, with a focus on the role of emotions in this process. This review addresses two primary research questions: first, how do emotions facilitate transformative learning, and second, how can this process be adapted to the digital age?

Initially proposed by Mezirow in 1978, transformative learning theory has faced criticism for its rigid dichotomies, which may oversimplify the learning process and undermine the complexity of transformation. Notable critiques include rational versus emotional discourse (Hoggan et al., 2017; Mälkki, 2010; Tennant, 2012), the individual versus social approach (Brookfield, 2012; Fleming, 2016; Merriam & Bierema, 2013), and the neglect of imaginal and spiritual dimensions (Cranton & Taylor, 2012; Dirkx et al., 2006; Kokkos, 2012). Hoggan et al. (2017) highlighted a sense of "stuckness" within the theory and its critiques, advocating for the incorporation of continuity, intersubjectivity, and emancipatory praxis.

Despite this momentum, the emotional dimension remains underdeveloped in the literature. Current literature has not effectively clarified the role of emotions in transformation or how they might bridge these "false dichotomies" (Hoggan et al., 2017, p. 54), thereby enhancing our understanding of the complexity involved in transformation. Currently, emotions have been sidelined and not sufficiently integrated into the theory, despite their evident impact on cognition and learning (Nussbaum, 2001). This work stresses how emotions are not simply inherent in learning but are integral to learners' potential for transformation. This research aims to provide empirical evidence that challenges these misconceptions and argues that emotions play a crucial role in cognition, transcending learners' identities, beliefs, and discourses of action. Furthermore, it illustrates the potential and power of emotions when individuals recognise and consciously harness them throughout the transformation process.

2.1 Transformative Learning and its Development

Transformative learning theory is arguably one of the most influential theories in the field of adult education. Introduced in 1978, Mezirow developed the theory based on his study of 83 adult women returning to community colleges in the United States. His research revealed the fundamental shift (or perspective transformation) experienced by these women, enabling them to challenge past assumptions about their roles, identities and societal expectations (Mezirow, 1978). TL is grounded in constructivism and critical theory. Mezirow drew on Habermas's concept of three types of learning: instrumental, communicative, and emancipatory (Fleming, 2022; Hoggan et al., 2017; Mezirow, 1981; Newman, 2012) and formulated the dialectical praxis of transformative learning (Fleming, 2022; Mezirow, 1978). He postulated critical reflection as the cornerstone of transforming learners' beliefs and experiences. Focusing on the rational and cognitive aspects of transformation, he introduced ten phases to provide a structured framework that exemplifies how adults undergo profound shifts in perspective (Mezirow, 2000, p. 22). The 10 phases are as follows:

- A disorienting dilemma (triggering an event that challenges existing assumptions)
- Self-examination with feelings of guilt or shame
- A critical assessment of assumptions
- Recognition that others have gone through similar transformations
- Exploration of new roles, relationships, and actions
- Planning a course of action
- Acquiring knowledge and skills for implementing new roles
- Addressing new roles and behaviours
- Building competence and confidence from the new perspective
- Reintegrating the new perspective into one's life

These phases attempt to describe how and why perspective shifts occur. While they do not unfold in a linear sequence, the possibilities of overlapping, repeating, or not occurring leave flexibility for learners to learn in their own dynamic. According to Mezirow, the key element is critical reflection, which "essentially calls into question and invites exploration of alternative ways of being in the world" (Dirkx, 2006, p. 19). As described by Mezirow, "We transform our frames of reference through critical reflection on the assumptions upon which our interpretations, beliefs, and habits of mind or points of view are based" (Mezirow, 1997, p. 7). Inspired by Freire (1972), Mezirow's critical reflection is similar to "conscientisation". Freire emphasises how learners/participants move from passive acceptance to realising their influence and critical consciousness (Merriam & Bierema, 2013). This empowerment process begins with dialogue and critical reflection, which Mezirow describes as assessing the validity of one's assumptions, beliefs and experiences to achieve a more inclusive perspective (Mezirow, 1991).

Inspired by Habermas's emancipatory learning and Freier's conscientiousness, Mezirow proposed a taxonomy of critical reflection, consisting of subjective and objective types of reflection to theorise and strategise ways to bring about democratic socialism (Brookfield, 2008, p. 96). Critical reflection has three fundamental dimensions: content reflection, process reflection, and premise reflection (Mezirow, 1991). The theory was expanded into eight categories. *Objective,* critical reflection includes instrumental reflection (evaluating the effectiveness of a strategy) and practical reflection (examining the underlying assumptions embedded in interpersonal relationships, roles and social norms), *subjective* critical reflection includes narrative reflection (reviewing past experiences to understand current beliefs), systemic reflection (critiquing the broader sociocultural structures that influence personal beliefs), therapeutic reflection (understanding how emotions and affective factors influence thought processes), ideological reflection (questioning the ideological basis of one's beliefs), moral-ethical reflection (evaluating personal values and ethical standards) and epistemic reflection (critically analysing the sources and validity of one's knowledge) (Mezirow, 1991). The dimensions and key aspects of critical reflection explain how deeply individuals engage in their reflections, and the taxonomy provides the categories and ways in which individuals critically assess their assumptions and experiences. According to Mezirow, the process of critical reflection relies heavily on rational discourse, and although he did not deny the affective dimensions, emotions and affection are considered merely influences on personal beliefs, as reflected in his taxonomy.

Mezirow's critical reflection is influenced by several key ideas, one of which is the constructivist and cognitive developmental perspectives, with notable contributions from Piaget, Vygotsky, and Habermas, until 2022, when Fleming expanded the theoretical basis to include Axel Honneth and Oskar Negt. However, TL's central concept remains in some presentations of TL its critical reflection, the idea that TL occurrence is bound to be the prerequisite of individuals' critical examination of their assumptions, beliefs and perspectives (Dirkx et al., 2006; Hoggan et al., 2017; King, 2004; Mezirow, 1991). This idea is closely influenced by Jürgen Habermas' critical theory and his emphasis on questioning and understanding how sociocultural norms shape one's knowledge and behaviours (Fleming, 2022; Mezirow, 1981). The idea is extended to individuals' personal and critical reflection on their assumptions and actions concerning broader societal norms (Cranton, 2016; Fleming, 2022). Jean Piaget and Lev Vygotsky, two key theorists in education and learning, as well as the founders of cognitive developmental theory, also had a profound influence on Mezirow's work (Brookfield, 2012; Hoggan et al., 2017). They emphasised how individuals' cognitive structures evolve as they interact with the environment (Blake & Pope, 2008). Hogan described "the extent to which the learning affects underlying meaning-making structures" (p.51) as the key distinction between Piaget's instances of learning and Mezirow's transformation. Mezirow's theory extends to individuals' or learners' meaning-making. It demonstrates the complexity of TL, as it involves the development of a more nuanced way of thinking in individuals, particularly within their society (King, 2004; Tennant, 2012).

Habermas's theory of emancipatory learning has also inspired Mezirow's idea of critical reflection, as Mezirow draws on the emancipatory potential of learning. Mezirow extends the theory to individuals' transformed worldviews and the engagement of personal empowerment (Illeris, 2014; Tennant, 2012). Habermas's emancipatory learning is similar to that of a gardener who teaches people to recognise the tools and techniques (knowledge and methods of thinking) they use to care for their plants. The gardener helps individuals understand the social conditioning that shapes how they use their gardens. The goal is to liberate gardeners from restrictive traditions and enable people to select the most suitable tools and methods for growing their plants in authentic and fulfilling ways. Emancipation

happens to both the teacher and the learner. Mezirow's transformative learning builds on this idea, focusing on how gardeners change the way people perceive and tend to gardens. They may initially think certain plants must be grown and can only blossom in specific ways. However, TL allows them to critically reflect on their assumptions, question those premises, and realise that there are better ways to approach their garden. They might realise that, aside from flowers, growing tomatoes would allow them a chance to serve the greater good of the community. Despite the inconveniences, by choosing not to use pesticides, they contribute to better air quality for everyone in the village. This perspective shift marks a transformation in their worldview, from individual preferences to concern for collective goods, making them more capable of profoundly understanding themselves and their garden. The gardener changes how each person tends to garden, and the entire landscape now has much greater agency and purpose. Although this framework offers a hopeful and beautiful outlook for the theory, several essential aspects have been left unaddressed.

In the past decade, Mezirow's TL has been challenged by scholars who have expanded the scope of the TL framework into affective (Kreber & Cranton, 2000; Taylor, 2007), imaginal (Kasl & Yorks, 2012; Tennant, 2012), and spiritual dimensions (Dirkx et al., 2006; Ettling, 2012). TL has been challenged to be too rational, too focused on the individual, and paying too little focus on emotions (Ettling, 2012; Newman, 2012). As scholars attempt to address these gaps, Fleming's article in 2022 has demonstrated that the theoretical basis needs to be reconsidered and expanded and that the gaps could be closed through such an expansion. In the works of Dirkx (2006), Cranton (2016) and Mälkki (2010), emotions are an indispensable factor influencing an individual's thinking process (Kasl & Yorks, 2012). However, this way of framing emotions is still based on the premise that emotions and cognition are separable. Hoggan et al. (2017) attempted to dismiss "false dichotomies" by bringing in three key concepts—continuity, intersubjectivity and emancipatory praxis—to present a convincing case.

John Dewey challenged the either/or thinking in many of his works, he started with the mind-body notion and critiqued the dualism by placing emphasis on a continuous, functional relationship between stimulus and response as opposed to the mind/body split (Dewey, 1896). In *Democracy and Education* (Dewey, 1997), he rejected the theory/practice dichotomy and emphasised the importance of learning through actions. He also argued against the objective/subjective dichotomy by addressing the fact that knowledge emerges from the interaction of organism and environment, he dissolved the simplistic notions of objectivity (Dewey, 2007). An extension of it was discussed in *The Public and Its Problems* (Dewey & Rogers, 2012), in which he dismantled the individual-society dichotomy by drawing attention to the interconnectedness between individuals and society and how they shape one another.

In the article, emotions are acknowledged as the "instigator of the learning process, leading to more holistic ways of knowing and being" (Dewey & Rogers, 2012, p. 55). However, they are still distinguished from "rational thoughts." The questions of how emotions influence transformative learning and whether they impact individuals' thinking processes have remained unaddressed. This research asks, "How do emotions facilitate or impede transformative learning?" Qualitative research suggests that emotions are more than just an inseparable part of learners' thinking; they can be a form of rational thinking in their own right (Nussbaum, 2001). It argues for the necessity of harnessing the power of emotions by bringing them from the unconscious to the conscious within an individual. This will be discussed in detail in the discussion section.

2.2 The connection between emotions and transformative learning

In the theoretical framework of TL, Mezirow acknowledged that emotions play a role in the process, while often viewing them as obstacles. Specifically, he described emotional reactions to the threat to one's identity and belief system as a possible cause for learners to reject or avoid change (Mezirow, 2000). Emotions evoked by disorienting dilemmas, such as anxiety, discomfort and resistance, are considered part of the transformative process, provided learners work through them. Deep and meaningful changes might be achieved (Cranton, 2016; Mezirow, 2000). Dirkx was among the first scholars to expand the TL framework to include an affective dimension (Dirkx et al., 2006). His focus was on the 'shadowy inner world', he defined it as "the part of our being that shows up in seemingly disjointed, fragmentary, and difficult to understand dreams, of spontaneous fantasies that often break through to consciousness in the middle of a carefully orchestrated conversation" (Dirkx et al., 2006, p. 126). Deep feelings and

emotions are viewed as an element of the unconscious that remains unknown and fragmented from an individual's consciousness. The shadowy world described by Dirkx concerns "the interaction between texts and our inner lives" (Dirkx et al., 2006, p. 128). In other words, how an individual interprets and understands everyday experiences is inherently shaped and influenced by emotions. Dirkx argued that frames are constituted by "highly emotionally charged feelings" (Dirkx et al., 2006, p. 136) that are needed to process unconscious feelings and to bring those feelings into conscious awareness, and he referred to this process as soul work.

Kaisu Mälkki's discussion of emotions has framed the emotions that individuals experience when they are on the edge of transformation as 'edge-emotions' and the otherwise coherent interpretation of situations and happenings as a 'comfort zone' (Illeris, 2014). She focuses on the dynamics of cognition and emotions in meaning-making, especially the emotional challenges and possibilities of reflecting and transforming one's perspectives (Mälkki, 2010). In Mälkki's formulation, emotions orient individuals to avoid danger while tacitly seeking comfort in their interactions with the environment. In a world filled with ambiguity and daily challenges to one's frames, emotions maintain "continuity and coherence of one's meaning perspective and sense of self" (Hoggan et al., 2017, p. 55). According to Mälkki, edge emotions are unpleasant feelings that emerge when an individual's values and meaning perspectives are challenged. A collective comfort zone exists when people stay within it to protect their collective meaning perspectives (Hoggan et al., 2017, p. 56). While the idea resonates with Mezirow's Theory of Learning (TL) and the need for emancipatory learning, the key difference is that Mälkki has assigned a specific role and function to emotions in the learning process. In contrast, Mezirow regarded emotions as one of the possible factors that might affect such transformation.

Deep approaches to learning focus on meaning and encompass the possibility of change in the learner as an individual (Taylor, 2000, p. 167). Emotions are essential for engaging learners deeply in the learning process, as they activate the personal, cognitive, and motivational processes that give learning more meaning on a profound level (Cranton, 2006; Dirkx, 2006). This concept is based on the idea that individuals are more likely to connect personally with the material or context when they are emotionally engaged, providing the basis for deeper reflection beyond surface-level comprehension (Dirkx, 2012; Hattie, 2012). In other words, emotional engagement fosters a sense of involvement that is more meaningful and impactful for learners. Emotions are not supplementary to this kind of deep learning but are integral and indispensable for enabling personal growth and transformation (Hoggan et al., 2017, p. 55).

Neuroscientists and education psychologists have discussed the connection between emotions and learning. According to Carl Jung, emotions are closely tied to individuation, and they are posited as vital expressions of the unconscious mind, which offer individuals access to deeper layers of the self (Cranton, 2016; Jung, 1971). Jung defines individuation as "the process by which individual beings are formed and differentiated; in particular, it is the development of the psychological individual as a being distinct from the general, collective psychology. Individuation can be understood as a process of differentiation, having for its goal the development of the individual personality" (Jung, 1971, p. 448). In Mezirow's framework, critical reflection is crucial in the process of individuation, as it takes place when individuals break from the collective by "critically questioning the habits of mind which one has been unaware" (Cranton, 2000, p. 189). Unintentional assimilation from one's culture and primary caregivers, as well as adopting cultural values from one's community, naturally contributes to humanity's collective if critical reflection ceases. Critical reflection occurs when strong emotions arise, potentially serving as guidance and orientation for the reflection itself (Mälkki, 2010; Mälkki & Raami, 2022). Deep learning cannot happen without critical reflection, and profound, meaningful perspectives cannot be re-formulated.

Transformation is central to lifelong learning and personal growth, which is at the core of the purpose of adult education. Fleming connects the theoretical basis of TL to Oskar Negt, he highlights the relevance of 'sociological imagination' for learners' emancipation (Fleming, 2022). Fleming argues that TL must go beyond the individualistic and psychological focus of earlier models and engage with how social structures influence one's experiences (Fleming, 2022). As individuals constantly interact with the world, the socialisation contributes to a socially structured consciousness, which can hinder individuals' grasping and understanding of their own experiences. The sociological imagination encourages learners to perceive and reflect on how broader social patterns influence their

personal experiences, which is a process that fosters critical awareness. TL becomes not just a process of individual change but a critical engagement with the social world that seeks to dismantle the taken-for-granted values and assumptions which limit our understanding.

It points to the core of adult education, or perhaps education itself, which enables individuals to "think independently, dialectically, systemically, and with sociological imagination, utilising critical reflection and democratic participation" (Fleming, 2022, p. 39). King (2004), therefore, argued that adult educators' critical reflection on adult education can be a key facilitator in guiding adult learners toward developing new perspectives that are fundamentally and inclusively inclusive. Tennant (2012) specified that reflections become critical only when grounded in critical theory, wherein reflection is used to theorise and strategise ways to engage in democratic socialism. Brookfield (2008) distinguished the focus of reflection as grasping power dynamics and relationships and uncovering combating ruling class hegemony (Brookfield, 2008, p. 96). Although not explicitly discussed in Mezirow's framework of transformative learning (TL), these ideas are implicitly and indispensably implied, especially when considering how their theoretical basis aligns closely with Habermas's concept of emancipation and Freire's notion of critical consciousness (Fleming, 2022; Tennant, 2012).

When placed in the context of education, it becomes a challenge for teachers and policymakers to "combine critical thinking about systemic inequalities with a willingness to engage with emotion and affect" (Tennant, 2012, p. 72) in order to fully engage with others' experiences. In a VUCA (volatility, uncertainty, complexity and ambiguity) world, rigid prescriptions cease to exist, and correct/wrong prescriptions are almost always in the gray area. The only necessary mindset has become "an engaged messiness, a determination to solve dilemmas," allowing for continuous reflection on information (Shields, 2017, p. 15). Reflections can be meaningful and in-depth only when an individual is emotionally involved and engaged during the process. In a rapidly changing world filled with pervasive hegemonies, we risk perpetuating structural violence and deepening injustice if we neglect, if not forego, critical reflection.

Human connection is aided only when individuals' capacity to communicate and understand each other's lived experiences is enhanced. The pathway to the empathic experience and empathic connection lies in such enhancements (Kasl & Yorks, 2012, p. 508). Transformative learning, therefore, is not an add-on to learning but the essence of learning. The emotions that learners experience often prompt them to question their central assumptions and convictions (Illeris, 2014, p. 9). Mezirow's TL places emotions secondary to critical cognitive aspects (Baumgartner & Wilutzky, 2017). However, this research further argues that emotions are drivers of these mental aspects and can even be a form of cognitive thinking in itself. Scholars such as Pinar (2019) has demonstrated the intertwining relationship between emotions, curriculum, and identity, arguing that learning should engage the learner's emotional experiences. Nussbaum (2001) stressed that emotions are not irrational but integral to human intelligence and moral development, she asserts that emotions are "intelligent responses to the perception of value" (Nussbaum, 2001, p. 1). The power of emotions in learning has been recognised among educational researchers (Chen, 2021; Pekrun et al., 2018), particularly regarding how emotions are not peripheral but central to learners' experiences. The recognition of emotions in an individual's thinking process, not just through learning but also through thinking per se, is crucial in our volatile world today, where values continuously evolve in response to social, political, and technological transformations. This research argues that emotions are the guiding force of one's transformation and are inseparable from an individual's ontological and epistemological foundations. This is about adult educators, adult learners, and education itself, which must acknowledge that cognitive processing is inherently shaped and guided by emotions. Emotions and cognition complement each other, influencing how individuals engage with knowledge and meaning-making. This affective–cognitive connection suggests that critical reflection is subsumed, as Brentano (2012) described it as a 'mental phenomenon', making cognitive processing an inevitable emotional process. This will be discussed further in the next section.

3. Theoretical Framework:

Through a critical review of the literature, my theoretical framework emerges as an integration of TL, Brentano's concept of mental phenomena, and research on the connection between affect and cognition. Mezirow's (1991) TL

focuses on TL as a cognitive process; scholars such as Dirkx (2000, 2006, 2012), Mälkki (2010, 2012, 2019), Cranton (2000, 2006, 2016), and Fleming (2006, 2012, 2016, 2022) have expanded the theory and highlighted the fundamental role of emotions in the transformation process. However, through my empirical research, in which I conducted in-depth interviews with 38 schoolteachers and educators from ten different countries, I realised that the dichotomy is not an accurate representation of an individual's transformative learning experiences. In most stories and narratives of my informants, their emotions appear to be the rational outcome of reflection about the incidents rather than an impulsive reaction. Their emotions coexist with their cognitive thinking, and they are aware of the intertwinement as well. On many occasions, their emotions guided their moral decisions and choices, leading to greater benefits than merely following the protocols and rules given to them. In the following section, I introduce Franz Brentano's (2009, 2012) work to argue that emotions guide cognition and that cognition is often subsumed within the realm of 'mental phenomena'. TL is neither purely rational nor solely emotionally charged, nor is it a matter of balancing cognition and emotions. Instead, critical reflection is inherently emotional and is itself a manifestation of emotional cognition. Integrating Brentano's theory offers a valuable conceptual bridge between cognition and affect and it offers a more holistic understanding of transformation.

3.1 Addressing the Dichotomy— Emotional Cognition as Mental Phenomena

The notion of emotional-cognition (or affective-cognitive integration) emphasises that emotions and cognition are deeply intertwined, especially in an individual's meaning-making and perspective-constructing process. Emotions are inseparable from TL in two ways: first, through the emphasis on critical reflection, they act as conduits for reflective and deep learning; second, they shape learners' perceptions, guide their attention, and influence every reflective thought. Critical reflection is a key component of TL, but it is not a rational process or motivated simply by a logical thought that one needs to improve. Within an individual, Illeris' (2014) identity model explains that changes are "possible in all parts of identity," but the conditions of these changes differ depending on how our "identity defence" regulates them (p. 107). Mälkki's (2010) work does not involve the concept of identity. However, instead, she uses the concept of the mental comfort zone to explain how individuals are reluctant to change and rely on it to interpret life experiences as coherent and consistent with their meaning perspectives. In other words, changes are not initiated by cognitive structure but are motivated by an interaction among emotional, social, and cognitive structures (Illeris, 2014, p. 9).

I first illustrate the concept using a story from a schoolteacher in my research. Georgia teaches mathematics to high school students in Greece. During the pandemic, she learned that one of her students had lost her brother, and since then, her attitude toward learning has undergone a complete transformation. She lost motivation in class and became disengaged. Georgia knows she needs to take action as a teacher, so she has changed her teaching approach to make her classroom activities more enjoyable and interactive. On the surface, it appears to be a cognitive reaction from a trained teacher to a disengaged student. However, Georgia clarified that it was not about the students' academic performance. However, she empathised with the student and saw disengagement as a "silent cry for help". She modified her classroom activities not out of a sense of obligation but out of care. She incorporated music and songwriting, using mathematical symbols and equations, because, in her words, "I want to be there for them during this difficult time. I want them to know their teacher cares about them and that they are not alone." Emotional engagement does not hinder transformation; Georgia's transformation occurred after critical reflection (instrumental, practical, systemic, therapeutic, ideological, and moral-ethical). The depth of reflection that Georgia achieved was not motivated by rationality. However, it was driven mainly by emotions, her determination to be a good teacher, her empathy towards the student, which extends to all the students, her eagerness and belief that teachers should be more than delivering knowledge, and her hope that the interactivity in her classes will bring some comfort to her students.

Emotions are not separate from cognition; Nussbaum described emotions as value judgments which must be understood as cognitive states to discover values and reasons in the world (Millán, 2016; Nussbaum, 2001). Emotions are fundamental to meaning-making and learning. In the context of critical reflection, emotions drive and determine the depth of engagement for individuals to reconsider and reconstruct their perspectives. Brentano's (2012) theory of mental phenomena provides a crucial conceptual bridge in this discussion. Cognition is inherently infused with

affect (Nussbaum, 2001), and thinking is not a detached, objective process; it is always entangled with emotions. Franz Brentano was an Austrian philosopher and psychologist. His work has altered the approach in psychology, shifting the focus from experimental psychology to phenomenological and existential traditions. His work has influenced thinkers such as Edmund Husserl, Martin Heidegger, and Sigmund Freud. In my research, emotions are examined through a phenomenological lens across ten different cultures; there is a need to incorporate the work of Franz Brentano, the founding figure of phenomenology. Franz Brentano was a major psychologist and philosopher in the 19th century and was the teacher of Sigmund Freud and Edmund Husserl. He was the first to approach consciousness and psychology using the concept of intentionality; his thesis of intentional directedness became the hallmark of descriptive psychology. Brentano's principles of emotions are particularly relevant here, as it contributes to the idea that critical reflection is and should be understood as inherently emotional. Emotions are the true north of our evaluation of experiences. Three central claims are fundamental in the context of transformative learning (Montague, 2016, p. 64):

I. Emotions are sui generis intentional phenomena;
II. Emotions are essentially evaluative phenomena;
III. Emotions provide the basis of an epistemology of objective value.

First, emotions are unique mental acts that are always intentional. They are always directed towards and about something. Unlike physical phenomena, emotions are deeply intertwined with experiences, judgments, perceptions, and the process of meaning-making. Second, emotions involve an implicit assessment of the world; they are entangled with value judgments and are the outcome of an active evaluation based on the individual's perceived importance. Third, emotions are not just subjective responses; they are akin to mirrors that reflect individuals' objective values. On that basis, we can recognise what is significant to us through emotions, forming the foundation for ethical and epistemological judgements.

In the context of TL, these principles of emotions provide a critical foundation for understanding how individuals experience, evaluate, and act upon transformations in meaning-making. The first principle recognises emotions as active forces/energies that shape cognition. When individuals encounter disorienting dilemmas, edge emotions and feelings of discomfort are not just responses to external events. However, they are intentional experiences directed at the perceived contradictions between past and present meaning structures or the inconsistencies that cause discrepancies in the person's comfort zone (Mälkki, 2011, 2019). The intentionality of emotions gives them a crucial element that guides the transformation, as it helps learners navigate towards recognising the need for change. The second principle places transformation as a process of re-evaluating one's presumptions, worldviews, beliefs, frames of reference, and emotions, the internal compass that signals whether existing perspectives align with or contradict individuals' deeply held beliefs. Feelings of discomfort, frustration, anger or moral distress can indicate the misalignment between prior assumptions and new experiences, which initiates a sense of urgency for critical reflection. Under this framework, emotions provide the affective impetus to challenge individuals' entrenched meaning-making and ways of knowing. The third principle highlights the importance of TL in a person's life (lifelong learning). TL is not something that occurs in isolation; transformation is embedded in sociocultural contexts wherein the values and knowledge of a person are constructed and contested (Fleming, 2000, 2018). Emotional misalignment can occur when an individual's emotions are not in harmony with their values or when a distorted evaluation occurs.

An example can be guilt and doubts an educator in Singapore feels when their teaching style is not rigid, even if the alternative is more effective for their students. This results from values shaped by external influences and hegemonic values, social conditioning or uncritical acceptance of norms. In this case, it is due to the hegemonic values of high-stakes exams and elitism embedded in the Singaporean education system (Chen, 2024). When individuals experience this misalignment, these emotions are indicators that signal that individuals engage in critical reflection. Emotions guide individuals to discern objective value (not in a rigid or absolute sense) but rather in a way that orients them closer to their perspectives and toward coherence and ethical clarity. When individuals critically reflect on their emotions during transformation, they refine their epistemology, align with their values and help them identify hegemonic assumptions. This is also the essence of critical consciousness and emancipatory learning (Tisdell, 2012). Emotions enable this affective reorientation that guides individuals towards justice and truth.

Brentano viewed emotions as an essential aspect of mental life, deeply intertwined with cognition and intentionality (Brentano, 2009, 2012). Unlike the shadowy world described by Dirkx (2001, 2012), the unconscious emotional patterns proposed by Carl Jung (1971), or the early psychological views on emotions being driven by unconscious physiological processes (De Freitas Araujo, 2015; Ledoux, 1998), the theory of mental phenomena provides a framework to delineate how emotions function within human consciousness (Montague, 2016). Brentano distinguished between mental phenomena (acts of consciousness) and physical phenomena (objects of the external world). He postulated that all mental phenomena are categorised by intentionality (the sense that it is directed towards something). Emotions are not separate from reason; they are evaluative judgments that reveal how individuals assign values to experiences and help them perceive and respond meaningfully to the world. Imagine you are sitting in a theatre watching a movie… The movie is a mental phenomenon– the images, sounds, emotions, storyline, cinematography, and everything from the movie represent mental phenomena. They are intentional, which means that each scene and arrangement is about something, just as every thought, every emotion, and every judgement one has in mind is directed toward an object (something). The screen and the projector are physical phenomena that exist independently, regardless of whether a movie is on air. The tools provide a space where mental phenomena can be projected. Mental phenomena do not exist without being intentional (intentionality or being about something), whereas physical phenomena exist without having to be about anything.

All mental acts are intentional and directed at an object (Brentano, 2009, 2012). We do not experience emotions in isolation. When we feel something, we think about something. In other words, our emotions are not random states but are tied to the perceived values of the world. In Brentano's framework, emotions are evaluations of the world's happenings. Events take place in the world, but our perception is tied to our life world and previous experiences—it involves evaluative judgments. When a teacher experiences joy when his/her student achieves good grades, the embedded value is that 'good grades are judged as something desirable'. This principle positions emotions as central to meaning-making, influencing how experiences are perceived and interpreted. An essential aspect of Brentano's theory is that emotions can be right or wrong depending on whether they reflect reality. The underlying premise is that objective values exist in the world and that our emotions should ideally align with them. Emotional responses are considered misaligned with moral truth if a person, for instance, feels joy in response to an unjust act.

This challenges the notion that emotions are subjective, and at the same time, they are presented as cognitive acts that can be refined. When placed in the TL framework, as these misaligned emotions are tightly connected with individuals' values, perceptions and meaning-making, transformation becomes the solution and path to refinement. More importantly, since values and perceptions emerge from one's life experiences and continuous interactions with the societal environment (Fleming, 2000; Hoggan et al., 2017), a lack of critical reflection leaves individuals vulnerable to adopting distorted moral standards shaped by hegemonic influences, ultimately resulting in misaligned emotions (Brentano, 2012). When TL is viewed through this lens, emotions are the active forces that shape cognition and drive perspective shifts. The refinement of emotions toward alignment and accuracy becomes a central concern in the epistemology of individuals' meaning-making and perspective formation. The process of learning and transformation requires emotional introspection as the detector of misalignments, thereby creating opportunities to cultivate critical awareness, critical consciousness, and emancipatory learning, ultimately alleviating social injustice and contributing to the betterment of humanity (Mezirow, 1978, 1991, 2000).

3.2 Transformative Learning and its Potential in the Digital Era

Education and learning practices have been reshaped with the rapid advancement of technology. The rise of online learning platforms, virtual classrooms, and artificial intelligence-driven digital learning tools has expanded knowledge access. Especially after the pandemic, teachers and educators have had to incorporate digital tools into their classes. Pedagogical approaches have diversified, and educators' digital literacy has improved globally (Pangrazio et al., 2020). In a world filled with VUCA aspects, educators must adopt diverse approaches: "we can no longer assign a single textbook as a resource for a course and linearly teach its materials having students dutifully read page after page to complete the exercises at the end of each chapter, without ever challenging or, at minimum discussing, its underlying assumptions" (Shields, 2017, p. 6). Access to information has reached unprecedented speed and scale today, urging educators to search for new roles in helping learners learn effectively. Critical thinking has

become more important than ever in the vastness of information. Students/learners must be able to think critically about information and communication and recognise misconceptions and misconstructions of knowledge (Shields, 2017). The nurturing of critical awareness has become inevitable in our digital era today.

As Mezirow (1997) wrote, "In contemporary societies we must learn to make our interpretations rather than act on the purposes, beliefs, judgements, and feelings of others. Transformative learning develops autonomous thinking" (p.5). Autonomous thinking starts with critical awareness of how dominant ideologies/hegemonies influence and limit people's feelings (Brookfield, 2005, p. 8). This critical awareness begins with critical thinking, the ability to engage in critical reflection about oneself and the world. Brookfield defines critical thinking as "the ability to disengage from the tacit assumptions of discursive practices and power relations to exert more conscious control over their everyday lives" (p.12). In the TL framework, critical reflection is the path that heightens individuals' critical awareness, awareness of the existing limitations in one's frames of reference, and awareness of how sociocultural factors and power dynamics bind one's values. This heightened critical awareness enables individuals to achieve emancipatory learning and mitigate social injustice (Merriam & Bierema, 2013; Shields, 2017; Tennant, 2012). The goal of education is to help learners become more critically reflective. Cognitive advancement is no longer the purpose of schooling/education. We are undeniably in an era where learning has taken many forms, as advanced technological development has unlocked those possibilities. The one role of educators that makes them unique and irreplaceable is an enabler, someone who helps learners think critically, "participate fully and freely in rational discourses and action and advance meaning perspectives that are more inclusive, permeable and integrative" (Cranton, 2016, p. 11). Transformative learning is needed more than ever before.

Amidst all the changes, be they optimistic, such as innovative and diversified pedagogical approaches, or harmful, such as the (over)reliance on technology in human lives, the constant is humans, and humans are emotional beings. Emotions continue to play an important, if not central, role in learning and teaching. Emotions influence learners' motivation (Acosta-Gonzaga & Ramirez-Arellano, 2021), engagement (Pekrun & Linnenbrink-Garcia, 2022), and depth of learning (Pekrun & Loderer, 2020). Virtual environments are key to helping learners stay connected, navigate challenges and develop resilience. Digital learning risks becoming passive and transactional if emotional engagement is disregarded in learners' experiences. Considering and incorporating emotional awareness in digital education has improved learners' experiences, performance and achievements (Pekrun & Linnenbrink-Garcia, 2022). The prolonged social isolation caused by the pandemic has reportedly been portrayed as, or proven to be, the culprit behind the increased suicide and depression rates in school children and teenagers (Messias et al., 2023). It is detrimental to separate emotions and socialisation for cognitive learning. By integrating them into virtual learning spaces, digital pedagogies should acknowledge the vital role of emotions and socioemotional skills.

Digital humanism (an emerging framework that balances technological progress with human-centred values) must be emphasised here, as it closely aligns with these core principles, ensuring that digital education remains intellectually and emotionally enriching. Digital humanism is a concept developed by scholars in 2019. It addresses the ethical, social and political challenges posed by rapid technological advancements and emphasises the need to protect human rights in the digital age. Three key characteristics of digital humanism are essential for emotions and digital learning (adapted from Nida-Rümelin & Staudacher, 2023).

I. Human-centred technology—technology should enhance human experiences
II. Ethical responsibilities in technology use
III. Integration of socioemotional learning in digital spaces—digital learning environments should not replace human relationships

All three principles enhance TL in our digital world—the first principle concerns using technology to serve human values. When applied in the TL framework, digital learning environments should be designed to support emotional engagement and critical reflection. Digital learning should foster intellectual and emotional growth for learners. While literature has revealed the danger of young people's and teenagers' desensitisation of overexposure to the online world (Policy Department for Structural and Cohesion Policies Directorate-General for Internal Policies, 2023), this does not mean that it is impossible to create a digital learning environment that supports emotional

engagement. Affective depth should be prioritised in learners' experiences to ensure education remains human-centred (Nardelli, 2023). On a practical level, the development of emotion-sensitive AI tools, interactive discussion platforms, and (online) reflective journaling (Ettling, 2012) should be implemented to create space for learners to process and express emotions as a part of learning.

The second principle concerns ethical responsibilities in technology use, such as protecting privacy and data rights and transparency and accountability of AI and other digital systems (Nida-Rümelin & Staudacher, 2023). Winters et al. (2019) described digital structural violence, the concern that digital technologies could contribute to systemic inequalities and reinforce power imbalances manifested through algorithmic bias and discrimination, the digital divide and exclusion, data exploitation and surveillance. The second principle aligns well with TL's focus on critical reflection and examining power dynamics and structures (Brookfield, 2005; Dirkx et al., 2006; Hoggan et al., 2017; Kasl & Yorks, 2012). Since education systems worldwide have experienced massive digitisation due to the pandemic, it has become clear that the digitisation of education is inevitable. The European Commission released a Digital Education Action Plan from 2021--2027 in 2020, outlining the focus on "inclusive high-quality computing education at all levels of education" as a strategic priority (European Commission, 2020).

However, while they focus on improving digital literacy, "the ability to create, control and develop digital contents" (Nardelli, 2023, p. 108) should not be neglected. In times where improvements in digital literacy and digital skills are the hegemonic norm, TL encourages learners to critically reflect on and challenge hegemony (Merriam & Bierema, 2013) and reframe their understanding of the world (Brookfield, 2008). As the world progresses to full digitisation, it relies on learners and humans to critically reflect on the biases embedded in algorithms, digital divide issues and the ethical implications of AI-driven assessments to reduce digital structural violence (Winters et al., 2019). By fostering digital literacy alongside TL, educators should help learners become critical thinkers, enabling them to be prepared to reshape their frames of reference regarding interactions with technology in a socially responsible way (Nardelli, 2023, p. 109) and, ultimately, be equipped with critical consciousness and achieve emancipatory learning through transformation (Fleming, 2022; Hoggan et al., 2017; Merriam & Bierema, 2013).

The third principle advocates that technology should be used to enhance but never replace human relationships. This is easier said than done. While digital tools offer new ways to connect, research has revealed the creation of emotional detachment, miscommunication, and a diminished sense of presence in prolonged exposure to digitisation (Ciaunica et al., 2022). One important feature of TL is that it thrives in environments where learners engage in deep dialogue that allows them to question each other's assumptions, engage in meaningful interactions and possibly experience shifts in perspectives (Laros, 2017; Mezirow, 1997; Taylor, 2007). If virtual learning spaces abide by the principles of digital humanism, the third principle would create virtual learning spaces that foster socioemotional learning and TL. Elements such as collaborative group projects, empathy-driven simulations, and AI-enhanced peer feedback mechanisms might be the right tools to assist learners in engaging in meaningful interactions and dialogues, navigating feelings of discomfort (Mälkki, 2010) and addressing misaligned emotions and thoughts (Brentano, 2012). A learning environment fostering socioemotional learning and dialogues between learners is crucial to TL. It maintains a sense of connection and support in digital learning environments. After all, it is not the means of learning that matters the most; it is the consideration and constant focus on the learners, the humans, that truly matter (Gašević et al., 2023).

At its core, education is a humanistic pursuit (Brookfield, 2008; Mezirow, 1991; 2005; 2008; Tennant, 2012). It is about enabling learners to become self-aware, think critically, and prepare for transformation. No matter how advanced or sophisticated technology becomes, they are not humans (Nida-Rümelin & Staudacher, 2023). They never possess the emotional depth, moral reasoning or reflective capacity that defines meaningful learning. Humans cannot deny our "mental properties, that we have certain mental states, that we have beliefs, desires, intentions, fears, expectations" (Nida-Rümelin & Staudacher, 2023, p. 24). This is why digital humanism must be at the forefront of educational discourse and the future of education. The principles of digital humanism must be applied to create digital learning spaces beyond mere knowledge transmission. Digital learning spaces should be designed to cultivate critical reflection and foster emotional engagement and transformative learning. TL is vital in our digital world

because it keeps people at the center of education. Learners critically examine hegemonic structures, self-reflect, and ultimately pursue emancipatory learning (Dirkx et al., 2006; Newman, 2012).

In a world increasingly dominated by digital systems, we should ensure that education remains deeply human-centred. Learning spaces must integrate technology to enhance, not replace, human presence. TL and digital humanism should unite to ensure that education fulfils its purpose of nurturing critical thinking, reflection and meaningful interpersonal connections. By aligning technological advancements with human-centered values, learning spaces can foster intellectual and emotional growth (Werthner, 2023). This will empower learners to engage deeply and emotionally connect with the increasingly complex world, develop the skills needed to navigate in our VUCA world and transform in a way that reduces injustice for the betterment of societies.

3.3 Connection to thesis

In conclusion, this study examined the role of emotions in TL, identified the literature gap, and proposed a third way to approach the cognition–emotion dichotomy. The first session of the theoretical framework explored how connecting TL with Brentano's mental phenomena can enrich our understanding of the learning process. The idea of emotions as catalysts for transformative change in learners is discussed, and how emotions serve as cognitive thinking per se is addressed. The second part of the theoretical framework focuses on integrating digital humanism into this framework and the potential of TL in our digital world. Bridging these ideas with digital humanism offers a way to integrate technology with human-centered values. It gives room for the creation of learning environments that promote both intellectual and emotional growth and ultimately aligning technology with human-centered educational values. This theoretical approach fills a critical gap in the literature. It presented a new perspective on how emotions, TL and technology can converge to foster intellectual and emotional growth in learners. The theoretical framework proposed here deepens the conceptualisation of transformative learning and provides a foundation for future exploration in educational settings.

This literature review establishes emotions as a critical factor in TL, central to my research question: "How do emotions facilitate or impede transformative learning in teachers?". Integrating Brentano's mental phenomena in understanding emotions and TL and expanding TL to digital humanism, the theoretical framework provides the conceptual groundwork for delineating how emotions, both cognitive and intertwined with the individual's mental and emotional states, impact learning processes. The review emphasises TL's potential, acknowledges its vital role in our digital era, and highlights how principles of digital humanism should be applied to foster an environment that provides space for emotional engagement in TL. In our digital age, this review positions emotions as an essential aspect of learning that is intertwined with learning. It also critically examines whether emotions foster or hinder the transformative process, guiding my research toward exploring how emotions influence TL in digital environments. This sets the stage for further investigation into the delineation between emotions, learning, and technology, forming the core of my thesis in terms of theoretical insights and practical implications for future educational practices.

4. Methodology:

This section outlines the research approaches used across the six publications that form the basis of this thesis, which is structured as a collection of peer-reviewed articles. Each study contributes a perspective that addresses the overarching research question: How do teachers' emotions facilitate or impede transformative learning? The methodological approach is qualitative. It relies on in-depth interviews and content analysis. Adopting a multiple-publication format strengthens the thesis, as it provides a richer and more nuanced understanding and covers multiple aspects of the research question. This format also demonstrates the robustness and validity of the findings through different research designs, case studies, and analytical strategies, leading to a more holistic contribution to transformative learning.

4.1 Overview of the approach

This study employs a digital ethnographic approach by adapting traditional ethnographic techniques to the context of digital classrooms. Digital ethnography studies social practices and cultural phenomena in online environments (Pink et al., 2016). It offers insights into how people interact and behave in digital environments. Online interviews have become particularly relevant since this research focuses on educators' experiences during the pandemic. During emergency remote teaching (ERT), teachers primarily engage with students in digital spaces. Online interviews offer direct insight into how educators might have interacted with their students (their digital literacy) and how they manage emotions (their body language, eye contact), and my informants could even demonstrate the challenges of virtual classrooms during the interviews (Knott et al., 2022). This approach allows for a more authentic representation of teachers' online teaching experiences. It is helpful in accurately painting the picture of their perceived realities of digital teaching and the emotional dynamics that unfolded in virtual classrooms.

4.2 Research design

The study is exploratory. It examines the emotions experienced by teachers during the pandemic and how those emotions contribute to transformative learning in themselves. Online class observations provided insights into the emotional dynamics of teachers and students during online teaching. This study did not involve traditional face-to-face fieldwork. Digital ethnographic methods were used, such as online interviews and classroom observations through digital platforms. Although digital spaces are not the same as physical spaces, this study highlights the increasing significance of digital spaces in contemporary education. The digital space in which I interacted with my informants provided rich data to explore the emotional dynamics of teaching and learning (Alsaigh & Coyne, 2021). The interview platform was chosen based on their teaching platform during the pandemic. This is based on the principle of psychology, which uses memory hooks to help informants remember and recall information more easily. Memory hooks serve as cues that aid information retrieval (Baddeley, 1997).

4.3 Justification

As this study focuses on understanding teachers' emotions in digital classrooms, digital ethnography (one-to-one interviews and online classroom observations) provides a deep understanding of lived experiences (Seerveld et al., 1978), social interactions and how emotions are experienced/managed in different cultural contexts, allowing for a holistic understanding of this topic. In this research, emotions are positioned as inseparable from cognition; in other words, emotions are conceptualised as lived experiences. They represent the psychological states of individuals, are deeply embedded in social interactions, and can vary in cultural context. By engaging with a diverse group of participants, this research aims to understand how emotions manifest in educational settings across individuals. More importantly, as the theoretical framework of transformative learning is employed, in-depth interviews offer space for my informants to reflect profoundly and narrate their stories (Sandelowski, 1991).

4.4 Data collection methods

4.4.1 Participant observation

Ten sessions of digital classroom observations were conducted, the online interactions between my informant and their students were closely observed, and memo writing was performed simultaneously to aid my analysis (Birks et al., 2007). Five sessions were live; the other five were recorded by my informants from previous lessons during the pandemic. I paid extra attention to several features of those sessions: the facial expressions of teachers and students, the engagement of teachers and students, the written communication in chatrooms and forums and the tone and language used in the verbal interactions.

4.4.2 Online interviews

Thirty-eight semi-structured interviews were conducted with informants from 10 different countries. This diversity provides valuable insights into what emotions are experienced and how they are managed and manifested among educators during and after the pandemic. Each interview lasted from 60 minutes to 3 hours (in sessions), depending

on the purpose of the research article. In-depth conversations enriched my understanding of how teachers emotionally engage with their students during ERT and manage emotions from ERT to postpandemic digitisation.

4.4.3 Content analysis

Content analysis is employed as data triangulation for this study, increasing the validity of the analysis of the interviews. The content created and shared by educators during the pandemic was systematically analysed. Specifically, Instagram pages, YouTube videos, WhatsApp conversation records and worksheets/class materials designed by teachers for their students were examined. Although not every teacher can provide each type of material, the content allowed me to better understand the communication and engagement between teachers and students during the pandemic. The materials reflected both instructional practices and emotional expression. Some teachers set up Instagram pages during the pandemic specifically to engage better with their students. Many teachers also created WhatsApp groups with their classes. Studying the conversation records offered a more personal view of teachers' informal exchanges and the emotional dynamics between teachers and students on ERT. The worksheets designed by teachers are artefacts that illustrate how teaching materials and strategies were adopted during the shift to remote teaching. Content analysis allows a deeper understanding of how emotions, teaching strategies, and educational content interact during ERT, and it provides a rich context for me to understand the emotions experienced by teachers and be able to grasp their narration and stories more accurately.

4.5 Sampling strategy

4.5.1 Purposive sampling

The first five participants were selected through purposive sampling, which focused on educators who had teaching experience in online or blended learning environments. I contacted teachers I know, as we worked together in the same agency when I was in Hong Kong. Snowball sampling was used. Each informant was invited to bring in a new teacher who works in a different school than themselves. I did the same with my European connections; they are individuals I know or met at conferences or via LinkedIn. The five informants were from Greece, Germany, Italy and France. They were then invited to bring in other participants who did not work in the same school as themselves. I repeated this procedure in English-speaking countries such as the United Kingdom, Australia, and Canada. The first five informants were from Australia and Canada, and the other informants were introduced to me via snowball sampling. Ultimately, my informants were scattered worldwide and were from ten countries. Four Asian countries, Hong Kong, Singapore, Taiwan, and India; four European countries, Greece, France, Germany, and Italy; and three English-speaking countries, the United Kingdom, Canada, and Australia. This sampling method reduces sampling bias and increases the internal validity of the data. Ensuring that informants had experienced emergency remote teaching during the pandemic ensured that they were well-positioned to offer rich insights into the emotional dynamics of teaching in digital spaces. Since they were told that the interview might have consisted of one hour or more, preselection of the uninterested ones was also embedded in the process.

4.5.2 Diversity of participants

The sample included educators from various geographical regions and cultural backgrounds, providing a broad perspective on the universal and culturally specific aspects of emotions, such as management, flow and exchange in education. This research does not aim to generalise emotions in education. Instead, it approaches emotions as humanistic, lived experiences that shape educational practice (Denzin, 1985). Cultural differences and diversity provide a broader perspective on how educators' emotional engagement has influenced their transformative learning since the pandemic. The primary focus remains on their individual stories and transformative experiences.

4.6 Data analysis

4.6.1 Thematic analysis

This research used thematic analysis to identify recurring themes related to emotional experiences in digital classrooms during the pandemic and the emotional engagement and changes that teachers have experienced since then. Each study has different sets of themes depending on the research question it addresses. In general, themes such as "emotional labour and disorienting dilemmas", "emotional engagements and teacher–student relationships", and "transformative learning and reframing frames of reference" were explored. The analysis involved coding interview data and field notes from digital classroom observations triangulated with content analysis (Belotto, 2018). Each research article's themes differ on the basis of the research question it attempts to address.

4.6.2 Narrative analysis

Narrative analysis is a key approach to complement this study's thematic analysis. Given the extensive data, narrative analysis allows a deeper exploration of how my informants construct and make sense of their experiences (Nasheeda et al., 2019). Focusing on the stories they share during ERT captures their emotions and feelings, and transformative learning is spotted through such narration (Ettling, 2012). As Cranton (2016) described, narrative inquiry and storytelling are beneficial for exploring, grasping, and understanding learners' perspectives. Narrative analysis helps uncover patterns, meanings, and shifts in their perspectives over time. This method considers what is said and how experiences are framed, structured, and conveyed, revealing underlying values, cultural influences, and emotional nuances. Through analysing these narratives, the study captures the complexity of educators' emotional engagement, their adaptation to digital teaching, and how their professional identities evolved and were carried out in response to unprecedented challenges.

4.7 Ethical considerations

4.7.1 Informed Consent

The participants were fully informed about the study's purpose and their right to withdraw at any time without consequence. Written informed consent was obtained prior to the interviews, and participants were assured of confidentiality. The permission for audio and/or videotaping was also obtained beforehand.

4.7.2 Cultural integrity

Given the study's cross-cultural scope, special care was taken to ensure that the research questions were free from cultural bias. A thorough literature review was conducted prior to designing the questions, and reflection on my own cultural norms and values was undertaken to avoid imposture (Pelzang & Hutchinson, 2018). Although this study frames emotions as a fundamental human experience (Denzin, 1985), I also consider the sociocultural backgrounds of my informants. During interviews, I consistently ask follow-up questions to uncover the underlying values behind their responses, allowing for a deeper understanding of their perspectives and experiences.

4.7.3 Reflexivity

Throughout the research process, I engaged in continuous self-reflection, critically examining how my biases and assumptions influenced my interpretation of the data. To address these issues, I read the local news and watch documentaries about teaching and education in those countries. I often revisited my data and compared and contrasted the analysis with the literature, specifically in those contexts. I also understood how my work fits into the realm of literature. Maintaining transparency about these potential influences was crucial to ensuring the study's trustworthiness. In exploring emotions in education, online interviews revealed cultural, social, and emotional dimensions unique to digital interactions.

This approach offers insight into how emotions manifest in virtual teaching environments, particularly for educators, and how these experiences differ from those in traditional classroom settings. It also allowed me to examine how teachers navigated the transition to online teaching; the emotions they experienced before, during, and after this transformation; and how they carried forward newly acquired values in postpandemic educational contexts (Cranton,

2016). As a researcher with anthropological training, my role is not to judge my informants but to understand the flow of emotions and how their emotions are intertwined with their other thoughts and actions. While applying the theoretical framework of Brentano to understand feelings and TL, sociocultural differences should not hinder understanding and interpretation as long as I remain critically aware of my limitations and frames of reference during the process and pay close attention to the narratives of my informants.

4.8 Limitations

One limitation of this study is its reliance on my professional network for participant recruitment, which may have limited the breadth and diversity of the sample. Examining more cases from a wider range of countries may benefit the field. This would enable us to better understand the pandemic's impact on educators.

Another limitation is that the depth of the data relies heavily on the depth of critical reflection of my informants. All informants were asked questions 24 hours prior to the interview to address this limitation. This ensures that they have already given some thought to the questions before the interviews but also not given too much time beforehand so that they might tamper with their memories. This has been quite successful among my informants thus far, judging from the depth of sharing in their stories and narratives and the fact that approximately 80% of my informants have expressed that the interview was a good opportunity for them to reflect on themselves, indicating that the process did involve reflection.

Moreover, since the research is context-specific, it lacks generalisability and the results cannot be applied to broader populations. Also, although qualitative methodology allows me to find out how and why things happen, and it lacks causality due to the absence of controlled variables.

5. Integration of Published Articles:

5.1 List of publications

Six peer-reviewed articles have been published or accepted for publication, and three more are under review. The six published articles (arranged in chronological order) are listed in the following:

1. Chiu, Y. Y. (2021). Effectiveness of online learning relies on the dynamic between teachers and students. Journal of E-learning Research, 1(4), 61–81. https://doi.org/10.33422/jelr.v1i4.237

2. Yung, C. Y. (2022). Emotions as an Accelerator: Case Studies on the Effects of Emotions on Teachers' Perception and Learning when being in Conflicts with School leaders. European Journal of Teaching and Education, 4(1), 48–60. https://doi.org/10.33422/ejte.v4i1.725

3. Chiu, E. Y. Y. (2024). Teachers as 'Powerless Elites': Emotions and Transformative Learning: a refined profession in an era of digitalisation and artificial intelligence. European Journal of Teaching and Education, 6(2), 45–69. https://doi.org/10.33422/ejte.v6i2.1229

4. Chiu, Y. Y. (2025). Transformative Learning: Reflection on the emotional experiences of Schoolteachers during and after the pandemic. Frontiers in Education, 10. https://doi.org/10.3389/feduc.2025.1486449

5. Chiu, Y.Y. (2025). Transformative Learning— A Closer Look at Critical Reflection with Franz Brentano. Adult Education Critical Issues vol.4 no.2. (accepted)

6. Chiu, E. Y. Y. (2025). Pandemic Digital Structural Violence: Teachers' observation of post-pandemic learning loss in students. *Review of Education*, *13*(1), e70061. https://doi.org/10.1002/rev3.70061

The three articles under review are as follows:

- Chiu, E.Y.Y. (24.09.2024). Aftermath of the Pandemic— Isolation, Emotional Dysconnectivity & Voidness in Students. Manuscript under review. Emotions & Society.
- Chiu, E.Y.Y. (17.10.2024). Beyond the Pandemic: Reigniting Empathy and Transformation in Teaching. Manuscript under review. British Journal of Educational Technology
- Chiu, Y.Y. (28.02.2025). Digital Humanism in Action Case Studies on Two Classrooms in Greece and Australia. Manuscript under review. Journal of Responsible Technology

5.2 Brief summary of each article

The first article addresses the subquestion: "How do teacher–student dynamics in online learning environments shape educators' emotional experiences, and how do these emotions influence their transformative learning capacity?". This article examines how the interactions between educators and learners influence the successful delivery of online education. The study stresses that beyond technological infrastructure, the quality of teacher–student relationships plays an important role in determining learning outcomes in digital classrooms. The article suggests that educational institutions focus on strengthening the dynamics between teachers and students, ensuring that educators are equipped to engage learners actively, and providing robust support systems to address academic and technical needs to optimise the effectiveness of online learning (Chiu, 2021). This study fills the gap in research on teachers' emotions during ERT. It explores how factors such as instructor–student interaction, social media use, and support systems contribute to learning effectiveness in digital education. This research helps me explore how digital learning environments affect teachers' emotional engagement and whether these emotions act as facilitators or barriers to their transformation.

The second article addresses the question: "How do teachers' emotions that arise from conflicts with school leaders trigger or hinder transformative learning processes?". This article explores how emotions impact teachers' perceptions of reality when conflicts arise with school leaders and the interplay between emotions and perception. The research reveals that emotions stimulate critical reflection, reflective learning, and perspective transformation. Furthermore, these emotional responses aid in transformative learning on both personal and professional levels during disjuncture triggered by conflicts with school leaders (Yung, 2022). Drawing on Chen's (2020) teacher emotion model and Liu and Hallinger's (2018) partial mediation model, this article presents empirical evidence on how emotions affect teachers' perceptions of power distance orientation, their responses to dynamic interactions, and the process of harmonising emotionally charged relationships within their learning trajectories. It delves into how conflict and emotional responses are closely linked to the broader investigation of how teachers' emotions impact transformative learning. The article examines both factors that facilitate and hinder teachers' transformative learning within hierarchical school structures.

The third article explores the changing role of teachers in the uprising of artificial intelligence (AI). It focuses on the subquestion, "How does teachers' emotional experience in the AI era impact their engagement in transformative learning?". The article examines the emotional challenges teachers face as they navigate new technologies, often feeling like 'powerless elites'. The term is defined as educators who possess expertise but lack influence over decisions regarding technological integration (Chiu, 2024). Using narrative analysis, the article demonstrates that those emotions are catalysts of transformative learning as they prompt educators to critically reflect and redefine their professional identities. The article presents a compelling and timely analysis of how teachers' roles are evolving in response to digitalisation and AI (Chiu, 2024). Addressing this subquestion adds emotional depth to the main question that guides the thesis.

The fourth article investigates how intense emotions experienced by teachers during the pandemic can lead to critical self-reflection, leading to transformative learning. Through case studies of five teachers from Hong Kong, Canada, and Taiwan, the research highlights how the anxieties and strong emotions associated with online teaching during the pandemic catalysed critical self-reflection, ultimately leading to transformative learning experiences (Chiu, 2025a). This article addresses the following question: "How did the emotional challenges faced by teachers during the pandemic fuel changes in their professional practices?" This article offers a more focused perspective on the facilitative role of emotions in teachers' professional development.

The fifth article integrates Brentano's philosophical insights with critical reflection. It is the theoretical backbone of this thesis in positioning and understanding emotions not as peripheral but as essential and inseparable from 'thoughts' and, therefore, is key to transformative learning. This article addresses the following question: "How should emotions be positioned in studying critical reflection under transformative learning?". This article strengthens the epistemological and ontological grounding of my work. This finding demonstrates that emotions are integral to the transformation process and should be understood as a thought per se. I argued in the article that critical reflection is not just a rational process but also an emotional one, and they merge to form a unified consciousness that integrates the mind and heart. The article connects Franz Brentano's theory of intentionality and mental phenomena to Mezirow's critical reflection. It expands the philosophical basis of Mezirow's theory and provides practical recommendations for educators (Chiu, 2025b). The article consolidates my stance that emotions are foundational in transformative learning and demonstrates that emotions are not merely external but are central to an individual's transformation.

The sixth article investigates the long-term effects of ERT on students' academic and emotional development. It reveals socioeconomic disparities and introduces the concept of pandemic digital structural violence (PDSV). This article addresses the question: "How do teachers' emotional responses to pandemic-induced learning inequalities shape their transformative learning?". The findings indicate that teachers who acknowledge structural challenges do not blame their students for academic underperformance. Instead, they may undergo a shift in their professional identity, feeling compelled to do more for their students, beyond what is typically expected by the schools (Chiu, 2025c). The article uses case studies from Canada and Hong Kong to show that the pandemic impacts students' concentration, motivation, and learning habits differently due to the digital divide and unequal access to resources. The shift towards finding meaning and devotion in teaching represents a transformative learning experience that enhances these teachers' ability to advocate for educational equity.

5.3 Overall discussion

These six articles reviewed different aspects of the key research question: "How do teachers' emotions facilitate or impede transformative learning? They provide insights into the complex interrelationship between emotions, critical reflection and transformative learning within diverse educational contexts. The article underscores that emotions are supplementary to the learning process and central to TL, as they are inseparable from critical reflection and meaning-making. These empirical data provide invaluable insights into how educators' emotional experiences are the foundation for transformative experiences. The empirical data presented in the articles are proof of the theoretical framework and strengthen the validity of integrating Brentano's theories of mental phenomena and the potential of TL with the principles of digital humanism. These articles show that emotions often drive critical reflection, and critical reflection determines the depth of transformative learning. Teachers who can reflect on their emotional experiences will better understand their impact as educators and the ways in which they could improve their teaching practices and better assist students' learning.

Brentano's concept of intentionality, which posits that mental acts are always directed toward objects (Brentano, 2012), is the backbone of this thesis. The idea is applied to understanding how teachers' emotions influence transformative learning. These teachers' emotions are intentional as they are always directed towards an object: their students, an incident with their supervisors, their professional environment, a reflection on their pedagogical practice, and many more. These emotional acts shape how teachers perceive their reality and interpret different events. These

emotions affect the depth of their reflection and are core to their transformation. Under this framework, emotions are integral to meaning-making and critical reflection (Cranton, 2016; Taylor, 2007), further affirming that emotions are central to TL.

The intersection of emotions, technology and education plays a vital role in shaping teachers' responses to digital challenges such as ERT and the emergence of AI. The findings from my fifth article, when viewed through the lens of digital humanism, demonstrate that emotions are key to the human-centred approach to digital education. Emotions are not isolated experiences but are a deeper reflection of our psychological processes. They are also a thought (process) per se (Brentano, 2012; Chiu, 2025b). These experiences influence how teachers and students interact with educational technologies and should be perceived as guides for educators and learners amidst the messiness of digitalisation. The most crucial principle of digital humanism is to ensure that education, although digitalised, should always be human-centred and that humans will not be replaced by machines, no matter how advanced.

These findings indicate that emotional engagement is central to teachers' TL. Providing teachers with emotional support and opportunities for self-reflection is critical. Future teacher training programs should incorporate emotional intelligence and empathy; educators' ability to navigate one's own emotional responses signifies the potential of having heightened critical awareness (Fleming, 2022). When educators are able to identify their own frames of reference and limitations, they would be able to understand the needs of their students with an open mind and empathy. Educators should be equipped with tools to reflect on and utilise their emotional experiences by turning them into in-depth critical reflections, ultimately driving their transformation. Additionally, the creation of emotionally supportive and responsive virtual classrooms where teachers are encouraged to reflect on their emotions can also enhance the quality of education in general, as emotional feedback indicates that education remains human-centred.

6. Conclusion:

6.1 Reflection

To be human is to feel the weight of a thought pressing on the soul, to experience the tension between intellectual rigour and human frailty, and to wrestle with the limits of understanding. In the digital era, grasping and holding on to these humanistic qualities becomes an important way to distinguish between us and machines. The research allowed me to understand and witness the power of emotions and transformation. Education is not just about transacting and imparting knowledge. At the same time, we expect educators to be professionals. Teachers with emotions are also professional because emotional engagement indicates that we care. The discussion throughout this thesis emphasises the interactive and relational nature of emotions in teaching and learning. This research focuses on the context of digital education and applies to traditional learning environments.

Moving forward, educators and policymakers must recognise and address the emotional dimensions of teaching and learning in order to provide adequate support for teachers to navigate their emotions and reflect on their pedagogical practices. By cultivating an emotionally responsive and transformative educational environment, we create an environment that supports and maximises the growth and development of educators and students.

6.2 Suggestions for future research

Since emotional exchange is vital in classrooms, future research could examine the dynamic emotional exchanges between teachers and students and how they co-construct emotional experiences that facilitate or hinder learning. Longitudinal studies could also investigate how teachers' emotions evolve and how sustained emotional engagement affects long-term, transformative learning in both teachers and students.

The articles written for this thesis have explored different aspects of teachers' emotions during the pandemic. It touched upon different aspects, such as conflicts with school leaders, teacher-student relationships, teachers'

emotional challenges in an AI era, how emotions lead to critical reflection, how teachers deal with equity issues, and the theoretical base of TL, which is expanded to argue that emotions are themselves a thought process. However, other aspects could be addressed in future research. For instance, gamification, learning, and how digital incorporation affects teachers' interactions with students could be further explored. Additionally, it would be beneficial if data is recruited purposefully according to the gender spectrum to find out whether gender plays a role in individuals' reflection and their transformative learning.

Lastly, future research could benefit from tracking teachers' emotions and how their interactions continue to evolve and change in the AI era. Longitudinal research could help explore this aspect further.

Bibliography:

Acosta-Gonzaga, E., & Ramirez-Arellano, A. (2021). Motivation, emotions, cognition, and metacognition influence students' learning performance: A comparative study in higher education in blended and traditional contexts. *SAGE Open*, *11*(2). https://doi.org/10.1177/21582440211027561

Alsaigh, R., & Coyne, I. (2021). Doing a hermeneutic phenomenology research underpinned by Gadamer's philosophy: a framework to facilitate data analysis. *International Journal of Qualitative Methods*, *20*. https://doi.org/10.1177/16094069211047820

Baddeley, A. D. (1997). *Human memory: Theory and practice*. Psychology Press.

Baumgartner, M., & Wilutzky, W. (2017). Is it possible to experimentally determine the extension of cognition? *Philosophical Psychology*, *30*(8), 1104–1125. https://doi.org/10.1080/09515089.2017.1355453

Belotto, M. (2018). Data analysis methods for qualitative research: Managing the challenges of coding, interrater reliability, and thematic analysis. The Qualitative Report. https://doi.org/10.46743/2160-3715/2018.3492

Blake, B., & Pope, T. (2008). Developmental psychology: Incorporating Piaget's and Vygotsky's theories in classrooms. *Journal of Cross-Disciplinary Perspectives in Education*, *1*(1), 59–67.

Birks, M., Chapman, Y., & Francis, K. (2007). Memoing in qualitative research. *Journal of Research in Nursing*, *13*(1), 68–75. https://doi.org/10.1177/1744987107081254

Brentano, F. (2009). The origin of our knowledge of right and wrong (Routledge Revivals). In *Routledge eBooks*. https://doi.org/10.4324/9780203092248

Brentano, F. (2012). *Psychology from an Empirical Standpoint*. Routledge.

Brookfield, S. (2005). The power of critical theory for adult learning and teaching. Open University Press.

Brookfield, S. (2008). Radical questioning on the long walk to freedom: Nelson Mandela and the practice of critical reflection. Adult Education Quarterly, 58(2), 95–109. https://doi.org/10.1177/0741713607310150

Brookfield, S. (2012). Critical theory and transformative learning. In E. Taylor & P. Cranton (Eds.), *The Handbook of Transformative Learning Theory, Research, and Practice* (pp. 131–146). Jossey-Bass.

Chen, J. (2019). Teacher emotions in their professional lives: implications for teacher development. *Asia-Pacific Journal of Teacher Education*, *48*(5), 491–507. https://doi.org/10.1080/1359866x.2019.1669139

Chen, J. (2020). Refining the teacher emotion model: evidence from a review of literature published between 1985 and 2019. *Cambridge Journal of Education*, *51*(3), 327–357. https://doi.org/10.1080/0305764x.2020.1831440

Chen, J. (2021). Efficacious and positive teachers achieve more: examining the relationship between teacher efficacy, emotions, and their practicum performance. *The Asia-Pacific Education Researcher*, *28*(4), 327–337. https://doi.org/10.1007/s40299-018-0427-9

Chen, Q. (2024). Factors influencing high-performing education systems: A case study of Singapore. *Journal of Education Humanities and Social Sciences*, *43*, 201–209. https://doi.org/10.54097/06knzs92

Chiu, Y. Y. (2021). Effectiveness of online learning relies on the dynamic between teachers and students. Journal of E-learning Research, 1(4), 61–81. https://doi.org/10.33422/jelr.v1i4.237

Chiu, E. Y. Y. (2024). Teachers as 'powerless elites': Emotions and transformative learning: A refined profession in an era of digitalisation and artificial intelligence. European Journal of Teaching and Education, 6(2), 45–69. https://doi.org/10.33422/ejte.v6i2.1229

Chiu, Y. Y. (2025a). Transformative learning: Reflection on the emotional experiences of schoolteachers during and after the pandemic. Frontiers in Education, 10. https://doi.org/10.3389/feduc.2025.1486449

Chiu, Y.Y. (2025b). Transformative learning— A closer look at critical reflection with Franz Brentano. Adult Education Critical Issues vol.4 no.2. (publication in July 2025)

Chiu, E. Y. Y. (2025c). Pandemic digital structural violence: Teachers' observation of post-pandemic learning loss in students. Review of Education, 13(1), e70061. https://doi.org/10.1002/rev3.70061

Ciaunica, A., McEllin, L., Kiverstein, J., Gallese, V., Hohwy, J., & Woźniak, M. (2022). Zoomed out: digital media use and depersonalisation experiences during the COVID-19 lockdown. *Scientific Reports*, *12*(1). https://doi.org/10.1038/s41598-022-07657-8

Cranton, P. (2000). Individual differences and transformative learning. In J. Mezirow (Ed.), Learning as transformation: Critical perspectives on a theory in progress (pp. 181–204). San Francisco, CA: Jossey-Bass

Cranton, P. (2006). Understanding and promoting transformative learning: A guide for educators of adults. San Francisco, CA: Jossey-Bass.

Cranton, P. (2016). *Understanding and promoting transformative learning: A Guide to Theory and Practice*. Taylor & Francis.

Cranton, P., & Taylor, E.W. (2012). Transformative learning: Seeking a more unified theory. In E. Taylor & P. Cranton (Eds.), *The Handbook of Transformative Learning Theory, Research, and Practice* (pp. 3-20). Jossey-Bass.

De Freitas Araujo, S. (2015). Wundt and the philosophical foundations of psychology. In *Springer eBooks*. https://doi.org/10.1007/978-3-319-26636-7

Denzin, N. K. (1985). Emotion as lived experience*. *Symbolic Interaction*, *8*(2), 223–240. https://doi.org/10.1525/si.1985.8.2.223

Dewey, J. (1896). The reflex arc concept in psychology. *Psychological Review*, *3*(4), 357–370. https://doi.org/10.1037/h0070405

Dewey, J. (1997). *Democracy and education*. Simon and Schuster.

Dewey, J. (2007). *Logic: The Theory of Inquiry*. Saerchinger Press.

Dirkx, J. M. (2000). Transformative learning and the journey of individuation. ERIC Digest No. 223. *Adult Career and Vocational Education Columbus OH*. http://files.eric.ed.gov/fulltext/ED448305.pdf

Dirkx, J. M. (2001). Images, transformative learning and the work of soul. *Adult Learning*, *12*(3), 15–16. https://doi.org/10.1177/104515950101200306

Dirkx, J. M. (2006). Engaging emotions in adult learning: A Jungian perspective on emotion and transformative learning. *New Directions for Adult and Continuing Education*, *2006*(109), 15–26. https://doi.org/10.1002/ace.204

Dirkx, J.M. (2012). Nurturing Soul Work: A Jungian approach to transformative learning. In E. Taylor & P. Cranton (Eds.), *The Handbook of Transformative Learning Theory, Research, and Practice* (pp. 116–130). Jossey-Bass.

Dirkx, J. M., Mezirow, J., & Cranton, P. (2006). Musings and reflections on the meaning, context, and process of transformative learning. *Journal of Transformative Education*, *4*(2), 123–139. https://doi.org/10.1177/1541344606287503

Dewey, J., & Rogers, M. L. (2012). *The public and its problems: An Essay in Political Inquiry*. Penn State Press.

European Commission. (2020). *Communication from the commission to the European parliament, The European economic and social committee and the committee of the regions: Digital education action plan 2021-2027* (SWD(2020) 209). https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52020DC0624

Ettling, D. (2012). Educator as Change Agent: Ethics of Transformative Learning. In E. Taylor & P. Cranton (Eds.), *The Handbook of Transformative Learning Theory, Research, and Practice* (pp. 503–519). Jossey-Bass.

Fleming, T. (2000). Habermas on Civil Society, Lifeworld and System: Unearthing the Social in Transformation Theory. *Teachers College Record the Voice of Scholarship in Education*, http://eprints.maynoothuniversity.ie/1058/1/HabermasTFleming.pdf

Fleming, T. (2006). Education as Social Action: Knowledge, Identity and Power. Journal of Widening Participation and Lifelong Learning, 8, 1,(pp 55–56). Palgrave Macmillan.

Fleming, T. (2012). Fromm and Habermas: allies for adult Education and democracy. *Studies in Philosophy and Education*, *31*(2), 123–136. https://doi.org/10.1007/s11217-011-9268-1

Fleming, T. (2016). Reclaiming the emancipatory potential of adult education: Honneth's critical theory and the struggle for recognition. *European Journal for Research on the Education and Learning of Adults*, *7*(1), 13–24. https://doi.org/10.3384/rela.2000-7426.rela9077

Fleming, T. (2018). Critical theory and transformative learning. *International Journal of Adult Vocational Education and Technology*, *9*(3), 1–13. https://doi.org/10.4018/ijavet.2018070101

Fleming, T. (2022). Transformative learning and critical theory: Making connections with Habermas, Honneth, and Negt. In *Springer eBooks* (pp. 25–43). https://doi.org/10.1007/978-3-030-84694-7_2

Fleming, T., Kokkos, A., Finnegan, F. (2019). Context and development of transformation theory in the European Field of Adult Education. In: Fleming, T., Kokkos, A., Finnegan, F. (eds) European Perspectives on Transformation Theory. Palgrave Macmillan, Cham. https://doi.org/10.1007/978-3-030-19159-7_2

Freire, P. (1972). *Pedagogy of the oppressed.* Harmondsworth: Penguin.

Gašević, D., Siemens, G., & Sadiq, S. (2023). Empowering learners for the age of artificial intelligence. *Computers and Education Artificial Intelligence*, *4*, 100130. https://doi.org/10.1016/j.caeai.2023.100130

Hattie, J. (2012). Visible learning for teachers: Maximizing Impact on Learning. Routledge.

Hoggan, C., Mälkki, K., & Finnegan, F. (2017). Developing the theory of perspective transformation. *Adult Education Quarterly*, *67*(1), 48–64. https://doi.org/10.1177/0741713616674076

Illeris, K. (2014). Transformative learning and identity. In *Routledge eBooks*. https://doi.org/10.4324/9780203795286

Jung, C. G. (1971). *Psychological types.* Princeton University Press.

Kasl, E., & Yorks, L. (2012). Learning to be what we know: The pivotal role of presentational knowing in transformative learning. In E. Taylor & P. Cranton (Eds.), *The Handbook of Transformative Learning Theory, Research, and Practice* (pp. 503–519). Jossey-Bass.

King, K. P. (2004). Both sides now: Examining transformative learning and professional development of educators. *Innovative Higher Education*, *29*(2), 155–174. https://doi.org/10.1023/b:ihie.0000048796.60390.5f

Knott, E., Rao, A. H., Summers, K., & Teeger, C. (2022). Interviews in the social sciences. *Nature Reviews Methods Primers*, *2*(1). https://doi.org/10.1038/s43586-022-00150-6

Kokkos, A. (2012). Transformative Learning in Europe: An overview of the theoretical perspectives. In E. Taylor & P. Cranton (Eds.), *The Handbook of Transformative Learning Theory, Research, and Practice* (pp. 289–303). Jossey-Bass.

Kreber, C., & Cranton, P. A. (2000). Exploring the scholarship of teaching. *The Journal of Higher Education*, *71*(4), 476–495. https://doi.org/10.1080/00221546.2000.11778846

Laros, A. (2017). Disorienting dilemmas as a catalyst for transformative learning. In SensePublishers eBooks (pp. 85–95). https://doi.org/10.1007/978-94-6300-797-9_7

Ledoux, J. (1998). *The emotional brain: The mysterious underpinnings of emotional life*. Simon and Schuster.

Liu, S., & Hallinger, P. (2018). Principal instructional leadership, teacher self-efficacy, and teacher professional learning in China: Testing a mediated-effects model. *Educational Administration Quarterly*, *54*(4), 501–528. https://doi.org/10.1177/0013161x18769048

Mälkki, K. (2010). Building on Mezirow's theory of transformative learning: Theorizing the challenges to reflection. *Journal of Transformative Education*, *8*(1), 42–62. https://doi.org/10.1177/1541344611403315

Mälkki, K. (2011). Theorizing the nature of reflection [PhD Dissertation, University of Helsinki]. https://helda.helsinki.fi/bitstream/10138/26421/1/theorizi.pdf

Mälkki, K. (2012). Rethinking disorienting dilemmas within real-life crises. *Adult Education Quarterly*, *62*(3), 207–229. https://doi.org/10.1177/0741713611402047

Mälkki, K. (2019). Coming to grips with edge-emotions: The gateway to critical reflection and transformative learning. In *Springer eBooks* (pp. 59–73). https://doi.org/10.1007/978-3-030-19159-7_5

Mälkki, K., & Raami, A. (2022). Transformative learning to solve the impossible: edge-emotions and intuition in expanding the limitations of our rational abilities. In *Transformative Learning Theory and Praxis; New Perspectives and Possibilities* (pp. 76–91). Routledge. https://doi.org/10.4324/9780429450600-7

Merriam, S. B., & Bierema, L. L. (2013). *Adult learning: Linking Theory and Practice*. John Wiley & Sons.

Messias, E., Ugarte, L., Azasu, E., & White, A. J. (2023). A tsunami of concern: the lasting impacts of COVID isolation and school closures on youth mental health. *PubMed*, *120*(5), 328–332. https://pubmed.ncbi.nlm.nih.gov/37841568

Mezirow, J. (1978). Perspective transformation. *Adult Education*, *28*(2), 100–110. https://doi.org/10.1177/074171367802800202

Mezirow, J. (1981). A critical theory of adult learning and education. *Adult Education*, *32*(1), 3–24. https://doi.org/10.1177/074171368103200101

Mezirow, J. (1991). *Transformative dimensions of Adult Learning*. Jossey-Bass.

Mezirow, J. (1997). Transformative learning: theory to practice. *New Directions for Adult and Continuing Education*, *1997*(74), 5–12. https://doi.org/10.1002/ace.7401

Mezirow, J. (2000). *Learning as transformation: Critical Perspectives on a Theory in Progress*. Jossey-Bass.

Mezirow, J. (2005). Glossary, transformative learning and adult education. Unpublished manuscript.

Mezirow, J. (2008). An overview on transformative learning. In J. Crowther & P. Sutherland (Eds.), Lifelong learning (1st ed., Vols. 24–39). Routledge.

Millán, G. O. (2016). Nussbaum on the cognitive nature of emotions. *Manuscrito*, *39*(2), 119–131. https://doi.org/10.1590/0100-6045.2016.v39n2.gom

Montague, M. (2016). A contemporary view of Brentano's theory of emotion. *The Monist*, *100*(1), 64–87. https://doi.org/10.1093/monist/onw019

Nasheeda, A., Abdullah, H. B., Krauss, S. E., & Ahmed, N. B. (2019). Transforming transcripts into stories: A multimethod approach to narrative analysis. *International Journal of Qualitative Methods*, *18*. https://doi.org/10.1177/1609406919856797

Nardelli, E. (2023). No digital citizens without digital humanism. In *Introduction to digital humanism* (pp. 99–114). Springer Nature. https://doi.org/10.1007/978-3-031-45304-5_7

Newman, M. (2012). Calling transformative learning into question. *Adult Education Quarterly*, *62*(1), 36–55. https://doi.org/10.1177/0741713610392768

Nida-Rümelin, J., & Staudacher, K. (2023). Philosophical foundations of digital humanism. In *In Introduction to Digital Humanism* (pp. 17–30). Springer Nature. https://doi.org/10.1007/978-3-031-45304-5_2

Nussbaum, M. C. (2001). *Upheavals of thought: The Intelligence of Emotions*. Cambridge University Press.

Pangrazio, L., Godhe, A., & Ledesma, A. G. L. (2020). What is digital literacy? A comparative review of publications across three language contexts. *E-Learning and Digital Media*, *17*(6), 442–459. https://doi.org/10.1177/2042753020946291

Pelzang, R., & Hutchinson, A. M. (2018). Establishing cultural integrity in qualitative research. *International Journal of Qualitative Methods*, *17*(1). https://doi.org/10.1177/1609406917749702

Pekrun, R., & Linnenbrink-Garcia, L. (2022). Academic emotions and student engagement. In *Springer eBooks* (pp. 109–132). https://doi.org/10.1007/978-3-031-07853-8_6

Pekrun, R., & Loderer, K. (2020). Emotions and learning from multiple representations and perspectives. In *Routledge eBooks* (pp. 373–400). https://doi.org/10.4324/9780429443961-25

Pekrun, R., Muis, K. R., Frenzel, A. C., & Götz, T. (2018). *Emotions at school*. Routledge.

Pinar, W. F. (2019). What is curriculum theory? In Routledge eBooks. https://doi.org/10.4324/9781315625683

Pink, S., Horst, H., Postill, J., Hjorth, L., Lewis, T., & Tacchi, J. (2016). *Digital ethnography: Principles and practice*. SAGE.

Policy Department for Structural and Cohesion Policies Directorate-General for Internal Policies. (2023). The influence of social media on the development of children and young people. In *Research for CULT Committee* (PE 733.109). European Parliament.

Sandelowski, M. (1991). Telling stories: Narrative approaches in qualitative research. *Image the Journal of Nursing Scholarship*, *23*(3), 161–166. https://doi.org/10.1111/j.1547-5069.1991.tb00662.x

Seerveld, C., Gadamer, H., Barden, G., & Cumming, J. (1978). Truth and method. *Journal of Aesthetics and Art Criticism*, *36*(4), 487. https://doi.org/10.2307/430490

Shields, C. M. (2017). *Transformative leadership in education: Equitable and socially just change in an uncertain and complex world*. Routledge.

Taylor, E. (2000). Fostering Mezirow's transformative learning theory in the adult education classroom: A critical review. Canadian Journal for the Study of Adult Education, 14(2), 1–28. https://doi.org/10.56105/cjsae.v14i2.1929

Taylor, E. W. (2007). An update of transformative learning theory: A critical review of the empirical research (1999–2005). *International Journal of Lifelong Education*, *26*(2), 173–191. https://doi.org/10.1080/02601370701219475

Tennant, M. (2012). *The learning self: understanding the potential for transformation*. John Wiley & Sons.

Tisdell, E. (2012). Themes and variations of transformational learning: Interdisciplinary perspectives on forms that transform. In E. Taylor & P. Cranton (Eds.), *The Handbook of Transformative Learning Theory, Research, and Practice* (pp. 21–36). Jossey-Bass.

Werthner, H. (2023). Digital transformation, digital humanism: What needs to be done. In *Introduction to Digital Humanism* (pp. 115–132). Springer Nature. https://doi.org/10.1007/978-3-031-45304-5_8

Winters, N., Eynon, R., Geniets, A., Robson, J., & Kahn, K. (2019). Can we avoid digital structural violence in future learning systems? *Learning Media and Technology*, *45*(1), 17–30. https://doi.org/10.1080/17439884.2020.1708099

Yung, C. Y. (2022). Emotions as an accelerator: Case Studies on the effects of emotions on teachers' perception and learning when being in conflicts with school leaders. *European Journal of Teaching and Education*, 4(1), 48–60. https://doi.org/10.33422/ejte.v4i1.725

JELR | JOURNAL OF E-LEARNING RESEARCH

ISSN: 2669-235X

VOLUME 1, ISSUE 4

Effectiveness of Online Learning Relies on the Dynamic Between Teachers and Students

Yin-Yung Chiu

Heidelberg University, Germany
yychiu.eunice@gmail.com

ABSTRACT

Since the outbreak of covid-19 pandemic, schools around the world are forced to switch from traditional face-to-face schooling to online learning. School teachers face immense stress during the process due to lack of online teaching experience and relevant training. Different research has been conducted in reviewing the effectiveness of online learning; factors such as self-efficacy and motivation of students are the two most referenced amongst research. This research argues that the digitalised delivery of knowledge is dynamic and it relies on the efforts from both students and teachers. By integrating the typology of interactions developed by previous scholars, this research proposes the 'teacher-content-students dynamic' as a tool to comprehend how teachers and students interact in an online learning environment. Using narrative analysis, the online teaching experiences during the pandemic of three secondary school teachers are reviewed. The aim of this research is to identify how the interactions between students and teachers in the virtual classroom play an important role in effective online teaching and learning. Since there lacks unified guidance regarding the implementation of online teaching, the delivery of online teaching varies in which schools each informant teaches. Owing to this, the difficulties and challenges faced by each individual are unique, yet their narratives have coincidentally pointed to how teacher-student relationships and interactions play an indispensable role in effective online teaching. Symbolic interactionism is used in the analysis.

Keywords: narrative analysis; online learning; symbolic interactionism; teacher-content-students dynamic; teacher-students interaction

Cite this article as: Chiu, Y. Y. (2021). Effectiveness of Online Learning Relies on the Dynamic Between Teachers and Students. *Journal of e-learning Research*, 1(4), 61-81. https://doi.org/10.33422/jelr.v1i4.237

1. Introduction

Education across the globe has undergone disruptions and drastic changes as a result of the covid-19 pandemic. In-person schooling became difficult as school suspension was employed as a strategy to control the spread of the pandemic; emergency remote teaching (ERT) became the initial response across educational contexts. As the pandemic prolonged, remote learning/ online learning became the 'new normal'. However, this also implies changes to student-teacher relationships, which has been found as a key factor to students' learning motivation and learning efficacy by many scholars (Pennings & Hollenstein, 2020; Omar et al., 2021).

Teaching is an art and is complex in nature (Gage, 1978; Pennings & Hollenstein, 2020); it is more than imparting knowledge and bears the ability and hence the responsibility of inspiring the young minds in societies. Therefore, quality teaching embeds influences that extend beyond students' learning in school, it even accounts for the mentality and minds in their life journeys. For years, research has reached consensus that student-teacher-relationship is important in the learners' experience (Sousa, 2021); while effective communication is established as a determinant factor of good and meaningful student-teacher-relationships (Blizak et al., 2020;

Tang et al., 2021), it is crucial that the interaction within such an effective communication is dissected and delineated to enable more positive student-teacher-relationships.

Since the pandemic outbreak, ERT has been implemented across educational contexts regardless of the schools', school teachers' or students' readiness as we are engulfed by the public health crisis. This adoption of online teaching has brought a new kind of ecology to schooling and its impacts on students' learning are still uncertain. While scholars' work on the effectiveness of online education seems to arrive at the conclusion that it is a feasible substitution, or even better version of traditional schooling (Khalil et al.; Mahmood, 2020; Hu et al., 2021), a number of studies have also concluded that online education could be detrimental to students' social skills development and emotional management (Kapasia et al., 2020; Sun et al., 2021). Therefore, this research aims to understand how school teachers can play a role in reducing or even diminishing such negative impacts. Through studying three cases of secondary school teachers in Hong Kong, this research examines and analyses the interaction between students and teachers in an online learning environment. Through the lens of symbolic interactionism, this research argues that emotional capital exchanged between teachers and students accounts for positive and meaningful interaction, effective communication and ultimately bringing positive impacts on students' learning.

In fact, this research finds that the effectiveness of online learning heavily relies on dynamic and effective communication between teachers and students; in other words, good student-teacher relationships are key to teachers' teaching, it determines students' response in class and ultimately affects the overall online learning experience. This study has also found that these teachers often experience frustration when there lacks effective communication between them and their students. These informants reported feeling more like an entertainer than a teacher during online teaching. Using the theory of symbolic interactionism and the concept of emotional capital, a shift in teachers' roles manifested through student-teacher interactions will be analysed.

2. Literature Review

2.1. Emotional Capital

Emotional capital generally refers to emotional resources in the form of support, patience and commitment built within families (Allatt, 1993; Reay, 2000; Zembylas, 2007). The term was first coined by Nowotny (1981) who theorised it as a type of social capital which is generated through affective relations. The concept is an extension of Bourdieu's concept of capital, which he explains, operates in various forms namely economic, cultural and social (Bourdieu, 1977; Zembylas, 2007) and each form can be transformed into another since they are the products of exploitable resources. The concept of emotional capital was not coined by Bourdieu, but Zembylas (2007) has threaded the concepts together and applied it to education research by taking temporality and dialectics of history into consideration. According to Zembylas, he described emotional capital as a crucial element amongst social groups, and plays an important role within classrooms and schools. By incorporating that with Bourdieu's (1977) view, emotional capital can be transformed into social and cultural capital, thereby bringing empowerment in the school (Zembylas, 2007). In other words, empowerment is enabled in the communities of both teachers and students through the exchange and circulation of emotional resources, hence it is important that emotional capital be recognised as a constructive asset that circulates the habitus experienced by teachers and students. In an online learning environment, the usual practices between teachers and students have changed and transformed, implying transformations in the habitus in the schooling community as well. There is no doubt that ERT

has caused disjuncture (Mezirow, 2009; Eschenbacher et al., 2020) to the usual teaching/learning atmosphere in the classroom; for instance, the establishment of Gemütlichkeit, which denotes the harmonious and trust-embedded mood/ atmosphere conveyed and created through one's heartful and mindful engagement, temper and feeling, (Salvador et al., 2020). Communication in an online classroom is restricted by digital tools available in the meeting software that the school relies on such as chatbox, raise-hand functions, webcam and audio, etc. (Chen et al., 2022); effective communication therefore becomes bundled with computer literacy of both teachers and students. This form of digitalised communication has henceforth brought upon another level of communication barrier and even distance that teachers need to overcome in achieving the same level of trust and/or closeness with their students in a traditional classroom. From this perspective, effective communication in both teaching and learning has become even more challenging. Therefore, there is a pressing need to delineate how effective communication and Gemütlichkeit-building have been altered in an online learning environment. To do so, symbolic interactionism is used in the analysis of student-teacher interaction.

2.2. Symbolic Interactionism

Symbolic interactionism was first posed by Blumer (1969) with three premises: i. human beings act upon the world based on what 'things' mean for them; ii. these socially constructed meanings change according to and based on one's interactions with others; iii. the meaning of the world changes based on these interactions and is reinterpreted by these actors in the world. Vrasidas (2001) pointed out that the traditional approach to educational research has a tendency of ignoring how meaning, interaction and interpretation of actors shape behaviours, while this illustrates the necessity of interpretive inquiry, it is also postulated here that Bourdieu's theory of field and habitus, which is generally known as "the rules of the game" also be taken into account to reach a holistic view of the interactional ecology in an online classroom. Habitus and symbolic interactionism share similar underlying ideology in a sense that both consider contexts as socially and historically constituted (Zembylas, 2007). Bourdieu defines habitus as "*predisposed by its range of historical uses to designate a system of acquired, permanent, generative dispositions*" (1990, p. 53). In other words, these "rules of the game " apply to different fields, (or social arenas) accordingly, meanwhile, these fields are "structured systems of social positions" (Jenkins, 1992; Zembylas, 2007), thereby restricting the form and content of interactional exchange between actors who share the field. The interactions of school teachers and students in a face-to-face environment do not apply to an online learning environment; although the agents remain unchanged, the field is no longer the same and therefore changes occur in accordance.

Using the framework of symbolic interactionism, the three premises can be applied and contextualised as follows. Action is defined as one's "observable behaviours plus the meaning attached to it by the actor" (Vrasidas, 2001, p.3). Therefore, first, teachers and students exhibit "socially appropriate" behaviours based on the meanings that those actions have for them in a particular field. Simple gestures such as maintaining eye contact when students speak with teachers, or the 'morning greetings' ritual performed by the whole class, are actions that show respect towards teachers; On the other hand, teachers pacing through corridors and passing by rows of students in the classroom is a gesture that exerts teachers' power over students. The interactions are deemed socially appropriate and acceptable, both teachers and students are used to these actions as habitus in the school. Second, these gestures and behaviours are socially constructed, and are restated and reinforced through repeated practices. Third, the meaning of these gestures is processed again each time they are enacted and in each enactment, these actions are interpreted once more. Due to the change of field, these socially appropriate

behaviours that teachers and students have been used to are no longer applicable owing to technical and spatial restrictions. According to Blumer (1969) and Vrasidas (2001), "meanings are used to form action through the process of interpretation" (Vrasias, 2001, p.6) and hence, the continuous flow of interaction is social interaction *per se*. Teachers and students behave differently in online and offline settings, since ERT is adopted abruptly as a response to the public health crisis, there is no doubt that teachers and students have developed new sets of protocols and social interaction accordingly.

2.3. Types of Interactions

Student-teacher relationships have been discussed and researched by many scholars. A wide range of factors has been found to have an effect on which especially during the pandemic outbreak; for instance, teachers' teaching style (Coman et al., 2021); students' personalities (Zheng et al., 2020); students' learning efficacy (Al-Nasa'h et al.; Heo et al., 2021); teachers' teaching experiences (Kim et al., 2021). There lacks, however, an investigation of the reverse effect of student-teacher relationships on the interactions between teachers and students, which is fundamental to the achievement of effective communication as well as effective online learning. According to Graham (2016) and Oviatt et al., (2018), there are four types of interactions in an online learning environment, namely online human interaction, digital content interaction, in-person interaction and non-digital interaction. Since in-person interaction and non-digital interaction are no longer possible in the context of ERT, "interaction" between teachers and students in this research focuses on the first two types. Online human interaction can be understood as real-time communication between actors through the use of technology, for instance, softwares like Zoom, Google Meet, etc. (Graham 2016; Hu et al., 2021). Digital content interaction broadly refers to the use of digital learning resources and displaying those content using softwares such as Google classroom, Moodle, etc. As for non-digital content interaction, it refers to the digitalisation of learning materials without engaging students in the process, an example would be uploading worksheets in a platform. Tang (2021) on the other hand, approaches interaction in an online learning environment using the interaction equivalency theorem, under which an unlimited number of learners could be reached at the same time. Two key types of interactions, namely learner-instructor interaction and learner-content interaction are distinguished. In this research, learner-instructor interaction is the main focus while learner-content interaction has been found to be an influence that could affect learner-instructor interaction. Owing to the shared features under these two theories, they will be integrated as a "teacher-content-students-dynamic" mediated by technology. This research argues that this dynamic can assist the building of positive student-teacher relationships, such dynamic is not unidirectional, but is influenced by both students and teachers' actions and responses in the interacting process.

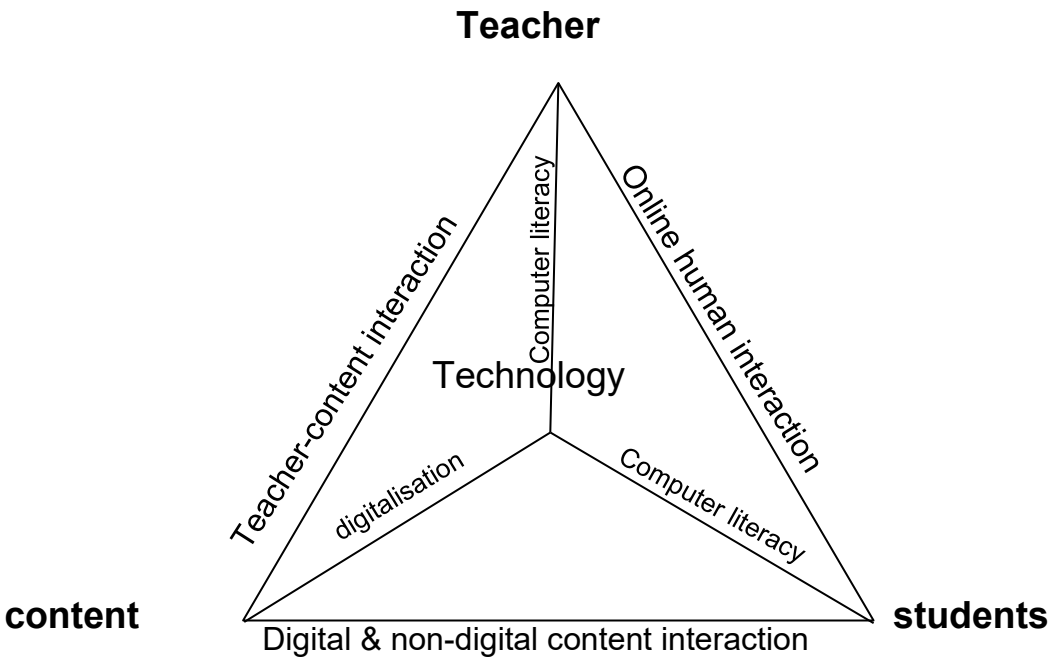


Figure 1. Teacher-content-students-dynamic

3. Research Questions

This research asks three research questions based on the concept of "instructor-content-learner-dynamic".

1. How is the building of Gemütlichkeit done between teachers and their new students in an online environment?
2. How is effective communication maintained between teachers and students in an online classroom?
3. How do teachers maintain their power over their students whilst overcoming the drastic differences between offline and online environments?

4. Methods

This research uses case studies and narrative analysis and it is qualitative and exploratory in nature. The research is an interpretive research (Erickson, 1986), implying the emphasis on interpretation of participants' meanings in action. The purpose of this research is to investigate the nature of interaction in an online learning/teaching environment and how it differs from traditional, face-to-face schooling from the perspectives of school teachers. The focus is on how these individuals make sense and/or meanings of the online teaching experiences; owing to this, case studies are employed since it allows me to focus on understanding how these school teachers make sense of the "new normal". On the other hand, broad generalisation is not the aim of the research, but the capturing of specific social phenomena is the research focus (Hammersley et al., 2000). These selected cases provide in-depth detail and information to delineate the interactions between teachers and students in an online learning environment, which also better suit the application of symbolic interactionism and discussion of emotional capital in the research.

In addition, since this research adopts symbolic intercationism as an analytics framework, interactions could only be studied while considering how it is within and at the same time, affecting the broad context (Vrasidas, 2001). In other words, actors are bound within a dynamic

relationship— in this case, the interactions between teachers and students are not unidirectional, both actors in the field have the ability to affect the dynamic. To understand these, semi-structured interviews were conducted with the teachers, the data was transcribed and analysed using thematic analysis and narrative analysis.

Memo writing has also been adopted in the data collection process since it enables the adoption of thick description while filling the gaps during the interpretive analysis. Thick description is coined by Clifford Geertz (1973), the theory can be understood as a detailed account of field experiences by the researcher and unfamiliaring, in such an account, the patterns of cultural and social relationships in context which has often been taken for granted, or is known as in Erickson's (1986) words, 'the invisibility of everyday life'.

Triangulation of data is conducted by constant comparison of fieldnotes, transcription and casual conversation between these informants and myself; cross-case comparison is also conducted in search of similar patterns in data analysis. Moreover, the factual details given by the informants are also verified and cross-checked by searching for relevant news and announcements made on school websites corresponding to the schools that these individuals work at. These three cases are selected since they are from different age groups and have reached different levels in their careers. To better illustrate, a table is included in the following to summarise the characteristics and background of these three informants.

Table 1.
Summarisation of informants' background

Informants (pseudonyms)	Years of teaching; subjects; current school's characteristics	Experience with online teaching
1. Tom	12 years; Science; band 2 co-educational school	None before Covid
2. Aidan	3 years; Economics; band 2 co-educational school	Blended learning
3. John	5 years; Maths; band 1 Catholic girls school	Online real-time classes before Covid

The three cases: Tom, Aidan and John are educators who are passionate about teaching, all three of them work in Secondary schools in Hong Kong. They have different levels of exposure to online teaching, rasonsing partially why these cases were selected. Tom is a veteran teacher who has been teaching since 2010. He is experienced and skillful about bonding with students, yet he has not been exposed to online teaching before Covid and hence, his efforts in establishing Gemütlichkeit with his students in an online classroom is one of his biggest difficulties. Aidan, on the other hand, is a novice teacher, despite this, he has spent his teaching practicum in an online environment. He has experienced difficulties in filling the gaps between the theoretical knowledge acquired in his studies and the practical and applicable ones in his actual teaching. John has been striving for a promotion and has taken advantage of Covid, he was promoted as the technology-enabled-teaching headteacher for his leadership and familiarity in online classes delivery. In-depth and semi-structured interviews were conducted face-to-face, each lasting for about 1 hour. The interviews were recorded and transcribed; they were sorted into different themes and thematic analysis was used. 4 themes protrude and they correspond with the three research questions asked in this study: i. Breaking the ice with students & gaining their trust; ii. Ways to maintain frequent contact and communication with students; iii. Challenges unique to online teaching environments. The analysis will be conducted in the next session.

5. Data Analysis

In-depth, semi-structured interviews were conducted with three secondary school teachers in Hong Kong. The transcripts were sorted into 36 initial codes, they were then refined into 22

codes supporting 4 major themes; these themes were selected based on the frequency of occurrence, significance and the mutuality amongst my three informants. Narrative analysis was conducted on the interview, the analysis is especially useful in helping the researcher comprehend how the informants make sense of the lived experiences. As pointed out by Clandinin & Rosiek (2007), "narrative inquirers study individual experience in the world, an experience that is storied, both in the living and telling that can be studied by listening, observing, living alongside another, writing and interpreting texts" (p.42-43). The process of thematic analysis follows the six-phase framework proposed by Braun & Clarke (2006); the application and the process of how the framework has been applied in this research will be illustrated in the following session, in which phase 1-5 are discussed in one section; and phase 6, the writing-up will be separated in the session that follows. In phase 6, several excerpts have been included in Table 5; they were selected and extracted from the transcripts since they are especially significant and powerful in conveying the relevant themes.

6. Thematic Analysis- Phase 1-5

Adopting the six-phase framework of Braun & Clarke (2006), thematic analysis is conducted by first generating the initial codes and then searching for themes.

Table 2.
Braun & Clarke's six-phase framework in thematic analysis (2006)

Phase 1: Familiarising with the data
Phase 2: Generating initial codes
Phase 3: Searching for themes
Phase 4: Reviewing themes
Phase 5: Defining themes
Phase 6: Writing-up

To achieve phase 1, the interviews have been listened to repeatedly, the interviews were conducted in Cantonese with the occasional use of English; they were first transcribed, and were then translated into English. Each interview lasted for about one and a half hours; the interviews were audio-taped and transcribed. To ensure accuracy of the translation, back translation was also done on top of contextual and literal translation. As the transcription and translation were conducted, early impressions were jotted by rough notes; cross comparison with the notes jotted during memo-writing in the interviews was also conducted.

Initial codes were then generated as the analysis proceeded onto phase 2, in which the data was systemised and organised in a meaningful manner. Based on the three specific research questions, a theoretical thematic analysis was conducted based on the data's relevance to the research questions. Open coding was used in the process and a total of 36 preliminary themes were generated under such principles. In each translated transcript, each segment of data which was seemingly relevant to or specifically addresses the research questions were coded.

Research questions:

1. How is the building of Gemütlichkeit done between teachers and their new students in an online environment?
2. How is effective communication maintained between teachers and students in an online classroom?
3. How do teachers maintain their power over their students whilst overcoming the drastic differences between offline and online environments?

Table 3 illustrates an example of how initial coding was generated based on the above principles. Cross comparison was conducted between the translated transcript and the original

transcript to ensure accuracy and consistency in contexts; comparison was also conducted amongst the three translated transcripts in search of comparable aspects, important overlaps and interesting findings such as items that were in direct contrast. Microsoft Excel was adopted to organise the data as the soft copies of the transcripts were examined and highlighted line by line.

Table 3.
An example illustrating partial generation of initial codes based on data relevance to research questions

Research Question	**Segment of data identified in transcripts**	**Relevance to RQ (1 [low]; 2[high]; 3[specific])**	**Codes**
RQ1	- *I wish to know more about my students -how to assist them even better* - *I use chat box and Kahoot to engage them & I share my stories with them and encourage them to do the same too in the lesson* - *I save 5-10 minutes at the end of the lesson, to let my students ask questions or just to mingle a bit with them*	3; specific actions were mentioned as ways for Gemütlichkeit-building, with the aim to understand students better and ways to assist them	● know more about students; ● assist students; ● chat box, Kahoot; ● share stories;
RQ2	- *As a teacher, you need to figure out a way to make students feel entertained, if you bore them out, you lose them* - *It is indeed a challenge for me, name any softwares… Kahoot, Quizlets...etc..* - *I am quite close with them, once my student told me on Whatsapp,"Mr. John, we've played the same online game for three lessons already, can we do something else?"*	2; Contextual relevance is high, informant pointed out consequences of boring students and gave an example of how his communicated their thoughts about the repetition of the online game in class	● ways to engage students; ● softwares like Kahoot, Quizlet; ● consequences of losing students' attention; ● exchanging personal contact
RQ3	- *I encourage my students to challenge what I say in the lesson and I deliberately teach them something with flaws and have them correct me on the board.* - *It is a shared screen, so that gives my students a bit of pressure since his/her work is under the spotlight now*	1; Teaching method encourages critical thinking and reflective thinking in students, the informant integrated the characteristic of Zoom screen-sharing function with enquiry-based teaching	● Enquiry-based teaching; ● shared screen to create pressure; ● instant feedback;

As these initial codes are generated using the three research questions as the main framework, theoretical thematic analysis is conducted. The process involves triangulation of the data, in which the interviews were repeatedly listened to; the transcripts, both Cantonese and English were repeatedly reviewed and casual conversation records were also examined; the codes were also modified in preparation for the search for meaningful themes. The codes were modified and a total of 22 codes were kept after refinement, with the omission and/or combination of overlapping content.

Phase 3 is approached with the aim to capture significant and interesting perspectives to the research questions. According to Braun & Clarke (2013), the contribution to a theme depends on the research itself and has no basic ground rules to follow. Owing to this, this research has adopted the strategy of grouping the codes in phase 2 and sorting them into different aspects with response to the research questions. Although the basis of the data in this research is limited, the length of the interview, the reflective nature & open-ended questions used during the interview, as well as the trusting relationships between the researcher and the informants have ensured the quality, validity and reliability of the data. Initially, the 36 codes were placed under the following themes:

i. Gemütlichkeit in an online-learning environment;
ii. Tracking students' learning progress online;
iii. Anxiety of teaching online;
iv. Ways to overcome difficulties in online teaching;
v. Difficulties in an online teaching environment;
vi. Maintenance of relationship with students.

It is noteworthy that as the informants narrate their online teaching experience during the pandemic, often different aspects might overlap. This insinuates that a 30seconds-1minute excerpt from an informant could contain two themes at the same time; the dominant theme is hence determined by the context, tone and proportion of the data.

Then it enters phase 4, in which the six themes were placed in an organised manner; and I reflect on whether the themes are strongly correlated to the research questions; whether the data truly supports the themes and whether the codes were placed under the most suitable theme. Other reflective points include if any seemingly separate theme is indeed subtheme; and too much has been placed under the same theme. Table 4 in the following shows a brief illustration of how the themes were reviewed and reorganised.

Table 4.
An illustration of how initial themes are laid out and reviewed

Research Questions	**Themes**	**Codes**
RQ 1	1. Gemütlichkeit in an online-learning environment	RQ 1.1 ● Kahoot; Quizlet; Shared screen ● Want to understand students' difficulties ● Encourage students to share daily events
	2. Maintenance of relationship with students	RQ 1.2 ● Exchange personal contacts ● Facebook, Instagram, School Forum ● Different approach in teaching senior and junior year students ● Allowing time in the class for mingling
RQ 2	1. Ways to overcome difficulties in online teaching	RQ 2.1 ● Requiring students to turn on cameras ● Pop quizzes ● Making use of different applications and softwares ● Keeping the teaching materials updated
	2. Difficulties in an online teaching environment	RQ 2.2 ● Cannot tell if students are really 'present' ● Existing learning differences & catching-up with packed syllabus ● Accessibility to stable wi-fi

RQ 3	1. Tracking students' learning progress online	RQ 3.1 ● Group work and break-out rooms ● Calling on class numbers ● Private messages sent to students in chat box ● Encourage students to send direct messages via social media
	2. Anxiety of teaching online	RQ 3.2 ● Parents' scrutinisation ● Not familiar with Zoom and Google classroom ● Internet safety concerns ● Widening learning differences in class

As reflected in Table 4, the preliminary themes were adjusted since the idea repeats itself and overlaps with the other theme. The reconsideration, refinement and adjustment of themes contribute to phrase 5. Centering at the three research questions, for instance, theme 2 under RQ1: maintenance of relationship with students was omitted, since it is the ultimate purpose of the bigger conceptual term 'Gemütlichkeit". It is noteworthy that all three informants have highlighted the differences in teaching junior and senior form students, in which the more mature students might have already known and are used to the teaching styles of the informants; but the junior form students might not know my informant at all, implying that extra efforts need to be paid by my informant to overcome the distance/ to 'break the ice'. Another adjustment made is in RQ 2, theme 2, in which only theme 1 is retained at last, owing to its direct relevance to the research question. Effective communication is achieved by two steps: identifying the communication barriers; and overcoming them. On that account, it seems more appropriate and logical to group them together as one theme. As for RQ 3, the maintenance of teachers' power over students comes down to the reflective account of the fundamental roles of teachers. Therefore, tracking students' learning progress indicates their role of imparting knowledge. As a matter of fact, teachers are not simply there to fulfil epistemological purposes; since they spend so much time with their students; their emotional exchange also plays an indispensable role in their interaction with students. Owing to this, their anxiety of teaching online is categorised under RQ3, as it addresses the issue of how my informants negotiate and assert their teaching & leading roles for their students despite their self-doubt and uncertainties. Figure 2 in the following showcases a thematic map which defines the themes, correlations with the research questions as well as a general view of the aspects which the research questions are examining in the dynamic of teacher-student interaction in an online setting, as opposed to a traditional classroom. Finally, Table 5 highlights the particularly important quotes extracted from the transcripts, which illustrate the themes especially well.

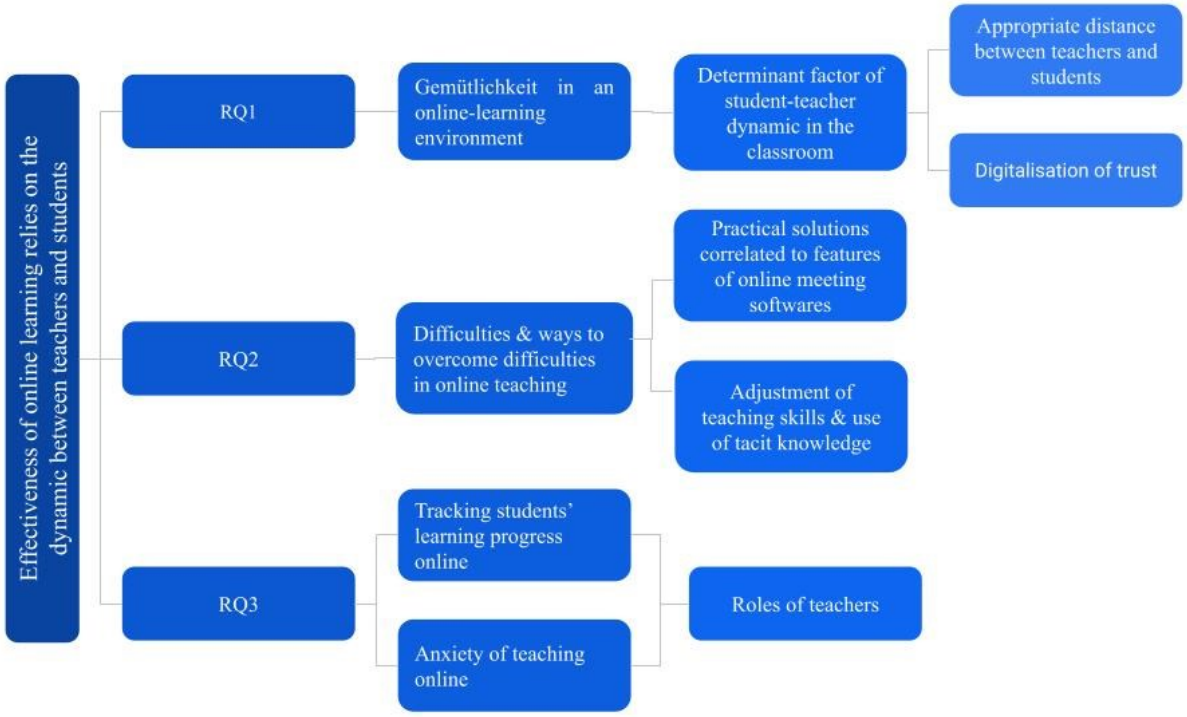


Figure 2. Thematic map showcasing relationships between research questions, themes, and the significance of themes

Table 5.
Excerpts from interview transcripts

Themes	*Excerpts from informants*
Gemütlichkeit in an online-learning environment	*Especially during these two years, online teaching has kind of worsened the problem [learning gap amongst students]. I feel like even more has to be done, I wish to know more about my students and exactly how to assist them even better. I use functions like chat box and Kahoot to engage them, I share my stories with them and encourage them to do the same too in the lesson. I also save 5-10 minutes at the end of the lesson, to let my students ask questions or just to mingle a bit with them.* —----------Tom *I can imagine that… if the same software is used in every single lesson for school… I would be annoyed too. As a teacher, you need to figure out a way to make students feel entertained, if you bore them out, you lose them. It is indeed a challenge for me, name any softwares… Kahoot, Quizlets...etc. Every teacher has used these platforms before, it 's just a matter of time before students find it lame. So I tell my students to just tell me directly. I am quite close with them, once my student told me on Whatsapp,"Mr. John, we've played the same online game for three lessons already, can we do something else?"* —----------John *Being a male teacher working in a girls' school, I'd describe my relationship with my students as a game of chess. I can't be too close with them but I can't be too distant either. Just like e-learning and online teaching, everyone was figuring things out, through trials and errors, we find our paths. In the previous two years, that was mostly my motto, it's what I believe in. Everyone has a certain capacity in learning I think, it is trust from my supervisor that brings the most out of me, and it is also trust that brings the best out in my students. I encourage my students to challenge what I say in the lesson and I deliberately teach them something with flaws and have them remind me. That keeps my students engaged and knowing that they are learning is what keeps me going.* —----------John
Tracking students' learning progress online	*My students have developed different and new learning habits, bad ones, during online schooling, those habits are difficult to change. For example, they relied on online information to complete their homework, they only care about getting the answers, but Maths is a process of logical training, my extra work was to find out if they got those*

	answers from private tutors or sources online. Some students simply look at the printed answers at the end of the book, and try to deduce the steps backward but this is not how Mathematics works. —----------John *It's actually very common, some students don't even turn on their cameras and you don't and won't even know if they're there, and for some students, you just know that they are not, but there's nothing you can do! Some students even turn off their lights in the area which they had lessons in. Also, online education actually favours those with better academic standing; the weaker students usually have less self-discipline, they engage less and so fall behind even more.* —----------Aidan *I did notice the differences between students with higher and lower socio-economic status. Sometimes it can be difficult, for both my students and me. One of my students shares a computer with two other siblings, so often she had to use her phone for our lesson, then she couldn't respond in the chat box or annotate on the board. Her monitor was very small too and her learning is jeopardised since she's unable to participate in activities that require students to use several applications simultaneously. It's harder to track whether she's really participating in the online classes, it all comes down to what I know about this student before COVID, luckily she's always been hard-working and was my student before.* —----------Tom
Anxiety of teaching online	*Most teachers in my school don't want to do online teaching, they think it's too difficult to deliver knowledge effectively remotely and technical issues can come in the way as well. Most of us are anxious about students' progress during COVID, we can't be sure that students are learning as effectively as they did in a face-to-face situation.* —----------Aidan *Well, you can't just give a lecture in an online environment, you need to arrange and organise activities to engage students in the lesson. In an online classroom, it's not like you can just walk over to a student when s/he is distracted, you can only engage them through applications and games like Kahoot...etc. It's how I engage my students for online lessons, but nothing too innovative nor mind-blowing, I really am not sure if it works well.* —----------John *At first, it was difficult because teachers also had to get used to the fact that the learning outcomes might not be as good as having lessons face-to-face. Learning through a monitor is difficult because teachers can no longer tell whether students understand something by body language. These learning feedbacks are missing in online classes. It's kind of scary actually when you don't receive feedback from students, you don't know whether they really understand it, actually it's very scary. In face to face lessons, you can just wake up those who have fallen asleep, but online teaching is scary, because you really have no idea how they perform. There's a sense of voidness/ emptiness in online lessons.* —----------Tom *I can only see my students' presence, as in their names in the screen, our school does not obligate students to turn on their cameras, but often those who don't turn on their cameras on are exactly those whom need you the most, they are usually weaker or have special needs that require your extra attention in a usual class setting. For those students, when teaching them, I feel very anxious because I don't know who I am teaching. I know it's an issue about their privacy but still, all I want to know is that they are actually listening and are really learning and engaging. But of course, if they insist on not turning on their cameras, there really is nothing I can do. Those are the students whom I worry the most about, the academically better ones are different, even if they don't turn on their cameras, you know that they are engaged and that they are really learning.* —----------Tom *I think another issue is that some parents have lessons with their children at home, and so as school teachers, we have to be extra mindful and careful about what we say and do, how we teach, etc. You really have to be very careful with what you think, say and act; choice of words and even for class content, source of information or you might get into serious trouble.* —----------John

Difficulties & ways to overcome difficulties in online teaching	*For teaching tools, teachers have become more careful when selecting the types of tools to use because they need to be effective in engaging students. Even after making the appropriate choice, you need to use it well, if not, it might create chaos in an online classroom. For example, I once had students take photos of items with symmetry and upload them onto the platform within a given time. You need to engage them, instead of just treating it as an online element.* —----------John *I try my best to interact with my students through online lessons, for instance, I call out their class numbers randomly and have them answer questions, and meanwhile I would calculate their marks and jot down their performances, it kind of provides them an incentive to answer and to give responses. I also make use of other softwares to do instant quizzes with them, and I would use that to test and see how much they understand. I actually do these to bring a sense of security to myself, you know, because once they give me feedback, it is very reassuring and it motivates me to keep going; when they don't give you feedback, you really don't know if they are really catching on.* —----------Aidan *I understand those who refuse to turn on their cameras, maybe they don't want to show their homes to everyone, so I don't force them. Instead of making them turn on their cameras, I change my strategy to having them turn on their cameras showing not their faces, but their notes, at least that makes me feel like they are actually jotting things down, and that makes me feel much better and much more assuring.* —----------Tom

7. Thematic Analysis- Phase 6

7.1. Gemütlichkeit in an Online-Learning Environment

The four selected themes are: Gemütlichkeit in an online-learning environment; tracking students' learning progress online; anxiety of teaching online and ways to overcome difficulties in online teaching. These themes are selected based on their commonality in the three cases; Gemütlichkeit concerns the friendliness and trusting environment/ atmosphere created by teachers in an online learning environment (Salvador et al., 2020). Owing to the pandemic, the usual skills and routines that teachers go through on the first week of meeting students were no longer probable; during ERT, the first week of school involves teachers greeting students on Zoom and could only afford very limited time for ice-breaking. Syllabus and schedules have always been tight in Hong Kong, and in an online context, schools expect teachers to help students catch up and to limit the negative effects of online learning to a minimum level. As a result, the teaching schedules of teachers are very tight, making it even more difficult to bond with students. According to my informants, a good student-teacher relationship is very important to students' learning; therefore, these teachers establish Gemütlichkeit with other methods such as using Whatsapp, chat box and voting functions on Zoom, so as to engage and interact with students.

"You can imagine that… if the same software is used in every single lesson for school… I would be annoyed too. As a teacher, you need to figure out a way to make students feel entertained, if you bore them out, you lose them. It is indeed a challenge for me, name any softwares… Kahoot, Quizlets...etc. Every teacher has used these platforms before, it 's just a matter of time before students find it lame. So I tell my students to just tell me directly. I am quite close with them, once my student told me on Whatsapp,"Mr. John, we've played the same online game for three lessons already, can we do something else?""

John

One of the informants, John, has established a trusting environment for students to communicate their thoughts freely by his truthfulness. John is empathetic towards the online

situation that his students are forced to face, and being a master's student himself, he understands the frustration and tiredness that online learning could bring. Therefore, he chooses to introduce more stimulating and two-way interactive elements in the delivery of his online classes so as to keep his students engaged. By doing so, John's students are provided a platform to communicate their needs directly and most importantly, John makes adjustments in the lessons accordingly, forming a healthy relationship. He also encourages his students to correct him in the lesson by deliberately including flawed teaching resources in the lesson so as to ensure his students pay close attention to the lesson and that they understand the delivered content thoroughly.

7.2. Tracking Students' Learning Progress Online

According to my informants, their utmost concern is the learning progress of their students, and they are concerned that their students might not learn as well in an online classroom. Without the physical presence and observable body languages exhibited in students, online teaching and learning challenges teachers as they need to create activities that could reflect the engagement of students in the lesson. Often, these are determined by factors such as whether students' cameras are on, or whether they engage in the activities accordingly.

"It's actually very common, some students don't even turn on their cameras and you don't and won't even know if they're there, and for some students, you just know that they are not, but there's nothing you can do! Some students even turn off their lights in the area which they had lessons in. Also, online education actually favours those with better academic standing; the weaker students usually have less self-discipline, they engage less and so fall behind even more"

Aidan

As narrated by Aidan in the interview, when students choose not to turn on their cameras, it is frustrating for teachers when they are not given immediate feedback from their students. Teachers are worried about their students' falling behind in class, since my three informants teach mainly secondary 4-6 students, these students have to face their public examination very soon, which is partially why my informants' anxiousness when they are not certain about their students' learning progress.

"I did notice the difference between students with higher and lower socio-economic status. Sometimes it can be difficult, for both my students and me. One of my students shares a computer with two other siblings, so often she had to use her phone for our lesson, then she couldn't respond in the chat box or annotate on the board. Her monitor was very small too and her learning is jeopardised since she's unable to participate in activities that require students to use several applications simultaneously. It's harder to track whether she's really participating in the online classes, it all comes down to what I know about this student before COVID, luckily she's always been hard-working and was my student before".

Tom

On the other hand, Tom has also pointed out the issue of digital divide, which has made tracking students' learning progress even more difficult. Students' accessible resources depend on the socio-economic status of their family, on one hand, not every household can afford a digital device and the environment needed for an online lesson to go smoothly. On the other hand, since ERT is conducted abruptly, school support might be unprepared to provide support for these students. The outcome, according to the observation of all three of my informants, is that students who have had high academic achievements are even more hard-working than before,

since they have more time to learn at their own pace, and they have more rest as well because travelling time is saved. Meanwhile, the weaker students are suffering under online education.

7.3. Anxiety of Teaching Online

Under the effects of Covid, many teachers are worried and scared about the public health crisis (Boer et al., 2022). Since not many teachers have prior knowledge or experience of online teaching, my three informants have faced a range of difficulties in the delivery. As noted by Aidan in the interview,

"Most teachers in my school don't want to do online teaching, they think it's too difficult to deliver knowledge effectively remotely and technical issues can come in the way as well. Most of us are anxious about students' progress during COVID, we can't be sure that students are learning as effectively as they did in a face-to-face situation".

Most teachers in Hong Kong are resilient about online education, although the digitalisation of teaching materials and blended learning have become compulsory under requirements of the EDB. Since online teaching is not part of the required course during teachers' training, all my informants coincidentally described the process as a kind of constant "trial-and-error". Part of the anxiety comes from the lack of knowledge of online teaching; on the other hand, the anxiety also comes from how different online teaching and face-to-face teaching are. As noted by Tom,

"At first, it was difficult because teachers also had to get used to the fact that the learning outcomes might not be as good as having lessons face-to-face. Learning through a monitor is difficult because teachers can no longer tell whether students understand something by body language. These learning feedbacks are missing in online classes. It's kind of scary actually when you don't receive feedback from students, you don't know whether they really understand it, actually it's very scary. In face to face lessons, you can just wake up those who have fallen asleep, but online teaching is scary, because you really have no idea how they perform. There's a sense of voidness/ emptiness in online lessons"

Tom

Tom describes the lack of interactions between teachers and students as a type of teaching that gives him a sense of voidness and emptiness; it even makes him feel scared of not knowing whether his students are facing any difficulties in the lesson. The way Tom describes his feeling is very direct, straightforward and with words with strong emotional connotations. For instance, "it's very scary"; "have no idea how they perform", from these phrases, a strong sense of frustration is hinted, thereby pointing to the importance of interactions between teachers and students. On top of this, another challenge was also brought up by John.

"I think another issue is that some parents have lessons with their children at home, and so as school teachers, we have to be extra mindful and careful about what we say and do, how we teach, etc. You really have to be very careful with what you think, say and act; choice of words and even for class content, source of information or you might get into serious trouble"

John

Hong Kong has experienced drastic socio-political changes in the last two years and it has savagely robbed many locals of their trusts towards one another. My informant, John, has indeed been in trouble before for discussing issues related to politics with his students in the lesson; in spite of the fact that he was merely stating the facts based on news reports and was only mentioning that because his student brought up the question, John was still penalised as he was complained by one of the parents of his students. Under the effects of the pandemic, many parents have to work from home while their children learn from home; in some cases,

those parents would be present the whole time to observe their children's learning online. For teachers, this is certainly a new condition that they have to deal with since they are literally "watched" by students' parents. As mentioned by John, he and his colleagues felt that they have to be extra careful and mindful regarding what they say in the lesson, for fearing that the parents might be under the wrong impression and take legal actions against them, especially with the enactment of National Security Law in Hong Kong.

7.4. Difficulties & Ways to Overcome Difficulties in Online Teaching

Despite the different types of challenges that teachers face when teaching online, they do have their ways of coping and overcoming them with hopes to reduce the gap between face-to-face classes and online classes. From the choice of online platforms to the softwares and applications to use in each session; from engaging students by calling upon their school numbers randomly to the provision of reward and punishment system; from encouraging students to voice out their needs directly to coming up with activities that require students to give immediate and regular feedback, my informants have also introduced and invented their own ways of overcoming the challenges they face in an online classroom. John especially noted that the trick to successful online teaching is to engage students fully with the help of technology, therefore, it is essential that teachers understand the importance of engaging students in an online learning environment and that these tools are more than just a part of the online situation.

"For teaching tools, teachers have become more careful when selecting the types of tools to use because they need to be effective in engaging students. Even after making the appropriate choice, you need to use it well, if not, it might create chaos in an online classroom. For example, I once had students take photos of items with symmetry and upload them onto the platform within a given time. You need to engage them, instead of just treating it as an online element"

Aidan

Other practical ways are also mentioned and highlighted by Aidan and Tom, for Aidan, he gives pop quizzes at random times during the session to ensure that his students are paying attention in class and to check their understanding and concepts. It is interesting that Aidan narrates the action as a way to "bring a sense of security to himself". At the same time, this narration parallels what is mentioned by Tom, as he also noted how his class rule of having students turn on their camera, showing their hands and notes but not their faces is a type of feedback for him and that it pacifies him when he teaches.

"I try my best to interact with my students through online lessons, for instance, I call out their class numbers randomly and have them answer questions, and meanwhile I would calculate their marks and jot down their performances, it kind of provides them an incentive to answer and to give responses. I also make use of other softwares to do instant quizzes with them, and I would use that to test and see how much they understand. I actually do these to bring a sense of security to myself, you know, because once they give me feedback, it is very reassuring and it motivates me to keep going; when they don't give you feedback, you really don't know if they are really catching on"

Tom

It is noteworthy that both Aidan and Tom consider teaching without two-way communication and feedback is the "scariest" part of online teaching. At the same time, they both came up with creative ways to ensure that their students are engaged in the lesson. Furthermore, this type of

engagement has made them feel assured in the delivery of knowledge, since they have some clues about how much their students have understood, or the parts that need further explanation.

"I understand those who refuse to turn on their cameras, maybe they don't want to show their homes to everyone, so I don't force them. Instead of making them turn on their cameras, I change my strategy to having them turn on their cameras showing not their faces, but their notes, at least that makes me feel like they are actually jotting things down, and that makes me feel much better and much more assured."

Tom

8. Discussion

During the last two years, teachers in Hong Kong have been under immense stress as they had to face both socio-political changes on top of a global public health crisis. According to de la Fuente et al. (2021), both teachers and students have roles to play in the creation of an effective learning environment; teachers ought to plan and design the class content, as a process known as regulatory teaching-learning. On the other hand, students ought to self-regulate their behaviours and learning by staying with school schedules and objectives set in class. Although both teachers and students are expected to play a part in creating and maintaining a positive learning environment, this research has found out through narrative analysis of three local teachers' stories, that an interactive dynamic between teachers and students is a determining factor of an effective online learning environment. As proposed in the session above, the narrations of Aidan, Tom and John have exhibited traces of the teacher-content-students-dynamic.

Teacher-content interaction is seen in teachers' selection of platforms and means to use in the online class. In these three cases, Google classroom was used for uploading assignments and teaching materials for students; the platform is chosen because it is believed to be more user-friendly than the school intranet, making non-digital content interaction possible and more easily accessed by students. On the other hand, teachers' preparation for the lessons and their delivery of lessons are found to be highly dependent on their computer literacy. In Tom's case, as he is less experienced in online teaching as compared to Aidan and John, the method that he has employed include requiring his students to show their faces and notes in the lesson; while Aidan and John had made relatively better use of the software by utilising the chat box functions as well as the voting functions to deliver pop quizzes during the lesson.

Online human interaction was the most challenging for the three informants, as they struggled to make sense out of the experiences. Tom and Aidan felt insecure about online classes since they are not certain about whether their students are catching on in the lesson. They both compared the face-to-face lessons with the online one, and mentioned how easy it was for them to engage their students since body language was obvious and visible in-person, while limited and blocked by remote teaching and learning. The habitus that they are used to is no longer available, and has caused them to feel insecure and anxious when making sense of the new experience. By contrast, it seemed slightly easier for John, as he is quite experienced in terms of online teaching and learning. Not only was he able to utilise the functions of the softwares fully, he was also able to engage students by integrating real-life activities with the online platform, such as the activity of photo-taking and uploading it to the online platform. In addition, he was also able to engage his students by using Whatsapp and establishing Gemütlichkeit despite being in an online classroom.

At the same time, students' feedback is found to be a determinant factor that affects teachers' emotions as well as their quality of teaching. Emotional capital is exchanged between teachers and students in the online human interaction; when students are not able to provide feedback

for teachers, the emotional exchange includes insecurity, anxiety and frustration. Students' learning might hence be jeopardised since individuals "*learn best through relating new materials with lived experiences, questioning premises and contents of their practices and experiences"*; in other words, negative capital exchange might bring negative effects on the collective capacity in between (Nolan et al., 2020). On the contrary, when students are able to demonstrate to their teachers that they are engaged in the lessons; such as when Tom's students turn on their cameras and show their hands jotting down notes to Tom; or when Aidan's students respond correctly in those pop quizzes, these yielded positive emotions such as "reassurance"; "motivation" and Tom even described it as "the thing that keep him going".

Furthermore, as revealed by the interviews with these informants, online human interaction is also dependent on students' accessibility of resources. The issue of digital divide not only creates problems and presents itself in the widening learning gap in a classroom, but when students do not have access to appropriate digital devices; such as how John mentioned that some of his students had to use their mobile phone to attend online classes, could bring detrimental effects to the planned activities of teachers. Those students were not able to participate in class activities which required them to use multiple devices simultaneously; nor were they able to annotate on the board virtually, and this could generate insecurity and anxiety for teachers as "there is nothing they can do".

9. Conclusion

This research has discussed the issue of online learning using the theories of emotional capital and symbolic intercationism. In addition, this research has proposed the model of "teacher-content-students dynamic" and has used narrative analysis to argue that it is the dynamic between teachers and students in the lesson that matters. Although both teachers and students have their roles to play in the establishment of a positive learning environment, students' responses and feedback matters not in terms of the content, but its presence. In ERT, teachers face levels of anxieties due to unfamiliarity of online teaching; the global public health crisis and socio-political changes in Hong Kong; therefore, students' feedback are especially important as it affects the emotions that teachers have towards online learning. Owing to this, this research is significant as it has postulated the essence of effective online learning, which is very likely to be the future trend given the chaos that the pandemic has created.

This research, however, does have its limitations as well. The first limitation is that classroom observation was not possible as schools have become more prudent and tend to avoid invitations like this to protect their school, school teachers and students ever since the national security law has been enacted. Triangulation was done by references to conversation records between myself and the informants, since they have also expressed their feelings and worries with me personally. The second limitation is that students were not interviewed and only the perspective of teachers are taken into account in this research since the research focus is partially on teachers' emotions. However, since narrative analysis is used, the stories narrated by these informants often include their students' views as well, therefore, students' perspectives have not been entirely left out in the research. It is recommended that further studies be done in testifying the proposed model in the research, perhaps by quantitative analysis so as to extend its usage to a broad level. Moreover, future research could look into the possibility of including students' voices to investigate the reverse effects of emotional capital exchange between teachers and students.

References

Allatt, P. (1993) 'Becoming Privileged: The Role of Family Processes' in Bates, I. and Riseborough, G. (eds.) Youth and Inequality. Buckingham: Open University Press.

Al-Nasa'h, M., Al-Tarawneh, L., Abu Awwad, F. M., & Ahmad, I. (2021). Estimating students' online learning satisfaction during COVID-19: A discriminant analysis. Heliyon, 7(12), 1–7. https://doi.org/10.1016/j.heliyon.2021.e08544

Blizak, D., Blizak, S., Bouchenak, O., & Yahiaoui, K. (2020). Students' Perceptions Regarding the Abrupt Transition to Online Learning During the COVID-19 Pandemic: Case of the Faculty of Chemistry and Hydrocarbons at the University of Boumerdes—Algeria. Journal of Chemical Education, 97(9), 2466–2471. https://doi.org/10.1021/acs.jchemed.0c00668

Blumer, H. (1969). Symbolic interactionism: Perspective and methods. Englewood Cliffs, NJ: Prentice Hall.

Braun, V. & Clarke, V. (2006). Using thematic analysis in psychology. Qualitative Research in Psychology, 3, 77-101. https://doi.org/10.1191/1478088706qp063oa

Boer, P., & Asino, T. (2022). Learning Design Experiences of the Namibian Teachers during the COVID-19 Pandemic: An Ethnographic Perspective. TechTrends, 66(1), 29-38. https://doi.org/10.1007/s11528-021-00684-8

Bourdieu, P. (1977) Outline of a Theory of Practice (Trans. R. NICE). Cambridge, Cambridge University Press. https://doi.org/10.1017/CBO9780511812507

Bourdieu, P. (1990) The Logic of Practice. Cambridge, Polity Press. https://doi.org/10.1515/9781503621749

Chen, V., Sandford, A., LaGrone, M., Charbonneau, K., Kong, J., & Ragavaloo, S. (2022). An exploration of instructors' and students' perspectives on remote delivery of courses during the COVID-19 pandemic. British Journal of Educational Technology, 00, 1–22. https://doi.org/10.1111/bjet.13205

Clandinin, D. J., & Rosiek, J. (2007). Mapping a landscape of narrative inquiry: Borderland spaces and tensions. In D. J. Clandinin (Ed.), Handbook of narrative inquiry: Mapping a methodology (pp. 35–75). Thousand Oaks, CA: Sage. https://doi.org/10.4135/9781452226552

Clarke, V. & Braun, V. (2013). Teaching thematic analysis: Overcoming challenges and developing strategies for effective learning. The Psychologist, 26(2), 120-123.

Coman, C., ȚÎru, L. G., Meseșan-Schmitz, L., Stanciu, C., & Bularca, M. C. (2020). Online Teaching and Learning in Higher Education during the Coronavirus Pandemic: Students' Perspective. Sustainability, 12(24), 1–24. https://doi.org/10.3390/su122410367

de la Fuente, J., Pachón-Basallo, M., Santos, F. H., Peralta-Sánchez, F. J., González-Torres, M. C., Artuch-Garde, R., Paoloni, P. V., & Gaetha, M. L. (2021). How Has the COVID-19 Crisis Affected the Academic Stress of University Students? The Role of Teachers and Students. Frontiers in Psychology, 12, 1–16. https://doi.org/10.3389/fpsyg.2021.626340

Erickson, F. (1986). Qualitative Methods in Research on Teaching. In M. Wittrockk (Ed.), Handbook of Research on Teaching (3rd ed., pp. 119–161). New York: MacMillan.

Eschenbacher, S., & Fleming, T. (2020). Transformative dimensions of lifelong learning: Mezirow, Rorty and COVID-19. International Review of Education, 66(5–6), 657–672. https://doi.org/10.1007/s11159-020-09859-6

Gage, N. L. (1978). *The Scientific Basis of the Art of Teaching*. Amsterdam University Press.

Geertz, C. (1973). Thick Description [E-book]. Amsterdam University Press.

Graham, C. R. (2016). Case studies: An authentic research method. In Picciano, A. G., Dziuban, C. D., Graham, C. R., & Moskal, P. D. (Eds.) Conducting Research in Online and Blended Learning Environments (pp. 97-113). New York, NY: Routledge/Taylor Francis Group.

Hammersley, M.; Foster, P. and Gomm, R. (2000). Case study and generalisation. In Gomm, R.; Hammersley, M. and Foster, P. (Ed.s), Case Study Method: Key Issues, Key Texts (pp. 98–115). London: Sage.

Heo, H., Bonk, C. J., & Doo, M. Y. (2021). Enhancing learning engagement during COVID - 19 pandemic: Self-efficacy in time management, technology use, and online learning environments. Journal of Computer Assisted Learning, 37(6), 1640–1652. https://doi.org/10.1111/jcal.12603

Hu, X., Chiu, M. M., Leung, W. M. V., & Yelland, N. (2021). Technology integration for young children during COVID-19: Towards future online teaching. British Journal of Educational Technology, 52, 1513–1537. https://doi.org/10.1111/bjet.13106

Jenkins, R. (1992). *Pierre Bourdieu.* London, Routledge. https://doi.org/10.4324/9780203317471

Kapasia, N., Paul, P., Roy, A., Saha, J., Zaveri, A., Mallick, R., Barman, B., Das, P., & Chouhan, P. (2020). Impact of lockdown on learning status of undergraduate and postgraduate students during COVID-19 pandemic in West Bengal, India. Children and Youth Services Review, 116, 105194. https://doi.org/10.1016/j.childyouth.2020.105194

Khalil, R., Mansour, A. E., Fadda, W. A., Almisnid, K., Aldamegh, M., Al-Nafeesah, A., Alkhalifah, A., & Al-Wutayd, O. (2020). The sudden transition to synchronised online learning during the COVID-19 pandemic in Saudi Arabia: a qualitative study exploring medical students' perspectives. BMC Medical Education, 20(1), 1–10. https://doi.org/10.1186/s12909-020-02208-z

Kim, M., Yu, H., Park, C., Ha, T., & Baek, J. (2021). Physical education teachers' online teaching experiences and perceptions during the covid-19 pandemic. Journal of Physical Education and Sport, 21, 2049-2056.

Mahmood, S. (2020). Instructional Strategies for Online Teaching in COVID -19 Pandemic. Human Behavior and Emerging Technologies, 3(1), 199–203. https://doi.org/10.1002/hbe2.218

Nolan, A., & Molla, T. (2020). Building teacher professional capabilities through transformative learning. Asia-Pacific Journal of Teacher Education, 49(4), 450–465. https://doi.org/10.1080/1359866x.2020.1828823

Nowotny, H. (1981) Women in public life in Austria. In C. Fuchs Epstein and R. Laub Coser (Eds) Access to Power: Cross-national Studies of Women and Elites. London, George Allen and Unwin, 147–156. https://doi.org/10.4324/9780429423819-9

Omar, H. A., Ali, E. M., & Belbase, S. (2021). Graduate Students' Experience and Academic Achievements with Online Learning during COVID-19 Pandemic. Sustainability, 13(23), 13055. https://doi.org/10.3390/su132313055

Oviatt, D., Graham, C. R., Borup, J., & Davies, R. S. (2018). Online student use of a proximate community of engagement at an independent study program. Online Learning, 22(1), 223–251. http://doi.org/10.24059/olj.v22i1.1153

Pennings, H. J. M., & Hollenstein, T. (2020). Teacher-Student Interactions and Teacher Interpersonal Styles: A State Space Grid Analysis. *The Journal of Experimental Education*, *88*(3), 382–406. https://doi.org/10.1080/00220973.2019.1578724

Reay, D. (2000). A Useful Extension of Bourdieu's Conceptual Framework?: Emotional Capital as a Way of Understanding Mothers' Involvement in Their Children's Education? *The Sociological Review*, *48*(4), 568–585. https://doi.org/10.1111/1467-954x.00233

Salvador, K., Paetz, A. M., & Tippetts, M. M. (2020). "We All Have a Little More Homework to Do:": A Constructivist Grounded Theory of Transformative Learning Processes for Practising Music Teachers Encountering Social Justice. Journal of Research in Music Education, 68(2), 193–215. https://doi.org/10.1177/0022429420920630

Sousa, A. N. (2021). Dialogue in Online Learning Spaces: How Transitioning to Online Learning During a Pandemic Impacts Classroom Dialogue and Inclusivity. Journal of Teaching and Learning with Technology, 10(Special Issue), 229–237. https://doi.org/10.14434/jotlt.v9i2.31383

Sun, J., & Zhang, X. (2021). Exploring Chinese college students' emotions as they engage in online learning during a pandemic. Asia Pacific Journal of Education, 1–12. https://doi.org/10.1080/02188791.2021.1965541

Tang, H. (2021). Teaching teachers to use technology through massive open online course: Perspectives of interaction equivalency. Computers & Education, 174, 104307. https://doi.org/10.1016/j.compedu.2021.104307

Tang, Y. M., Chen, P. C., Law, K. M., Wu, C., Lau, Y. Y., Guan, J., He, D., & Ho, G. (2021). Comparative analysis of Student's live online learning readiness during the coronavirus (COVID-19) pandemic in the higher education sector. Computers & Education, 168, 104211. https://doi.org/10.1016/j.compedu.2021.104211

Vrasidas, C. (2001). Interpretivism and Symbolic Interactionism: "Making the Familiar Strange and Interesting Again" in Educational Technology Research. In Heinecke, W., & Willis, J. (Eds.), Research Methods in Educational Technology.Greenwich, CT: Information Age Publishing, Inc. 81-99.

Zembylas, M. (2007). Emotional Capital and Education: Theoretical Insights From Bourdieu. *British Journal of Educational Studies*, *55*(4), 443–463. https://doi.org/10.1111/j.1467-8527.2007.00390.x

Zheng, F., Khan, N. A., & Hussain, S. (2020). The COVID 19 pandemic and digital higher education: Exploring the impact of proactive personality on social capital through internet self-efficacy and online interaction quality. Children and Youth Services Review, 119(105694), 1–40. https://doi.org/10.1016/j.childyouth.2020.105694

OPEN ACCESS

European Journal of Teaching and Education
ISSN 2669-0667

Emotions as an Accelerator: Case Studies on the Effects of Emotions on Teachers' Perception and Learning When Being in Conflicts with School Leaders

Yin-yung CHIU

Heidelberg University, Germany

ARTICLE INFO

Keywords:
conflicts with school leaders,
disjuncture,
perspective transformation,
power distance orientation,
teachers' emotions

ABSTRACT

Teachers' emotions are critical to positive student-teacher relationships and quality teaching in the classroom, though the importance of teachers' effective management of emotions has been recognized (Chen, 2020), the reverse effects of teachers' emotions on teachers' learning have been underplayed in the field. Teachers are expected to be professional learners (Locke; Jarvis, 2009; Magill, 2021), meanwhile, emotions are often framed as a dichromatic disturbance to their professional learning, hence the effect of emotions is often downplayed, if not neglected. Emotions, however, are innate and inseparable from one's perception of their own lived experience, it affects how one perceives his/her identity and relationship with the world, thereby playing an important role in learning per se (Jarvis, 2006). Through narrative analysis, the teaching trajectories of three Hong Kong Secondary school teachers are studied. The life stories of these three cases have revealed in this research that emotions indeed serve as an accelerator to critical reflection, reflective learning and perspective transformation, thereby leading to transformative learning on both personal and professional levels during disjuncture triggered by conflicts with school leaders. By employing Chen's (2020) Teacher Emotion Model and Liu & Hallinger's (2020) partial mediation model, this research provides empirical evidence to the indispensable effects of emotions on teachers' perception of power distance orientation; how the interactive, dynamic process affects their response; the way emotions act as an accelerator in transformative learning; and how teachers reharmonize disjuncture that are embedded in emotionally charged relationships in the social world in their learning trajectories.

* Corresponding author E-mail address: yychiu.eunice@gmail.com

Cite this article as:
CHIU, Y. Y. (2022). Emotions as an Accelerator: Case Studies on the Effects of Emotions on Teachers' Perception and Learning When Being in Conflicts with School Leaders. *European Journal of Teaching and Education, 4*(1): 48-60. https://doi.org/10.33422/ejte.v4i1.725

1. Introduction

Research on teachers' learning has put emphasis on cognition and motivation, but the emotional dimension has been underplayed (Chen, 2020). Although the importance of emotions has become more recognised (Burić et al., 2019; Chen, 2020); the topic has been approached as a separate subject from teachers' learning; meanwhile, instructional leadership is a crucial factor that influences teachers' learning (Hallinger & Murphy, 1985; Marsh, 1992; Pan & Chen, 2020; Liu & Hallinger, 2021). The emotionality (Little, 1996; Zembylas, 2008) connected with learning and the assemblage of personhood/ 'learning as a whole-person' (Jarvis, 2006) needs to be addressed (Hargreaves, 2001; Mansfield et al., 2016; Chen, 2020; Jacobs et al., 2021). Therefore, this research places emphasis back on the effects of emotions on teachers' perception of power distance orientation and the emotionality-charged interactions between teachers and school leaders (Sjolie et al., 2018; Liu & Hallinger, 2021).

Literature has acknowledged the necessity of meaning-oriented reflection in face of critical disjunctures, it has been established that the most desirable outcome is transformative learning (Mezirow, 2009; Bakkenes et al., 2010). Although the close connection between teachers' critical reflection and transformative learning has been established (Jarvis 2006; 2009; Kovacs, 2018; Yaacob et al., 2021), the roles of emotions in the reharmonizing process is not often researched. Using Liu & Hallinger's (2020) partial mediation model and Chen's (2020) Teacher Emotion Model (TEM), this article illustrates how emotions act as an accelerator to three Secondary schoolteachers in their learning trajectories in their interactions with school leaders. This article first discusses the reverse effects of teachers' emotions on their perception of power distance orientation and explores the often neglected dynamic and interactional characteristics of instructional leadership (Smylie, 1995; Hallinger at al., 2013; Li et al., 2016; Pan & Chen, 2020); next, using narrative analysis, it demonstrates how emotions acted as an accelerator in these teachers' perspective transformation, occasionally resulting in transformative learning.

The article begins by laying out the conceptual relationships between teachers' emotions, learning, and teachers' perception of power distance orientation. Teachers' emotions as an indispensable element of personhood and critical reflection during disjuncture are also discussed through exploring these individuals' reharmonization. This article attempts to merge the TEM model with the partial mediation model to give a more holistic view on teachers' learning and to shed light on the pressing needs to recognise and legitimise the harmonic coexistence between teachers' emotions and professional learning.

1.1. Understanding learning, emotions and transformative learning

Learning has been central to the evolution of humanity, it is a process that is fluid and ever-changing; forward-looking and is not unidirectional, it is a series of becomings and is critical for the effective functioning of society (Jarvis, 2006). Emotive learning was discussed by Jack Mezirow (1977), who postulated the close connection between emotions and perspective transformation and listed critical reflection and emotions as crucial elements of transformative learning. The coexistence between emotions and learning has been recognized, and the approach is heavily influenced by Cell (1984)'s theory of emotions' functionality and how it affects people's sense of self-worth; the appearance of Vygotsky (1988)'s theory of zone of proximal development shifted the focus back to the life-world; Goleman (1996)'s study then demonstrated how one's emotional brain overpowers the thinking brain and the way in which emotional commitment affects one's perception and responses to situations. Jarvis (2006) has furthered the idea and postulated that "emotions cannot be separated from any stage in our understanding of learning" (p.183).

Experiential/ transformative learning has added an ontological perspective to the epistemological dimension; learning in general, is still defined as "the relatively permanent change in behaviour which occurs as a function of practice" (Saltz, 1971, p.5); yet it is no longer viewed as a mere process of knowledge acquisition under the experientialists' perspective (Jarvis; van Oers, 2008). The person-in-the-world is the focus of experiential learning, it is the experiences *per se* that matter; Dewey (1938) emphasized social experiences in the learning process and postulated that continuity and interaction are basis of learning; Rogers (1983) discussed learning as a process of one's becoming to a real and whole person; Cell (1984) postulated four types of experiential learning which include response, situation, trans-situational and transcendent; and Boud (1985) established the interconnection between reflection and learning, in which reflection is viewed as the precondition of experience-recapturing which is the center of learning.

The discussion of learning has been expanded to the exploration of one's personhood and the person-in-the-world under the experiential approach. The connection between learning and emotions lacks a clear roadmap, but the intertwinement is long established in the discussion of learning, from Goleman's biological perspective regarding the emotional brain and thinking brain, to Boud's and Mezirow's emphasis on self-reflection, critical reflection and emotions in learning, to Jarvis' disjuncture theories. It can be observed that emotions and learning are inseparable in spite of the interpretation that one employs to understand and explain the mechanisms of learning (van Oers, 2008, p.5).

1.2. The Connection between emotions and transformative learning

Although currently there lacks a common definition of emotions in the academic field (Chen, 2020), its close connection with learning and transformative learning has long been recognised. Jarvis (2006) postulated that emotions are part of our learning process and has three components: judgement, feeling and action tendency (p.109); Gadamer (1985) spoke of emotions as a profound, mysterious and beautiful subject and that they are inseparable from one's memories, since memories are essential to learning, by extension, emotions are also inseparable from learning. Learning is hermeneutical, as personhood lies at the heart of teaching (Gage, 1977), there is a need to connect teachers' emotions to their learning in order to shed light back on teachers' whole person learning; learning is hence, a process that needs to be studied with consideration of learners' emotions.

Transformative learning was first postulated by Jack Mezirow (2000), which he defines as a process of changing one's taken-for-granted assumptions to make them more inclusive and truthful (p.4). According to Mezirow, an essential component to foster transformative learning is holistic orientation which engages two other ways of knowing--- the affective and relational. As pointed out by Brown (2006) and Taylor (2009), research has put much emphasis on relational discourse and dimension of transformative learning but insufficient work has been done on affective dimension; where in fact, affective knowing, which involves a "see-feel-change sequence" (Brown, 2006. p.732), is how learners usually change and transform. By all means, transformative learning requires learners' awareness of feelings and emotions, which enables a reflective process thereby contributing to critical reflection. Through engaging emotions in the classroom, it provides the platform of dialogic learning and communication that involves deep learning that occurs at a deep and whole person level. Dialogue is the medium for the actualization of critical reflection, which helps the development of trust between and amongst learners (in this article learners refer to both teachers and students), (Mezirow, 1991; Taylor, 2009), which contributes to openness and changes in one's habit of minds, id est transformative learning.

Emotional experiences play a significant role in individuals' construction of knowledge in learning, they change and vary based on social contexts. Emotions are functional as they contribute to one's self-identity, self-worth and self-esteem; which are essential components to how one interprets one's being-in-the-world, thereby affecting how in-depth critical reflections of these individuals might be (Jarvis, 2006; Zembylas, 2008). As pointed out by Strauss (1964) and Jarvis (2006), one's emotional commitment influences the way one sees and responds to situations and the way one learns from them; in other words, emotions are changeable through experiences and at the same time mediates how individuals experience the experiences. Emotions are, therefore, an inseparable process of and is a part of transformative learning.

1.3. The interconnection between emotions, perception and power distance orientation

Emotions and perception are closely connected, and emotions also play a significant role in individuals' actions. Perception refers to the construction of experience, it is about how a person perceives and understands the external world and the way in which they are transformed into knowledge and memories. It is internal (Dewey, 1895) and concerns the mental states of individuals and enables one to make meaning while experiencing the world. In the meaning-making process, emotions contribute significantly to how individuals reflect and make sense of the lived experiences, which is defined as reflective learning according to Jarvis (2006) and Mezirow (2009). It is important that we recognize the inseparability between learning, emotions and perception.

Perception of power distance orientation is the extent to which people accept unequally distributed power in a society or in an organization (Liu & Hallinger, 2020); it is how one perceives power relationships in a given context. The partial mediation model proposed by Liu and Hallinger (2021) has incorporated the perception of viewing instructional leadership as a partial mediation which has both direct and indirect effects on teachers' learning, power distance orientation has been incorporated as the boundary condition which shapes instructional leadership (p.216). (Li, Hallinger and Ko, 2016; Sjolie, Francisco & Langelotz; Yin & Zheng, 2018). Emotions, both positive and negative ones, affect how one perceives everyday events and interprets one's social reality (Dewey, 1895; Jarvis, 2006), it also plays a significant role on how teachers perceive power distribution and respond to school leaders. Teachers' response to instructional leadership determines their commitment at work, and such commitment is positively correlated critical reflection (Little, 2012; Liu & Hallinger, 2020).

1.4. Weaving the two models together

Building on Chen (2020)'s TEM, self-efficacy is included as antecedents and consequences of teachers' emotions in their learning. Illustrated in Figure 1, the emotional dimension is the determinant factor, the antecedent that affects teachers' perception towards power distance orientation, simultaneously, emotions are also the consequences of such interactional process between school leaders and teachers. Current literature shows that one's perception change according to one's emotions (Jarvis, 2006; Little, 2012; Zanyim-Kurtay, 2020). For example, Zanyim-Kurtay's (2020) research demonstrated that teachers' emotive experiences during educational reform affect their perception and reactions towards those changes. By the same token, teachers' perception of power distance orientation also undergo changes based on their emotions, such instability is embedded within instructional leadership. Figure 1 proposes that teachers' perception has been prejudiced by their emotions, influenced by factors such as their previous experiences, affecting their perceptions of power distance orientation. In which the perception of such heavily influences the interactional process between teachers and school leaders, resulting in emotions (as consequences), which circles back to the accumulated

emotional complex in teachers and continue to act as antecedents, this model is named as the emotion-perception cycle.

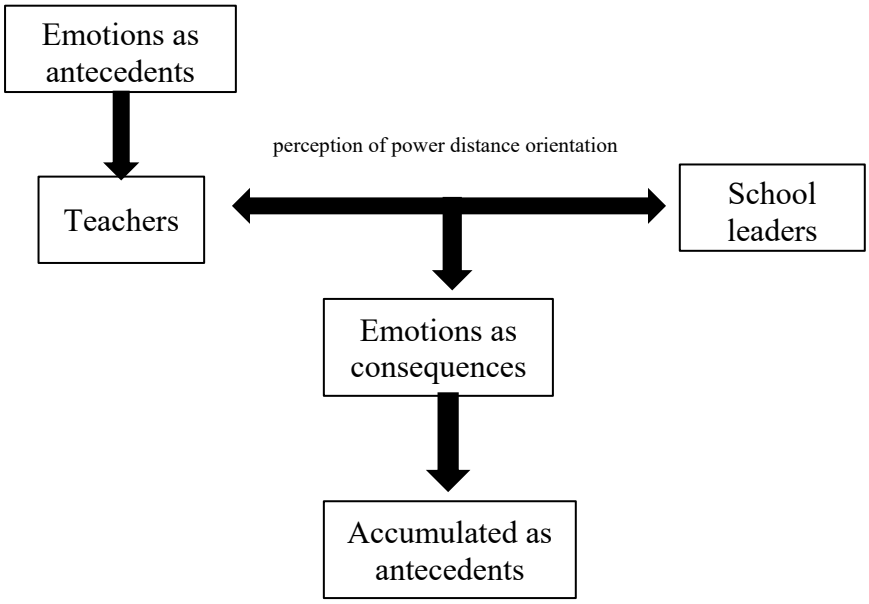


Figure 1. The emotion-perception cycle

The proposed model also provides a lens to look into teachers' disjuncture, which is critical to critical reflection and transformative learning. Disjuncture is a present experience, it refers to one's awareness of one's temporality (Henri Bergson, 1999). The interpretation of events could be rewritten and reinterpreted. When our inner life is in harmony with the flow of time, our reality is taken for granted; when disjuncture occurs, this harmony is disrupted, non-learning becomes conscious learning, bringing disharmony between the interpretation of present experience of individuals and the social reality that one takes for granted (Jarvis, 2006). According to Chen (2020)'s TEM, teacher emotional exhaustion is a type of personal antecedents, it occurs when teachers face situations that require critical reflection and reinterpretation of their values. When considering emotional exhaustion as a result of disjuncture, reharmonisation is hence an emotional regulation (emotions as consequences) that constitutes teachers' emotional capacity (emotions as antecedents) through "reappraisal of adverse situations" (p.348). In the emotion-perception cycle, emotional regulation is both consequences that get carried on as antecedents while emotional capacity becomes the antecedents that continuously affect teachers' perception.

Reharmonized disjuncture involves perspective transformation, it refers to changes of perception towards the external world, a process that allows one to have meaningful lived experiences (O' Sullivan, 1999; Jarvis, 2006; Mezirow, 2009). This research serves two purposes, first, to reveal how teachers' emotions affect their perception of power distance orientation; second, to assess the emotion-perception cycle including in the aspects of transformative learning using empirical data. Disjuncture is identified in informant's narration during differences in opinion/ conflicts with school leaders in i. everyday practice relating to pedagogy and subject knowledge; ii. coping with changes in educational context in Hong Kong and iii. challenges in teaching and learning under covid-19.

2. Methods

This paper encompasses a qualitative approach, using narratives of three local Secondary school teachers in Hong Kong as the basis of discussion. It is noteworthy that during the time

which the research is conducted, Hong Kong is facing drastic changes in its educational context triggered by both socio-politics and covid-19. Therefore, triangulation could only be done occasionally especially when related to political sensitivity.

2.1. Case selection

Three cases are selected based on collective case studies, this study is exploratory in nature and case study enables an initial exploration on teachers' perception in face of disequilibrium; since emotions are not always conscious or describable to individuals, in-depth interviews are adopted to facilitate the identification of how emotions effect on these individuals' perception of the social world, specifically on power distance orientation which affects their relationships with school leaders. These cases are chosen on the principle of collective case studies, although each case is narrative in nature, this study has attempted to compare the data to strive for a balance of both external and internal validity (Creswell, 1995). Triangulation is done to a limited extent but is still attempted through the investigation of relevant documents.

2.2. Features of the three cases

All three individuals are male local teachers in their 20s-30s, who teach mainly non-language subjects. My informant in case 1 will be referred to as Michael, case 2 will be identified using the pseudonym Andy and case 3 will be referred to as Timothy.

Case 1: Michael teaches Mathematics in a single-educational band 1 school; he has recently been promoted and is in charge of technology and information innovation in the school. He has been teaching for four years and is very passionate about teaching. Michael has plans to be promoted and has even gotten a masters' degree to increase his upward mobility, but his plans are changed due to drastic changes in Hong Kong, which has negatively affected his relationship with his supervisors and school leaders in his school.

Case 2: Andy teaches Economics in a co-educational band 2 school; this is his second year of teaching and he is also a responsible teacher who is passionate about teaching. Andy has no plans about promotion yet, but he is deeply entrusted by school leaders in his school and is constantly provided with opportunities to make decisions which are usually made by school leaders or staff of the management levels.

Case 3: Timothy teaches Chemistry in a co-educational band 1 school; it is his twelfth year of teaching but his passion for teaching has remained. Timothy has worked in five different schools and is the most experienced amongst these cases, he is not a part of the school leading positions but often offers help to novice teachers. He is trusted by his school but his focus, like many of his colleagues, is on students' content knowledge, and placing teaching of utmost importance is an aligned goal in his school.

2.3. Data collection & data analysis

In-depth interviews were carried out with each informant, each interview lasted about an hour and thirty minutes. Field notes and memos were written throughout the interview process, based on the principle of thick description (Geertz, 2000). Data analysis consisted of four stages: first, all three interviews were transcribed, second, the transcriptions were translated from Cantonese to English; third, coding was done based on the translated transcription; finally, thematic analysis was carried out based on the coded transcripts. The transcriptions were first colour coded and sorted into thirty-seven preliminary codes; afterwards, they were grouped and categorised into five themes: perception on power-distance orientation; teacher-students relationships; teaching philosophy and beliefs; changes in beliefs triggered by socio-political

events and the pandemic; changes in power distance perception with principals. It is noteworthy that there are indeed more common themes that came out from the interviews; but only those related to power distance orientation are selected in this paper.

3. Results

Building on Liu & Hallinger's (2020) partial mediation model and Chen's (2020) teacher emotion model, the emotion-perception cycle was created. It is found that teachers' emotions caused by past experience with leaders and colleagues in previous work place heavily influence their perception of power distance orientation; the emotional complex is carried forward and continues to affect their perception. It is also found that during disjuncture, perceptive transformation takes place in teachers' beliefs on a conscious level; reharmonisation does not always take place; the emotion-perception cycle affects teachers' passion, and when peaceful reharmonization is not possible, a state between disequilibrium and equilibrium is found, which could be understood as a prolonged stage of suffering from such disharmony (Jarvis, 2006).

The five themes reveal how emotions affects teachers' learning in the aspects which expand beyond professional learning and expands to teachers' self-perceived role and responsibilities to students; definition of teachers' comfort zones when working with colleagues, and self-perceived positions within school cultures. It is also found that student-teacher relationships is the major empowering factor that supports teachers emotionally, especially when experiencing isolation, loneliness and lack of understanding from school leaders. Moreover, power distance orientation perception is ever-changing, fluid and full of emotions. Disagreement between school leaders and teachers causes dissonance and disjuncture. The occurrence of transformative learning depends highly on individuals' emotions, reharmonisation is not a definite outcome of disjuncture.

4. Discussion

4.1. Emotions as an accelerator of learning in the every day practice relating to pedagogy

Power distance orientation is itself a moderator of instructional leadership, it affects teachers' self-efficacy. O'Neil & Stevenson (2011) found that school leaders do not necessarily see themselves as leaders but as facilitators; in other words, school leaders and teachers can be in an interactional relationship, depending on how school leaders position themselves in the interaction with schoolteachers. The amount of trust given from school leaders heavily influences teachers' perception towards power distance. Andy feels entrusted by his school leaders and is empowered by the positive emotions that comes from such trusts. In face of conflicts, Andy respects the opinions from school leaders, when he faces criticism about his pedagogical methods in the classroom, not only does he proactively reflect on himself critically, but he also seeks for more follow-ups from the school leaders. As described by my informant Andy,

"I am quite willing to discuss things with her (the principal), ***it doesn't feel like reporting to a boss, I tell her my thoughts openly and excitedly too if I have new ideas!*** *Even if she isn't able to give me immediate feedback, she usually gets back to me in a few days. Having said that, she's still the principal, overall I feel close with her but sometimes I do feel distant, since she does have the power to lay off people. It's the power that a principal has, but on an individual level,* ***I respect her not just because she's the principal, but because of her leadership****. When she comments on my teaching skills, those comments make sense and are*

very contributive, it motivates me to keep trying. Once she's inspired me to teach an Economic concept using inquiry-based teaching, it works really well and I still do that. ***She didn't tell me to do that actually, but she guided me through a series of questions, I treated those words seriously and thought deeply about them for days and came up with the idea****. It is mutual, she trusts me and so* ***that makes me feel like I can really do it and that I can really keep getting better at my job.*** *It made me feel like we were working together. Because of that,* ***I think it motivated me to learn faster as I felt like I had to push myself further****."*

As revealed here, Andy's commitment to his job is directly proportionate to his good relationship with the principal; his perception towards power distance orientation is embedded with emotions, mainly how the principal makes him feel about himself and his ability. Andy has also highlighted that his respect for the principal does not come from the principal's power over him, but it is an emotional complex in which power is internalised consciously and willingly, Andy genuinely respects the principal for her extraordinary leadership and sensible decision-making. In fact, before Andy works in this school, his experience as a student-teacher was one filled with positive emotions and entrustments as well. Andy actually describes his teaching trajectory as "a path that is smooth and well", he also acknowledges the fact that not every novice teacher is treated with a great deal of trust pedagogically, and hence he also admits that the "past experience and the current one is definitely going to affect what he expects in the next workplace". Andy's feelings of entrustment has contributed to his positive attitudes and proactiveness in learning and improving his teaching. The emotions such as sense of empowerment and excitement act as an antecedent which affects Andy's perception of power distance, it then contributed to Andy's engagement in open and effective communication with the principal, as a result, more positive emotions are generated owing to the positive feedback given by the principal. The emotions then got carried forward and are accumulated in Andy's emotions as antecedents, fitting into the emotion-perception cycle. In Andy's case, emotions act as an accelerator to his learning; moreover, as Andy has been given lots of decision-making opportunities that are rarely granted to novice teachers, those experiences have undoubtedly affected Andy's perception of power distance orientation, and are likely to affect his teaching trajectory continuously.

4.2. Emotions as an accelerator of learning when coping with social changes in Hong Kong

On the other hand, it is found that negative emotions also function as an accelerator of teachers' learning. In the narration of Michael's story, he got into dispute with the principal owing to their differences in political views. Interesting enough, direct confrontation has never taken place between them, nor did Michael or the principal proactively discuss any political events in the school. However, their conflict was triggered by a complaint from a parent, claiming that Michael was being politically biased when answering one of his students' question about political events in Hong Kong during an online session. Michael felt very wronged since he thought he simply stuck to factual description and even asserted several times in his response that it was only his own point of view and even encouraged his students to challenge him instead of taking his words as gospels. Upon receiving the complaint, the principal organised a private meeting along with other school leaders with Michael, the aim of the meeting, as described by Michael, "was to put on a show for the parent instead of to do justice for anyone since she did not even bother to find out what Michael had said,

"Originally, I was one of her (the principal) favourites… (Michael smiles and giggles happily), but since the incident, ***I could feel the difference in her tone, body language, and eye contact… it's obvious that there is a wall between us****,* ***it's definitely more distant than before.*** *I don't know what to expect anymore when facing her, the incident showed me that she is not as sensible as I thought, indeed it is disappointing to me as well. When she wants to speak to*

*me now, I wonder what I have done 'wrong' again. I know she doesn't trust me anymore so it's quite weird indeed, on one hand, my abilities are recognised, since she promoted me for my contribution in online teaching; on the other hand**, we don't perceive each other the same as before**. It's hard for me because **I don't know how to make sense of her leadership anymore**. Now I have given up, I simply tell myself that it's just a job, never mind her. All I care about now is my students, I mean, **if I give in, who else is going to teach them about critical thinking?** I will not initiate anything but at least when my students ask me about similar things again, I will respond in a wiser way that spares me from being complained, and just enough to convey my values implicitly."*

Because of the incident, the differences between the principal and Michael has surfaced, Michael feels distrusted but it also contains feeling of unjustness; a sense if distrust has then occurred from the principal to Michael and from Michael to the principal. The feelings of injustice and distrust has affected Michael's perception of power distance, those feelings act as antecedents and have negatively affected communication and interaction between them. The resulting emotions/ emotions as consequences of such interactions include feelings of detachment and sense of insecurities at the job in Michael's point of view, as he thinks that his job prospects have been negatively affected by the incident. Moreover, the sense of uneasiness when interacting with the principal also prompted him towards a sense of detachment at work. However, these negative emotions still managed to work as accelerators in Michael's learning, as he has learnt to avoid troubles and complaints while striking a balance with expressing and/or suppressing his own thoughts when necessary. Emotions play an important role in Michael's perception, his emotions contributed to two extremes, while feeling disappointed and unjust, his passion for teaching and his belief in teaching philosophy supported him, and slightly overrode the disappointment, and prompted him to learn and make changes in his behaviours. These changes occurred on a conscious level since Michael was worried about "getting sacked someday" which could be counterproductive to his teaching philosophy, and therefore, he compromised and came up with other ways in guiding his students towards critical thinking, dodging sensitive political issues while giving just the right amount of hint to evoke meaningful and reflective discussion implicitly. Despite feeling more distant from the principal, the emotive experiences resulted from this incident became antecedents, and are carried forward in his teaching trajectory, once again fitting into the emotion-perception cycle. Michael manages to transform the negative emotions into a source of acceleration which sped up his learning out of consideration for his students and his strong belief in his own teaching philosophy. This "emotional baggage" (Shaughnessy et al., 1998) led him to critically reflect on his identity and responsibility as a teacher; there is no doubt that he now perceives the principal as someone distant and with power over himself, but the changes in perception of power distance orientation has contributed to his transformation, he has learnt to act smarter and be careful and mindful of what he says in the school to avoid troubles, but he did not internalise such forces as total self-oppression.

4.3. Emotions & transformative learning: reharmonizing disjuncture when facing challenges under covid-19

In fact, the story of Michael is in direct contrast with that of Andy, both informants were trusted by their school leaders at first, but during disagreements, Michael's reharmonisation (Jarvis, 2006) is channelled, mediated and accelerated by negative emotions; Andy, on the other hand, is empowered by the principal's trust, and the disjuncture related to his pedagogy is reharmonised by positive emotions. In fact, as revealed in my third informant's narration, Timothy, who is as an experienced teacher, has undergone transformative learning pedagogically triggered by the covid-19 pandemic. Disjuncture is found in Timothy's

pedagogy since online teaching is a new realm of teaching to him, he is constantly worried and overwhelmed by concerns about whether his students "are there with him" and whether students "are really learning properly". During covid-19 pandemic, Timothy's concerns lie solely on his students' learning, but he was in slight conflict with his school leaders, since they were more concerned about whether the coping strategies were conducted based on advice by the Education Bureau in Hong Kong (EDB). It is revealed in Timothy's narration that both positive and negative emotions play a part in his perception of power distance orientation, that affect his interactions with school leaders, the emotions as consequences were a mixture of positive and negative ones as well. They have resulted in transformative learning demonstrated in Timothy's teaching pedagogy, and are carried forward as antecedents that continually affect his perception, which is parallel to the emotion-perception model postulated in this research. The online teaching experience as described by Timothy was quite challenging itself,

"In June 2019, we had first tasted how online teaching was like, there was a week of school suspension because of the socio-political events. During so, I realised that the high achievers were always more involved and were way more motivated in learning, but those with worst results, who are the ones that require most attention, were naturally neglected during these online sessions. They refused to turn on their cameras or be engaged in those online sessions, ***what should I do then? Do we give them up? My principal only wanted us to focus on students who were more 'self-disciplined', but I felt like there must be something else that I could do for the less motivated ones.*** *I reflected deeply about the teaching job during that time. Later in February 2020, it was very scary since EDB announced prolonged school suspension multiple times, and it was after the long Chinese New Year break.* ***My students' learning are at stake, I am sure.*** *During those months, it was very challenging for me, I kept coming up with strategies and methods in engaging the weaker students, or even those with special educational needs.* ***My school did not force students to turn on their cameras, out of understanding that not everyone's home is 'camera-ready' if you know what I mean. But some students abused that, they simply refuse to engage in the lesson, so then I encouraged them to turn on their cameras featuring their desks or notes. I know that's for myself actually, that's to provide me with a sense of security, I was very anxious about whether my students were learning properly.*** *It wasn't a concern for my school leaders, perhaps they have assumed that students always get to decide the level of engagement in the lesson, but that's not true. Some students simply lack the resources or suitable environment, some of them didn't even have a proper desk to write on at home! Covid-19 has made such unfairness even more obvious. Originally, I thought so too, I think students' engagement is determined by themselves, but really it's not.* ***So later on, I used other methods such as private chat room or breakout rooms to better engage my students, I was basically practising differentiated teaching, it was completely different from what I usually do in a face to face classroom.*** *I have to ignore the better students in order to teach the 'worse ones' properly.* ***It's something I had to get used to, good or bad ones, ignoring either group was never my intention but there was nothing else I could do in an online session. I simply had to adapt somehow****".*

Timothy has never "believed" in online teaching, in fact, as a rather conservative teacher, he has always thought that online teaching is less effective than traditional teaching that occurs in a face-to-face setting. The pandemic has made online teaching an inevitable teaching method that many teaching individuals were 'forced into', Timothy described it as something that "he would not choose for sure if he got the choice" since online teaching has made "it impossible for him to observe his students' reactions", and that blocks him from knowing if he is "providing students with immediate help when they encounter difficulties". Nonetheless, due to the pandemic, Timothy has to adapt to the new classroom; his emotions towards online learning include resistance and even a bit of dislike at the beginning. However, since the

underlying cause of such emotions lies on his concerns for students' effective learning, his attitudes remained open in the process since it was the only option he had. In addition, Timothy mentioned how school leaders in his school had asked him to focus less on students who were less engaged in the lesson. Timothy was quite reluctant towards that and was against the idea. However, owing to his previous experience in other schools, he has learnt that "it is wiser to keep your mouth shut even if you don't agree with something, but at the same time, it doesn't mean you have to do exactly as they say". Timothy's emotions as antecedents have affected his interaction with school leaders, he has learnt from previous experience about the "importance of silence". At the same time, the resulting emotions as consequences of such interactions were channelled into further consolidation of his thoughts towards school leaders in general. Additionally, transformative learning is found in Timothy's pedagogical skills as his feelings and perception towards online teaching and learning change after the pandemic. He is now less resistant and has even described that as "a gateway to a new realm that enables teaching even during bad weather conditions", and he thought that it is "better for students since they have got something to learn at least", though he also recognises that the outcome of such online teaching depends a lot on the teachers' experience, attitudes and execution.

5. Conclusion

*"You're right you know... teachers are often expected to know how to **fix problems**, but **when we teachers experience emotional distress ourselves, there's basically no support for us**. Either we figure out how to conceal it and not let it affect our professionalism, or we let it out and expect to be treated differently from that moment onwards...it's difficult for us but it's hard to be solved at the same time"*

Timothy made his final comments as the conclusion of the interview. Teachers are often assumed to be experts in learning, with emphasis placed on their professional rather than personal identities (Locke; Jarvis, 2009; Magill, 2021). Emotions, as pointed out by Hargreaves (2002), Zembylas (2009), Jokikokko (2016) and Chen (2020) are interactional and embedded within social and political aspects. By recognising the multidimensional effects of emotions, we are also acknowledging the teachers' personhood and shifts emphasis back on learning as a whole-person (Jarvis, 2006). Emotions lie at the heart of teaching (Hargreaves, 2002; Zembylas 2008; Zembylas and Chubbuck, 2011), and is key to quality teaching since its presence enables an authentic communicative process, not only between school leaders and schoolteachers but also between teachers and students. The emotion-perception cycle postulated in this research recognises the often downplayed point of view that regards teachers as learners with personhood and individuation (Mezirow, 2006). Teachers' perception vary and is influenced constantly by one's emotional experience. This research puts the focus on how this emotional complex affects tecahers

Perception specifically on power distance orientation, and how emotions as consequences then get carried forward and continue to affect their perception in a dynamic cycle. Through recognising the co-existence and inter-complementary relationship between the dual identity that teachers possess as teaching and learning individuals, the exploratory nature of teachers' learning/teaching is addressed, providing a more complete view towards transformative learning and possibilities of metamorphosis in teachers, filling the gap between human learning, teachers' perception and teachers' emotions. By extension, the emotion-perception cycle also legitimises teachers' emotions and its indispensable roles on teachers'' learning and perception, going beyond the dominant discussion of teachers' emotions pathologically, addressing the underlying and structural cause of teachers' stress and anxieties, possibly

bringing hopes in the prevention of the 'loss of selves' among schoolteachers (Hargreaves, 2001; Hargreaves & Elhawary, 2018).

References

Bakkenes, I., Vermunt, J. D., & Wubbels, T. (2010). Teacher learning in the context of educational innovation: Learning activities and learning outcomes of experienced teachers. *Learning and Instruction*, *20*(6), 533–548. https://doi.org/10.1016/j.learninstruc.2009.09.001

Burić, I., Slišković, A., & Penezić, Z. (2019). Understanding teacher well-being: A cross-lagged analysis of burnout, negative student-related emotions, psychopathological symptoms, and resilience. *Educational Psychology*, *39*(9), 1136–1155. https://doi.org/10.1080/01443410.2019.1577952

Campbell, P., Chaseling, M., Boyd, W., & Shipway, B. (2019). The Effective Instructional Leader. *Professional Development in Education*, *45*(2), 276–290. https://doi.org/10.1080/19415257.2018.1465448

Chen, J. (2020). Refining the Teacher Emotion Model: Evidence from a review of literature published between 1985 and 2019. *Cambridge Journal of Education*, *51*(3), 327–357. https://doi.org/10.1080/0305764x.2020.1831440

Gage, N.L. (1977). *The Scientific Basis of the Art of Teaching.* Stanford University.

Gadamer, H.G. (1985). *Truth and Method.* Yale University Press.

Hargreaves, A. (2001). Emotional geographies of teaching. *Teachers College Record*, *103*(6), 1056–1080. https://doi.org/10.1111/0161-4681.00142

Hargreaves, E., & Elhawary, D. (2018). Exploring collaborative interaction and self-direction in teacher Learning Teams: Case-studies from a middle-income COUNTRY analysed using Vygotskian theory. *Compare: A Journal of Comparative and International Education*, *50*(1), 71–89. https://doi.org/10.1080/03057925.2018.1502609

Jarvis, P. (2006). *Towards a Comprehensive Theory of Human Learning* (Vol. 1). Rouledge.

Jokikokko, K. (2016). Reframing teachers' intercultural learning as an emotional process. *Intercultural Education*, *27*(3), 217–230. https://doi.org/10.1080/14675986.2016.1150648

Liu, S., & Hallinger, P. (2020). Unpacking the effects of culture on school leadership and teacher learning in China. *Educational Management Administration & Leadership*, *49*(2), 214–233. https://doi.org/10.1177/1741143219896042

Little, J.W. (2012). Professional Community and Professional Development in the Learning-centered School: Teacher Learning that Matters. *International Perspectives*. 22-46.

Locke, J. (1690). Chapter XXVII Of Identity and Diversity. In *An Essay Concerning Human Understanding* (2nd ed., pp. 1689–1997). essay.

Magill, K. R. (2021). Identity, consciousness, and agency: Critically reflexive social studies praxis and the social relations of teaching. *Teaching and Teacher Education*, *104*, 1–18. https://doi.org/10.1016/j.tate.2021.103382

Marsh, D. D. (1992). Enhancing Instructional Leadership: Lessons from the California School Leadership Academy. *Education and Urban Society*, *24*(3), 386–409. https://doi.org/10.1177/0013124592024003006

Molle, D. (2021). A close look at teacher learning: Why are teachers' journeys so different? *Teaching and Teacher Education*, *100*, 103280. https://doi.org/10.1016/j.tate.2021.103280

Mezirow, J. (2009). An overview on transformative learning. In K. Illeris (Ed.), Contemporary theories of learning. Learning theorists ... in their own words (pp. 90-105). London: Routledge.

Mezirow, J. & Taylor, E. & Associates (2009). *Transformative Learning in Practice Insights from Community, Workplace, and Higher Education*. Jossey-bass.

O'Neill, S., & Stephenson, J. (2012). Exploring Australian pre-service teachers' sense of efficacy, its sources, and some possible influences. *Teaching and Teacher Education*, *28*, 535–545.

O' Sullivan, E. (1999). *Transformative Learning Educational Vision for the 21st Century.* University of Toronto Press.

Shaughnessy, M., & Smith, S. L. (1998). Teacher Emotions and Reflective Thinking. *Eastern New Mexico University Portales, New Mexico*.

Sjølie, E., Francisco, S., & Langelotz, L. (2018). Communicative learning spaces and learning to become a teacher. *Pedagogy, Culture & Society*, *27*(3), 365–382. https://doi.org/10.1080/14681366.2018.1500392

Šarić M. (2015). Teachers' emotions: A research review from a psychological perspective. *Journal of Contemporary Educational Studies*, *4*, 10–26.

Van Oers, (2008). *The Transformation of Learning.* Cambridge University Press.

Vygotsky Lev Semeonovič. (1978). *Mind in society: The development of higher psychological processes*. Harvard University Press.

Zayim-Kurtay, M. (2020). Trust in principals. *Oxford Research Encyclopedia of Education*. https://doi.org/10.1093/acrefore/9780190264093.013.671

Zembylas, M. (2008). Introduction: Trauma, politics, and Education. *The Politics of Trauma in Education*, 1–18. https://doi.org/10.1057/9780230614741_1

Zembylas, M., Charalambous, C., Charalambous, P., & Kendeou, P. (2011). Promoting peaceful coexistence in conflict-ridden Cyprus: Teachers' difficulties and emotions towards a new policy initiative. *Teaching and Teacher Education*, *27*(2), 332–341. https://doi.org/10.1016/j.tate.2010.08.015

Zembylas, M., & Chubbuck, S. M. (2011). Growing immigration and multiculturalism in Europe. *The Routledge International Handbook of Teacher and School Development*. https://doi.org/10.4324/9780203815564.ch10

OPEN ACCESS

European Journal of Teaching and Education
ISSN 2669-0667

Teachers as 'Powerless Elites': Emotions and Transformative Learning—A Refined Profession in an Era of Digitalisation and Artificial Intelligence

Eunice Yin-Yung Chiu

Heidelberg University, Germany

ARTICLE INFO

Keywords:
digitalisation,
online teaching,
phenomenology,
teachers' emotions,
transformative learning

ABSTRACT

This research uses narrative analysis to examine the emotional experiences of five schoolteachers, teaching in five different schools in Hong Kong, Singapore, and Taiwan. The analysis shows the paradoxical perceptions about the (ir)replaceability of the teaching profession in the digital era. Findings include i. the strong mixed feelings experienced by teachers regarding the future of education that is embedded with digitalisation; ii. Meaning-making in teaching lies on the emotional engagement of teachers and quality teacher-student-relationship; iii. intense self-doubts on the roles of teachers in a virtual classroom were experienced in the beginning of the pandemic, but it has transformed into a refined roles upon critical self-reflection. This research investigates the emotionality of teachers in the virtual classroom, transformative learning has been the key to teachers' refined roles despite society's increasing reliance on artificial intelligence.

1. Introduction

Teaching is a process embedded with emotions; through examining teachers' emotions in the context of online teaching, the paradox between societal expectations and teachers' perceptions are revealed. The pandemic led to emergency remote teaching, and these helpless teachers are expected to be the leaders in moving forward online education. Teachers are powerless elites as they do not hold institutional power against the flow of the top-down policies. With the advancement of artificial intelligence, this research reveals that it has brought self-doubts and teaching anxiety to teachers. Emotions or the study of emotions is seen as a complicated process because emotions still lack a definitional perspective. However, the focus of this research is not on the generality of emotions but takes on the phenomenological argument. Emotions have a bi-social character: it is universal and at the same time, a product, and a process of culture (Beatty, 2014). The emotional experiences of the five informants are examined through narrative analysis, as those emotions are strictly confined to the context of online teaching for schoolteachers. The situatedness, relationality and contextuality of emotions are taken into account, and hence making the narratives of these individuals comparable (Spindler, 2011). The focus is on how digitalisation has affected the perceptions of these informants regarding

* Corresponding author E-mail address: yychiu.eunice@gmail.com

Cite this article as:
Chiu, E. Y-Y. (2024). Teachers as 'Powerless Elites': Emotions and Transformative Learning—A Refined Profession in an Era of Digitalisation and Artificial Intelligence. *European Journal of Teaching and Education*, *6*(2): 45-69. https://doi.org/10.33422/ejte.v6i2.1229

teaching; perceptions in this study are regarded as the cause for certain emotions, and at the same time, the consequences of emotions (Chiu, 2021).

Transformative learning has been adapted as the theoretical framework to explain the transformation went through by these informants. Transformative learning theory is an adult learning theory, it is first coined by Jack Mezirow. It consists of two key aspects: habits of mind and points of view (Mezirow, 1989). According to the emotion-perception-cycle, emotionality is inseparable from transformative learning, in fact, emotions are the enabler of critical self-reflection, the bridge to transformative learning (Yung, 2022). Emotions interferes with the agent's value judgement and the perception of the event in-play. On one hand, schoolteachers are given the social role to nurture *good students*; emotional intelligence and emotional competence are deemed as prerequisites for professionalism, and teachers are expected to teach these to students as a tacit knowledge (Wulf, 2021). On the other hand, the covid-19 pandemic has been a game-changer, amplifying the structural problems rooted in the above-mentioned value. As ERT has been implemented regardless of many teachers' limited experience and knowledge with online teaching, in the beginning of ERT, these teachers faced serious self-doubts and burnout. On top of practical challenges such as technical and technological issues, they also had to endure pressure from the school management, parents, and the learning of students, causing emotional distress. These teachers are 'powerless elites', their "institutional power was limited or non-existent while their doings attracted a maximum degree of public interest" (Alberoni, 2007). Regardless of their opinion on online education, teachers are expected to be the frontiers in maintaining the learning of students; when facing top-down policy, they have no institutional power nor decision power, but to be the street bureaucrats in carrying out those measures. Teachers answer to "the public", which refers to parents, policymakers, school leaders and the mass media; they are expected to carry out their expected role--- sustaining learning; but they are also expected to be more than knowledge imparters. The paradox has led to emotional turmoil amongst teachers, it seems to say that the pandemic has juxtapositioned teachers as powerless elites.

In our ever-changing world, education has moved forward, inspired by the pandemic, digitalisation is believed to be the future of education. Many schools and institutions across the globe have fully shifted to distance learning. While current teachers struggle with online teaching pedagogy, the macro environment has not given sufficient time for them to fill in the knowledge gap. As novice teachers are also untrained for online pedagogies, the teaching field is forced to face unprecedented challenges. As a matter of fact, the shift from in-person classroom to virtual classroom also alters teacher-student relationships; together with the emergence of AI and accessibility of learning materials online, it caused many teachers to doubt their roles in the classroom. This research has found that transformative learning has occurred owing to the richness of emotionality amongst teachers.

Having that said, teaching profession is always filled with changes, in the past decades, a few fundamental changes have also occurred in the classroom. For instance, from teachers-centred classrooms to students-centred classrooms; the addition of STEM classes that emphasised the role of teachers as mere facilitator to students' learning (Keiler, 2018). However, the shift to virtuality and the use and/or incorporation of artificial intelligence into a real classroom is a change different from those that have occurred before. First, it is happening globally and does not seem to have a pause in its speed; second, it is a phenomenon that directly challenges and even threatens the necessity of teachers. In fact, a number of research (Roehrig & Kruse, 2005; Kawalkar & Vijapurkar, 2013; Kaymakamoglu, 2018) has also shown that the sudden shift to online teaching have induced heavy doubts amongst teachers regarding their identities (how teachers think of themselves in the classroom and their roles in the classroom (Keiler, 2018));

for instance, the lack of observable body language in virtual classrooms has found to caused teaching anxiety in teachers.

In face of such circumstances, this research sees the urgency and essentiality in examining teachers' perceptions. To achieve a fuller account of how teachers orient themselves in the digital era, it is believed that emotions should be the focus of the analysis; as emotions are not 'inside' people, but are interwoven between the mind and the body, and most importantly, plays a critical role in affecting one's perception (Beatty 2014; Wulf 2002; Plumb, 2006). Adult learning theory is also used in this interdisciplinary research, as Mezirow's transformative learning cycle touches upon the importance of critical self-reflection--- the essential step before achieving transformation and reintegration (Kitchenham, 2008). The theory suggests that in face of critical disjuncture, individuals experience disorienting dilemmas, then enter the stage of self-reflection, and then reaches critical self-reflection, and finally reaching transformation in their habits of mind and frames of reference. Afterwards, individuals experiment with their new role and continue to finetune their habits of minds, until they achieve reintegration (Mezirow 1989; Illeris, 2018). This research particularly looks into the close connection between self-reflection and critical self-reflection, it reveals that emotions play an indispensable role in between. The intense and intensified emotions experienced by teachers formulate the strong base of critical self-reflection. It is through a reflexive and reflective process that teachers have familiarised with and refined their roles in the virtual classroom. There is no doubt that the pandemic has paved the start of digitalisation of education; reliance on artificial intelligence such as ChatGPT is still gradually rising. It is certain that more drastic changes in the teaching profession will be unfolded; this research therefore allows us to predict the likely coping mechanisms and behaviours of teachers as we march into the AI era. Teaching has always been a complicated profession, but the digital era has even altered the definition of a classroom and challenged the point of having a teacher. However, the key question that every educator must ask themselves is what qualifies as *a good teacher*--- what is expected of teaching individuals in a digital era and what are the irreplaceable and humanistic values embedded in teaching that should be emphasised even more in coming future.

2. Literature Review

2.1. Transformative Learning and the Role of Emotions

Transformative learning theory is a learning theory about adult learning coined by Jack Mezirow. It is briefly defined as the occurrence of a moment of disorientation which then results in transformative self-reflection— and the transformed perspective is then reintegrated into the present and future of the actor (Illeris, 2018). In fact, transformative learning is a complicated and multifaceted process, not only does it involve the higher order thinking—both reflective and reflexive thinking of the individual, but it also requires a deep structural shift in the person's thoughts, feelings, and actions (Kitchenham, 2008). Transformative learning theory emphasises critical reflection, the role of dialogue and communication with oneself and others, in interpreting the events occurred in the outside world, or in other words, the centrality of experience— emotions and/or emotionality is central to the transformation itself, as it is the enabler of critical self-reflection *(ibis)*. Nevertheless, transformative learning theory does not require the presence of an active educator for it to take place: teachers themselves can experience transformative learning in the process of being educators to their students, provided that there is thorough critical reflection, engagement in discourse, and a transformed frame of reference/ habits of mind as a result of *reflective*, *reflexive* and *critical actions* (Marsick & Mezirow, 2002; Calleja, 2014; Illeris, 2018). The transformation that takes place begins with a change in perspective, and its effect extends to one's frame of reference and/or meaning

structures, and thereby resulting in changes that are evidenced in one's actions and behaviours (Calleja, 2014). Mezirow's work follows the school of thoughts of several significant scholars in the field of educational studies, one of which is Habermas. Habermas identifies three processes in which one's *lifeworld* can be reproduced: cultural reproduction, social integration, and socialisation. In Mezirow's framework, lifeworld equals meaning perspectives and the interpretation of events (Mezirow, 1989). Habermas, on the other hand, pinpoints four forms of discourse that are essential to the communicative nature of the process of learning. Therapeutic discourse centres around feelings or intent, which pertain to a person's subjectivity and can be altered and challenged for its authenticity through acts of communication (Calleja, 2014).

Disorienting dilemma, according to Mezirow, is triggered by a life crisis or a major transition that challenges individuals to question the henceforth invisible assumptions that one formerly holds to the world--- the process of acknowledging, processing, accepting and reacting to such an event is itself a process embedded with emotional complexities; it extends beyond a single moment of a single emotion (Illeris, 2018). The ten phases of transformative learning have not put into account emotionality of the individual when transformative learning is taking place. However, many researchers have shown that emotions are affect perception. Emotions are results of culture, the type of emotions that is considered socially acceptable to have under different circumstances are a product of culture, and at the same time, since emotions are also universal and transcends languages, it is also a human quality that varies from individual to individual (Spindler, 2011). In the ten phases of transformative learning theory, each by occurs on a personal, in-depth level, it relies heavily on one's critical self-reflection and is usually more likely to occur when one possesses better socio-emotional skills (Calleja, 2014). Critical self-reflection can be found traces in content reflection, process reflection and premise reflection. The first two types are straightforward transformation, resulting from alterations in one's actions upon considering the factors and origins of actions taken in the past; the third type is profound and is achieved only through consideration of the bigger picture (Mezirow, 1989; Kitchenham, 2008). To foster transformative learning, communication is crucial as it allows individuals to identify the problematic ideas, values, and most importantly, feelings in which certain assumptions are based; and once those sentiments/feelings/ emotions are shared and empathised with those belonging in the same social group, those emotions become intensified, and is construal to deeper reflexive thinking. (Taylor, 2000; Wulf, 2002). In other words, learners' emotionality and emotional experiences formulate the indispensable basis of critical self-reflection, therefore are also the enabler of the integration of one's learning from experience. By contrast, Taylor (2000) described the avoidance and unwillingness to respond to certain feelings in an individual as a barrier that ceases one from learning and transforming; whereas the processing of feelings and emotions are described as therapeutic, enabling, and facilitates personal development (p.16). The role of emotions is non-negligible, it is a human quality that must not be overlooked, especially in the process of transformative learning.

2.2. Emergency Remote Teaching, Remote Teaching Anxiety & Digitalisation of Education

Emergency remote teaching refers to the 'temporary shift of instructional delivery to an alternate delivery mode due to crisis circumstances' (Moore & Hodges, 2023). ERT describes remote instruction that is not as intentionally planned nor well-designed, but as provision of a temporary solution. The covid-19 pandemic has forced education systems across the globe to conduct school suspension, ERT was used across educational contexts to keep the learning of students possible. This type of online learning calls upon a range of different modalities, and online learning with the use of online systems and resources is one of the modalities, but not

the only one. Another characteristic of ERT is that it is developed rapidly and instantly as a response to crisis, therefore, educators might not have necessarily received former training regarding online pedagogy, on top of that, both educators and students might also encounter other technical and technological challenges. The construct of ERT centres around the ideology of education in face of emergencies, despite the crisis, since education is a human right and a right of every child, the premise justifies the importance of the continuation and delivery of education during the pandemic (ibis). Since ERT is developed specifically during a crisis to cope with it, it is noteworthy that ERT is different from online learning/ online teaching.

During ERT, many in-service teachers have experienced remote teaching anxiety. The rapid shift of education modality has also brought multiple challenges to teachers, as they are situated in a virtual teaching space, the required skills and pedagogical knowledge are very different from the ones required in a traditional classroom (Akbana & Dikilitaş, 2022; Sadıç & Bavlı, 2023). In fact, online teachers are expected to be 'autonomous, creative, digitally literate, evaluative and good at monitoring the whole learning process and knowing how to situate learning authentically in their own classroom' (p.159). As pointed out by Taguchi (2020), digital spaces/ learning spaces in online teaching/learning has three pragmatics of digitalisation: structured, semi-structured and unstructured, and each digital space requires a separate set of skills in educators. Since learning space has altered during ERT, teachers' priorities in classroom management have also changed to adapt to the new type of teacher-student relation within this modality. However, not only do teachers are now forced to face technostress in the process of adopting technology-facilitated classroom activities and pedagogies that they are not familiar with; they also have to rapidly cope with the distress caused by covid-19 pandemic itself— fear, loneliness, resilience, resistance to change… etc. (Akbana & Dikilitaş, 2022). Considering these factors, many teachers feel dissatisfied and anxious during ERT, some even felt disappointed and reluctant in teaching online as they equate it with merely dealing with a machine. Indeed, research has also pointed out that the teachers in the study do not feel comfortable teaching as they feel incapable of creating sufficient student enthusiasm due to their incompetencies in teaching online (Driscoll et al., 2012; Hubalovsky et al., 2019; Ross & DiSalvo, 2020; Akbana & Dikilitaş, 2022).

Another main source of anxiety comes from the assessment of students' learning. Since learning space has been shifted to a virtual space, affective and cognitive competences in terms of in-person interactions between teachers and students, as well as the observable body language are no longer possible; this has led many teachers to feel uncertain about the effectiveness of their delivery of content knowledge in class (Taguchi, 2020; Akbana & Dikilitaş, 2022). Another dominating factor which causes teachers' remote teaching anxiety is students' use of online resources and in some cases, the sole reliance of accessible online resources when working on assignments from school (Ross & DiSalvo; Russell, 2020; Choi et al., 2021). Although the pandemic has passed, digitalisation of education is still ongoing and has even become more widely used than before. A hybrid learning space is encouraged across educational contexts, in which both virtual and real spaces are used alternately in the process of teaching and learning (Trentin, 2016; Stewart, 2021). As teachers just became more experienced with online teaching after ERT, the emergence of artificial intelligence such as ChatGPT has certainly created more potential problems for teachers (Isaken, 2021; García-Peñalvo; AbuMusab, 2023). The appearance of artificial intelligence certainly influences education itself, and most importantly, the role of educators. For instance, even if the use of ChatGPT is banned in certain educational contexts, for the fear that students might generate essays or classwork there, now, such usage is still traceable owing to the errors in reasoning and grammar that are demonstrated by it (García-Peñalvo, 2023). The role of teachers in the digital age have changed yet again— they are expected to take on the roles as agents of change and learning consultants, whose sole

responsibilities are to motivate students in accessing learning resources that are readily available in the Internet, and then revolutionised learning processes and outcomes, such as 'vision, responsibility, social sensitivity, logical ability and teacher honesty' (Fitria and Suminah, 2020, p.70). Petersen and Batchelor (2019) argued that teachers will not be replaced, since their major role is to facilitate students in learning how to operate in an increasingly complex world and extends beyond the delivery of content knowledge.

2.3. Changes in Teachers' Identities in Transitioning to Students-Centred Classroom

Learning to teach and teaching per se, is itself a process of identity construction. As teachers change their teaching practice and negotiate their identities and beliefs throughout the process, they are also constructing their own professional identity and personal identity (Lave & Wenger, 1991). When the concept of students-centred classrooms first emerged, teachers had to alter their previous pedagogies and modify their mindsets regarding their role in the classroom. Community of practice (CoP) was one of the most significant means that teachers resorted to and found comfort in (Luguetti et al., 2018). The shift took place in how their role in the classroom was to motivate their students to participate actively in class, and the challenge lies in how those conflicts with their previous role of being the lecturer and/or the discipliner in the classroom. In other words, the shift has also contributed to a transformation in professional identity development, as educators reflect on their culture, beliefs, and professional background as well as ways to strike a balance in between (ibis). In Keiler's (2018) research, he revealed the changes in teachers' professional identity as the paradigm shift of students-centred classrooms has further developed— learning and innovation skills for the 21st century. Under the new curricular changes, the emphasis is now placed on the development of students' communication, collaboration, inquiry, problem solving and flexibility. In a STEM classroom, teachers are expected to employ students-centred pedagogies, namely a constructivist and inquiry-based approach (Keiler, 2018). There, however, remains the huge difference between traditional teachers and 'constructivist teachers'; the former tends to dominate the classroom by providing direct instructions that stress on the conveyance of content knowledge; while the latter categorise themselves as catalysts in the classrooms, whose major duty is to bring out the curiosity and motivation in students and respond accordingly.

The construct of identity is essential in teachers' professional development, as it contributes to how teachers view themselves, their values, and it is core to their priorities and ultimately, how teaching practice is performed in the classroom (Battey & Franke, 2008). Owing to the changes in the curriculum, students-centred classrooms, and in particular the development of STEM classes have forced educators to transform their previous training and mentality regarding the role of a good teacher, at the same time, holding up values that are still aligned with their personal beliefs and developing identities that could help reestablish classroom norms (ibis). In Dole's et.al. (2016) study, it reveals that when adapting students-centred pedagogies such as a problem-based learning classroom and/or a project-based learning classroom, teachers had a hard time in learning how to let go of control and to stay as facilitators in the classroom, but the participants in the study also expressed that transformations were subsequently found in shifted classroom structure, improved classroom climate, and changed instructional methods and teaching goals. The role of teachers to students in the classroom has shifted from a top-down relation to a facilitator and/or an assistant to students, despite how it has been ongoing in the past two decades, it is noteworthy that many teachers are still experiencing the transition, although preservice teachers might have had an easier time in the process since the received professional training has also been altered. However, there is no doubt that teachers' professional identities are essential in how they teach and interact with their students, and it is

an ever-changing and on-going process that involves negotiation between their personal beliefs and their professional self.

2.4. Teachers' Professional Identity, Digitalised Education and Effects on Teaching Practice

Identity concerns the construction of self; professional identity is broadly defined as a set of understandings and notions regarding how educators consider themselves (Zhao, 2022). As a matter of fact, Dwyer at al., (1991) also pointed out that instructional change could only proceed with a corresponding change in beliefs about instruction and learning that occurs within schoolteachers themselves. In other words, teachers must experience fundamental changes in their mentality and reconstruction regarding their existing teaching practices and beliefs to allow changes to occur in their teaching practices (Wang, 2002). In the past two decades, the transition from teacher-centred classroom to students-centred classroom has been a challenge to many in-service teachers, as it involved transitions that required innovative approaches and styles as well as a change of their roles in the classroom. In addition to that, the shift to a technology-rich classroom has also led to many challenges to teachers as it requires technological literacy and appropriate pedagogies that utilise computers as effective tools in their teaching. Wang's (2002) study has revealed the teachers' epistemological and pedagogical orientations, and their perceptions of the teachers' role in the classroom with and without computers did not show a significant difference, implying teachers' reluctance for change in terms of utilising technology and computers in the classroom. Keengwe & Onchwari's (2011) study, on the other hand, reveals that issues of accountability and high-stake exams in the educational system in the States have put teachers in the struggle of implementing students-centred pedagogies; and yet the utilisation of computers and technology have been used as an empowering tool in training students with higher order thinking skills and learning skills. The reason behind it is that teachers have equated innovation with the use of technology and tend to construct more creative pedagogies during the knowledge-building processes when designing instructional practices in the classroom. In Anthony & Noel's (2021) research, it explores the disruptive impact that covid-19 and ERT have on education itself. Virtual education has improved teachers' digital-technological literacy and pedagogy, resulting in a positive impact on their professional identity. However, during the early stages of ERT, many teachers initially lacked the training and skills required to facilitate quality online classes, which led to a state of anxiety and frustration amongst them.

Teacher-student relationships have also been challenged during ERT and virtual teaching; although some teachers managed to carry out online classes and deliver them with quality, while creating a less formal and a much closer bonding with their students as compared to traditional classroom settings; other teachers struggled to support their students' learning and their socio-emotional needs, causing students to become unmotivated in class and completely detached from others in school (Anthony & Noel, 2021; De Gioannis et al., 2023). According to Sadıç & Bavlı's (2023) study, they revealed that innovative teaching experiences during ERT was both positive and negative, in a sense that it made teachers realise that it was necessary for them to rethink the teaching process, instead of relaying information, they should take on the role of inspiring their students and motivating them using enquiry-based pedagogies. On the other hand, ERT has also led to many doubts that occur within teachers, as their motivation to teach and to employ innovative pedagogies and utilise technology also depend highly on students' motivation to learn, which was interpreted by their responses in class, such as whether their cameras were on, etc. The challenge lies on the fact that motivation is a contagious factor between teachers and students, and it is essential for both parties to enable quality virtual teaching and learning. The lack of motivation in either party results in self-doubt

amongst teachers and being even more uncertain about their roles in the classroom and/or whether they are even necessary in a virtual class (Singh, 2016; Sixto-García & Duarte-Melo, 2020; Sadıç & Bavlı, 2023).

Additionally, since ERT, and advances and reliance on technology in education have accelerated, information and knowledge has become temporary and easily accessible, thereby causing content knowledge in a class to have shifted from the major duty of schoolteachers to one that might have been put in challenge by easy access to the Internet and the emergence of artificial intelligence (Fitria & Suminah, 2020). The virtual place of learning has led to changes in the significance of schooling itself, schools are no longer the only place and source of learning; teachers are no longer considered as the only experts and students' dependence on teachers has been heavily reduced since cyberspace has enabled other forms of learning. Owing to such changes, the role of teacher now focuses on construction and discovery through enquiry, interaction and collaboration has become key in the classroom to distinguish the necessity of schooling and schoolteachers from virtual learning spaces that are readily available and accessible. Petersen & Batchelor (2019) argued in their research that teaching is too complex to be simply replaced by artificial intelligence; in particular, the concept of teacher mindfulness— a reflexive approach in teaching, was raised as a strong base for the argument that AI will only be enough as an assistance in the classroom, as they are believed to lack the ability in nurturing students with creative thinking abilities, social-emotional skills; which are believed to be crucial to humanity as human reasoning is often embedded with emotional factors. Benade (2020) and Maksimović & Dimić (2016), on the other hand, postulated that open school design should be the future of education as it encourages flexibility in learning and teaching, with a focus on collaboration, team teaching and designed content that make use of a technology-enriched classroom and yield educational benefits that are required in this digital era. Teaching practices will likely undergo changes under the effects of AI, but since 21st century learning reflects fluidity, unpredictability and complexity, teachers are encouraged to integrate AI and virtual learning space as the 'third teacher', thereby not making their role in the classroom obsolete.

3. Methodology

This research is qualitative based, it makes use of focus group study. Through analysing the dialogue amongst five schoolteachers who teach in five different schools in Hong Kong, Singapore and Taiwan, the research seeks to explore how schoolteachers themselves view teaching, and whether it might be replaced by artificial intelligence. Focus group method produces high quality data when employed with the procedures, as it gives space for informants to interact, converse and exchange ideas surrounding the same subject (Creswell, 1998). In this research, focus group interview is employed as it relies on the conversation flow and ebbs between the teacher informants to enable a relaxed, opened-up and in-depth discussion regarding their perceptions on professional identities since ERT and the emergence of artificial intelligence after the pandemic.

The analysis of the focus group interview was conducted based on thematic analysis; the common and/or frequently appeared words and language patterns spoken and used by participants were categorised as themes/ perspectives (Creswell, 1998). The interview was conducted in English, but occasionally it is mixed with Cantonese and Chinese, depending on the native language spoken by the informant. Due to limited resources and the fact that this is only preliminary research of the topic, only one focus group was used as data in the research. However, each interviewee has also been interviewed separately and individually, contributing to the date of three other in-depth interviews. These interviews were conducted after the focus

group interview was done, to provide a chance for informants to further elaborate on their ideas and perceptions. It also allows me as an ethnographer to be surer about the identified themes from the focus group interview.

Five informants are selected in the study; they are schoolteachers from three different primary and secondary schools located in Hong Kong, Singapore and Taiwan. Table 1 has been created to illustrate the demographic background about these informants.

Table 1.
Demographic background about the five informants

Informant (Pseudonym)	**School, teaching subject & teaching experience**	**Former online teaching experience**
Mr. Jack	Local primary school in Hong Kong; Mathematics, 8 years	1 year of training during practicum
Mr. Tan	International primary school in Singapore; Science, 4 years	Constant reliance on flipped classroom and digital learning materials
Ms. Alicia	Local secondary school in Taipei; English, 9 years	None
Mr. John	Private secondary school in Hong Kong; Economics, 5 years	Constant reliance on digital learning materials & e-classroom
Ms. Wong	Local secondary school in Hong Kong; Chinese; 11 years	None

During the focus group interview, although it was a casual, semi-structured interview, some guided questions were drafted, and the interview was conducted based on them. The interview guide asks the following questions:

1. What was your experience like when ERT was implemented during covid-19 pandemic?
2. How did the experience change you as a teacher?
3. What have you noticed as the biggest difference, or the most concerning characteristic about your students after the pandemic?
4. Did you rely on digital tools more frequently after the pandemic? Do you use ChatGPT in class & why/ why not?
5. Do you think teachers will become obsolete in the era of artificial intelligence? Why/ why not?

The interview was recorded by audio and was transcribed afterwards, and the transcripts are translated to English, back translation was also used in specific terms and sentences that involve colloquial to ensure accuracy of the language. Table 1 shows the characteristics of these teaching informants. The five informants were carefully selected, and they can be grouped in different ways based on their characteristics. They were chosen based on snowball sampling and are referrals from former informants that I have once worked with. Regarding these five informants, two of them teach in primary schools and the other three are in secondary schools; two of them teach in private and international schools while the others are in local schools; two of them have no former knowledge about online teaching before the pandemic and the others have relevant training and/or experience; three of them are teachers in Hong Kong and the others are in Taipei and Singapore. Despite these similarities and differences, their discussion was very smooth, and they were very engaged throughout the process. Their views also share some similarities, showing that the nature of teaching is somehow communicable amongst teachers despite cultural and educational contexts.

4. Data Analysis

The transcripts are analysed using thematic and narrative analysis. They have been re-read and reviewed repeatedly throughout the analysis; table 2 has been created to illustrate the recurring themes identified in each question during the focus group discussion. The five questions are designed based on the research question that explores how schoolteachers themselves view and criticise the teaching profession, and their view on its replaceability in the artificial intelligence era.

Table 2.
Thematic analysis: Recurring themes and relevant quotes from informants

Questions	Keywords	Recurring Theme(s)	Relevant quotes from informants
1	Confused; anxious; lack of relevant pedagogies; not having the right software and equipment	Remote teaching anxiety	'Honestly, teaching itself has always been like this, I think we all know, it's like crossing a river blindly while trying to navigate with both your hands in the water for the stones…' 'I have always relied on e-classroom, but this is different, everything is shifted and moved online, it's become very hard to know if my students have fully grasped the content knowledge, I can't even be sure that they have been 100% with me in the Zoom classroom…' 'It was quite terrible for me as well; I have only done one year of relevant training when I was a student-teacher. I don't have the skills, the software not the right equipment to teach Mathematics online… The show must go on somehow, but I don't even know if my students are benefiting from the class…'
2	Let go of control; communicate directly with students; not the same teacher as before; using digital tools as assistance in class	Transformative experience	'I am not the same teacher as before. I think it [the experience] taught me to become more communicative with my students. My students have always been quite good at academics, but as their teacher I can't take all the credits. This time I have experienced it strongly, as they rely a lot on crash courses available online. What can you do though, except to convince yourself that they are just being self-motivated…' 'I see what you mean, it's absolutely a process of letting go… I would say for me it's a change in how I bond with my students. Basically, I gave them my WhatsApp number, and opened a group chat with them. I think it helped as it is more direct, and they do send me private messages to ask questions about the content of the class from time to time. I also use it to chase after their homework and assignments, etc. I now feel closer to them, and perhaps this kind of supportive relationship is what I would go for in the future as well. Perhaps not necessarily in a WhatsApp group, but I will find some ways…' 'I have been a teacher for 11 years, I have never for once used any digital tools. ERT has certainly challenged me in many ways, but it also gave me different skill sets in teaching. I realise how much more engaged my students are in history when I use Anime and videos in class. I also rely on crossword puzzles and online pop quizzes to test how

Questions	Keywords	Recurring Theme(s)	Relevant quotes from informants
			attentive they have been in class and how much they have understood. I have continued to use these tools even after the pandemic, and I think it is really bringing some positive effects in my class.'
3	Degradation in social skills; underdeveloped life skills; sense of detachment; widened learning gap; learning loss	Widened learning gap, & poorer socio-emotional development	'First day of school after the pandemic, I remember seeing a form 1 boy in our uniform, standing next to the bus stop and not knowing how to hail it… The bus driver was kind enough to stop still, then I observed him, he didn't even put on his uniform properly, his tie was a terrible mess, and I think we are talking about basic life skills here…' 'Our school has always been very selective with students, in general I would say most of them have helpers at home and so we can't observe their difference from the outside, they all look neat and decent. But during the lesson, they basically refuse to interact with one another, the higher form students are much better, but the junior form ones, it's not that they don't want to engage in the lesson, but they just seem so detached even if they are expressing their opinions with their peers.' 'My students are always not too good at English because in Taiwan, you basically don't have to speak it very well. Local students are usually very good in other subjects, I can sense some learning loss though after the pandemic, the higher form students aren't reaching the levels that they should've reached; and my junior form students are just even harder to teach now, because of the huge learning gap in the same class. Basically, not every student's family can afford a private tutor, for those whose parents can't do so, they rely on themselves, and their academic performance is a direct reflection of how well I have taught and how much they have absorbed. I don't blame them, of course, and I think I have tried my best as well, but for sure it would have been much better if I had had some online teaching experience before the pandemic happened. Now I am proactively brainstorming ways to remedy or to reverse the learning loss and to help these students.' 'My students are quite well-off and are usually from resourceful families. They are used to online learning tools since it is also part of our usual syllabus and how our school teaches, flipped classrooms and so on. However, I notice my students lose temper and attention a lot easier than before, and even if I compare them with previous students of the same age, it seems that the pandemic has made my students a lot less patient somehow. They are quick-tempered and aren't very helpful to their peers, it's almost as if they don't really care enough to help each other out; or simply to socialise with one another… Lack of social skills I would even say. I think this might have something to do with the intensive use of the Internet. Some research does suggest that it could desensitise children, especially those aged between 6-13, which is exactly my students' age.'

Questions	Keywords	Recurring Theme(s)	Relevant quotes from informants
4	Blended learning; cater to students' progress; healthy balance required; accept digital tools as part of teaching	Acceptance of digital tools as a part of education	'To be honest, I didn't really like digital tools, I never rely on them before. The pandemic has caused me some guilt as I see my students' progress was slower than before, I can't help but think it might have been my responsibility as I lack former online teaching experience and so I don't have the best skills for them in this situation. Now I use digital tools like e-classrooms, occasional Zoom tutorial lessons after school, Google classroom for pre-lesson self-learning materials, etc. I think it is the way education is heading to, this is how both me and my students get used to it and become better at making digitalisation a part of teaching and learning. However, I am still reluctant to use ChatGPT, with my junior form students, I fear that they would not be able to write by themselves in fluent English anymore if I let them use it in class and in their assignments. For my senior form students, I think I am open to letting them have a taste of it just for one to two sessions, because when they are in university, perhaps it will be the trend. However, I do not want AI to kill their creativity and stifle their critical thinking skills. It seems that the thinking process is outsourced to an AI, and I am not sure about the idea…' 'I see what you mean, but I think the more you use technology, the more you will see how it is just a tool at the end of the day. In science for example, demonstration videos and online Q & A games really help my students grasp the concepts a lot easier and faster. This can also depend on the subject I suppose, but I think there is no escape, digitalisation and artificial intelligence is the future of education and we are already on the path, like it or not. Better be prepared and understand them well. ChatGPT is useful in essay writing, but it does contain lots of mistakes too at this stage, like the references and book titles, as well as the logic in between arguments, it is not always perfect. I once caught a student use it in her science report. Instead of yelling at her, I asked her to show me how she has commanded ChatGPT to do it, I guess it's a way for me to better understand these tools as well. At the same time, I found out that she misunderstood some jargon in the experiment, and the experience also made her realise the flaws that ChatGPT still contains. I always tell my students that they first need to be able to outsmart the AI, or at least understand what it is doing, and a unidirectional reliance will only make them suffer in the end. I think it's the same for us teachers too.' 'I have always used digital teaching tools; in Economics it really helps with graphics and computational programmes to demonstrate certain concepts. I do rely on it even more after the pandemic because the materials have already been digitised and were used during the pandemic, to not waste my efforts, and to ensure consistency in my teaching, at least for the same class, and/or the topics that I find particularly helpful with digital tools, I basically blended in

Questions	Keywords	Recurring Theme(s)	Relevant quotes from informants
			digital tools as part of my teaching. As for ChatGPT, I personally use it when generating topics for quizzes and exams, assignments, and for designing games and rubrics that are related to Economics when helping my higher form students revise for their IB exams. I use ChatGPT anti-tracking software to trace if my students have done the assignments and essays by themselves, because I need to make sure that they do understand those key concepts. Other than that, I basically don't forbid them to use it, although I also don't openly encourage them to do so. I think whether I let them, if they use it, it's just a matter of whether I think it is detrimental to the end goal that I have set up for the session. If that is the case, then for sure they will be asked to re-do the assignments. If not, I guess there is no huge harm in using ChatGPT, I agree with Ms. Tan, I do think it is going to be the future of education.' 'As I teach Chinese, I am still not entirely convinced that digital tools will be the only way to teach. For sure it helps with increasing my students' interests in general, especially like history and some grammatical concepts. However, I prefer reading with a book and writing things with a pen. There is also numerous research that points out the benefits of the traditional ways as compared to the harmful effects that digitalisation has to the cognitive development of the brain. I find it a shame that digitalisation is overwhelming education. I can't speak for every subject, but for language subjects, at least for Chinese, I still insist that the old way is way better. As for ChatGPT, I think it is a type of slow poison that kills my students' reading and writing ability, even their research abilities. I wish for there to be a balance between digitisation and the traditional teaching and learning; it is perhaps true that technology is becoming a part of education, but it doesn't mean we should play a part in accelerating the process or forcing it in our teaching even when it is not most suited.'
5	Teachers are not just knowledge imparters; teachers are like the third parent; for certain subjects only; difficult to replace teachers as a whole	Teachers' refined roles in the classroom	'I don't see how AI can entirely replace teachers. I would say, for Mathematics at least, for sure AI might be faster and more accurate at calculations, however teaching is not about how good you are at the subject, it is about how good you teach, how observant you are to your students' learning needs and how knowledgeable you are in terms of pedagogies and teaching strategies, so as to channel those concepts to your students. Most of the time, students themselves don't have the ability to explain to you that they don't understand, but in their work, as an experienced teacher, it is something that you should be able to spot and then respond correspondingly. Basically, teaching is a complicated process, and it is way much more than imparting knowledge.' 'My subject is all about applications of concepts and how they are used in the analysis of different cases. Economics in general is a subject that requires lots of critical thinking

Questions	Keywords	Recurring Theme(s)	Relevant quotes from informants
			and awareness based on facts and theories, especially in the formulation of arguments, it must follow certain frameworks. I would not say that AI will replace us, but then perhaps the use of AI as assistant teachers is likely to be the case. Economics is all about conceptual frameworks and with AI, the visualisation will make those concepts a lot less abstract and easier to grasp. However, it relies heavily on teachers' teaching experience and familiarity of his students to spot and identify which concepts to further elaborate on. Teaching is about effectively communicating certain knowledge to students, and I don't see how AI will make teachers obsolete in this case.'
			'I must admit that during the pandemic, I had a phase in which I felt like my role was completely redundant. When I was teaching on Zoom, not all my students turned on their cameras, it felt so much like I was talking to myself and having zero idea nor feedback regarding whether those content knowledge was passed to my students at all. Knowing how easy it is to go online and just rely on crash courses and other online materials, I was convinced that teachers were completely replaceable. Until one day when I started having private chats with my students during break times, they were sharing with me their anxieties about the pandemic, the health of their families and themselves; one student even asked me if I thought it was the end of the world… During these kinds of discussions, they were emotionally charged and very authentic. That moment hit me hard. I realise teachers are like their third parent, a guardian, a very important one indeed, that helps them find the path and the courage to hold on and to overcome any mental blockages or challenges. Teaching is not just about the knowledge itself, it is important for sure, but then the relationship between teachers and students is what's going to affect my students most. I recall my experience when I was a student, I really don't remember much about what has been taught, but the memories and conversations that I had with my teachers, things that they said which have encouraged me or in some cases, insulted and discouraged me, are the memories that lasted. I think it will always be the case, no matter how advanced technology is.'

The focus group interview lasted for about 65 minutes in total, it was conducted online, and these informants did not know each other in person before the discussion. They were introduced very briefly before the start of the discussion so that they have a general idea about the context that the individual's opinions and comments are based. Since these five informants are all from different subject backgrounds, it allows a more general discussion and a wider range of expression regarding the discussion questions. Table 2 shows some of the significant quotes during the focus group discussion, and they correspond to some recurring keywords, which then allowed me to identify some main themes based on the discussion framework under each research question on the interview guide.

In each research question, one big theme was identified, it is a recurring theme that centres around the discussion in the focus group, it is the most significant theme and one that protrudes.

For the first question: 1. What was your experience like when ERT was implemented during covid-19 pandemic? The identified theme was remote teaching anxiety; some keywords were repeatedly used in the elaboration of each informant during the discussion. The second question: How did the experience change you as a teacher? The singled-out theme was 'transformative experience', as most of the informants expressed how the pandemic changed their views and perceptions regarding using digital teaching tools in the lesson. The third research question: What have you noticed as the biggest difference, or the most concerning characteristic about your students after the pandemic? There are two equally important and related themes, which were 'widened learning gap & poorer socio-emotional development'. Informants have mutually pointed out that their students seem to be more detached and much less sociable in class. They also discussed how the learning gap has been widened, as each student has different degrees of access to resources and that implies learning loss for some, thereby causing a wider learning gap in the class. The fourth question was: Did you rely on digital tools more frequently after the pandemic? Do you use ChatGPT in class & why/ why not? Most teachers are more open about incorporating digital tools in their teaching; however, some are quite reluctant towards the use of ChatGPT, and several have expressed similar concerns in how artificial intelligence might stifle students' creativity and critical thinking skills. The identified theme was 'acceptance of digital tools as a part of education'. It is also connected to the third research question and is indeed a part of transformative learning. The fifth question was: Do you think teachers will become obsolete in the era of artificial intelligence? Why/ why not? The identified theme is 'teachers' refined roles in the classroom. Most informants disagree that teachers might become reluctant and obsolete under the increased use of artificial intelligence in the classroom. Although they all agree that it is an inevitable trend that modern education is heading to, the discussion shows that the existence of artificial intelligence has simply made them realise their refined role as teachers in the classroom. Aspects such as emotional support, emotional bonding and connecting and providing guidance to students are some of the important aspects and duties that these informants believe a good teacher should be able to carry out. These are also the traits and characteristics that artificial intelligence might not be able to replace humans entirely yet, since it lacks the ability to understand the emotions of humans at this stage.

5. Discussion

5.1. Remote Teaching Anxiety

In general, the informants exhibited remote teaching anxiety, it is noteworthy that the term itself was not at all mentioned throughout the discussion, however, the keywords which recurred during the discussion were emotionally charged. These emotions were related to anxieties, and confusion. Not all these informants had former online teaching experience; as a matter of fact, only two informants: Mr. Tan and Mr. John is used to online teaching and using digital teaching tools before the implementation of emergency remote teaching. One interesting common characteristic between these informants was that they were both teaching at middle class to upper class schools, one was an international school in Singapore, and another was a private school in Hong Kong; perhaps this also signifies the difference between the reliance of public and private education in these two jurisdictions. As for the other informants, they had very limited to no former online teaching experience at all. ERT was 'the biggest disruption' that they have faced in their teaching life by far, even though they tried to rationalise it by comparing it to the other challenges faced in teaching itself– 'just as how it's like crossing the river by waddling through the water with both hands'.

Another aspect is that these informants, despite their online teaching experiences, all expressed concerns regarding their students' progress and whether they have grasped the messages and the teaching materials in the lesson. For instance, Mr. Jack specifically mentioned that when students do not turn on their cameras, it made him feel 'particularly anxious' because of the lack of 'body language' and hence causing him 'a lack of sense or any hint at all regarding whether the student is fully present in the lesson'. This is completely different from the usual pedagogy and classroom management skill that Mr Jack employs; at the same time, owing to a lack of extra support and training courses regarding ERT pedagogies and/or online teaching pedagogies, informants who shared similar concerns also expressed the anxiety of accountability issue. These teaching informants feel responsible for the 'continuation of education' but are also suffering from lots of stress and anxieties at the same time since they did not feel like they 'are qualified enough' to teach online, as they feel 'they lack the skills to transfer their pedagogies and teaching skills online'.

5.2. Transformative Experience

All in all, the ERT experience is transformative to these informants, as their view and perception towards online teaching has completely changed afterwards. Mezirow (1978)'s transformative theory postulated the process of transformative learning to begin from critical self-reflection after the occurrence of disorientation. The disorientation in this case would be the pandemic and the urgency to employ ERT; it brought lots of critical self-reflection in these informants. These informants were very doubtful of their teaching roles when the pandemic began. In an online classroom, the teaching space has been completely shifted to a virtual one, these teachers have experienced the loss of control and power in the class, while some discussed their strong sense of self-doubts, since they could no longer be certain about their students' learning through observing their body language. The disability of in-person teaching has also disabled these teaching individuals' confidence and sense of assurance in class. Some of them 'did not feel competent enough' in teaching their students through online tools and means; as for the other two informants who are used to online medium, they also expressed 'concerns about the intensive use of the Internet and online medium' because 'it is simply not the same as blended learning, but everything is completely online'. More importantly, some informants even expressed how the intense self-doubts have led them to think that teachers might just be some sort of entertainers, and their students did not necessarily need them in the classroom anyway, since knowledge and learning resources are widely accessible online. An interesting turn occurred as these individuals continue with the online teaching environment, and gradually bonded with their students through social media. MR. John mentioned that the WhatsApp group has allowed him to be closer with his students, and it also provided him a way to show genuine care to them. His students' trust and connection with him deepened as time passed by. In fact, both Mr. John and Ms. Alicia have been asked by their students 'if the pandemic means the end of the world' and 'if the world is ending, what is the point of learning'. Similar conversations have occurred between the other informants and their students, and these informants have been inspired and experienced even deeper self-reflection owing to these cosmological questions. The conversations led them to think about the fundamentals of education per se. To illustrate, Ms. Wong and Ms. Alicia both discussed how they have reflected deeply about 'what makes a great teacher'. It is these kinds of critical reflection, that have led them to the transformative learning experience.

The theme of transformative experience is identified in the discussion as these informants have all mentioned how the experience changed them as a teacher on multiple aspects, for instance, their relationship with students in terms of communication and trust. For instance, Ms. Wong, who has been teaching for 11 years and has no former online teaching experience at all, has

expressed that 'she felt like a different teacher as ERT has equipped her with new skills sets in teaching'. Transformative learning requires the next step of reintegration the individual should have changed the habits of mind and reintegrated the new knowledge into the future. Ms. Wong has expressed that she 'has used digital tools more often in class even after the pandemic', because she realises that crossword puzzles and digital pop quizzes and animated short clips have really caught her students' attention and raise their interests especially when she teaches topics that are usually quite boring for them. In addition to that, Ms. Alicia, who's a local secondary school teacher in Taiwan, despite her 9 years of teaching experience, she has never conducted online teaching before ERT. Ms. Alicia expressed in the interview that she 'is not the same teacher as before', on a sense that she has acquires new ways of 'communicating with her students', she mentioned that her students rely a lot on crash courses and other accessible materials online, however, instead of doubting them and distrusting them, or even accusing those students for learning ahead of her teaching, and/or cheating in an assignment, she has decided to 'let go of control' and the idea of 'having to ensure that students have only learnt the knowledge from school teachers'; she even pointed out that perhaps the former mentality is a way to 'establish the top-down relationship with students, so as to ensure the respect from students will always remain'.

On one hand, there is indeed not sufficient evidence to conclude whether students' respect for teachers are solely built upon that, from her experience and the stories that she mentioned during the interview, it seems that her students still respect her as a teacher, and more to that, as a friend and someone trustworthy even, the moment she has decided to trust her students in making use of online resources by themselves and motivated them by posting challenging questions, which has ultimately made her students even more self-motivated in her lessons. As a matter of fact, even for Mr. John, who has always been relying on digital teaching tools, also mentioned that ERT has been 'a process of letting go' and it has 'changed how he bonds with his students'. Mr. John has created a Whatsapp group using his private number and has stayed in touch with his students through social media. This is very different from how he usually connects with his students, but it has also 'brought him closer to them' as it is 'a direct way' to communicate with the students, as well as to monitor their learning process. Mr John also mentioned that some students feel too shy to ask questions in an in-person setting and are even too shy to do so in an online learning environment, yet these students can ask him freely regarding their academic confusions. This has 'increased the trust between students and the teacher' and has in a way 'helped students become more motivated and to have more self-efficacy' in learning.

5.3. Widened Learning Gap and Poorer Socio-Emotional Development

When asked about the biggest difference and/or concern that these teachers have observed in their students, from their responses, the identified theme was widened learning gap and poorer socio-emotional development. As a matter of fact, there is also research which has shown the detrimental effects that ERT has brought to students in general, these include poorer cognitive development, empathy development, and socio-emotional abilities (Kuhfeld et al., 2023). Regarding the informants, Ms. Wong, who teaches in a local secondary school in Hong Kong, has shared a story about a form one boy, which is equivalent to a 13-year-old, who did not have the knowledge regarding hailing a bus and signalling the bus driver to stop. In addition to that, she specifically mentioned how his uniform was not properly put on, and that his tie 'was a complete mess'. These are exampling that Ms. Wong has used to illustrate the degradation in life skills and general social skills that previous students of the same age that Ms. Wong once taught had. This was concerning because Ms. Wong has been an experienced teacher and is familiar with the kind of behaviours that students of a certain age should be capable of. What

she described in the interview is an indicator that there has been some delay in students' cognitive and socio-emotional development in general.

As a matter of fact, this has been agreed with other informants as well, and the fact that they all nodded with agreement during the focus group discussion shows that it has been an observable trend not just in Hong Kong, but also concerns Taiwan and Singapore. Mr. John, who teaches in a private secondary school in Hong Kong, pointed out that even if students from that school in general come from families with higher socio-economic statuses, it only has an impact on their looks and in maintaining decency when it comes to their uniforms. However, Mr. John highlighted these students' refusal in engaging in discussion and interacting with their peers during the lesson. He particularly took note of the difference he has observed between junior and senior form students, and postulated that perhaps the junior form students are too young to have been exposed to intensive online learning and a complete isolated learning atmosphere; whereas the senior form students have relatively more stable and matured learning modes and familiarity about expected behaviours in class, and so the pandemic might have had less effects on them. In addition to that, he specifically used the term 'detachment' when describing his junior form students in terms of how they interact and socialise with their peers. This is also consistent with Kuhfeld et al. (2023)'s research, which revealed that the pandemic has also caused students to become less socially and emotionally available and attached to their peers and to events of the world in general. In terms of social-emotional development, Mr. Tan has also added in the discussion after Mr. John's sharing and mentioned that his students have become more quick-tempered and a lot less patient and empathetic after ERT; in which he also described as 'intensive online learning', which he also suspects might have 'caused emotional developmental damage and/or socialising abilities'.

As for the widened learning gap in class, this has been a concern brought up by all informants in the discussion. They have mentioned that students who have always been above average are now either more superior than before, or they managed to stay above average; whereas those who have been performing sub-par have gotten even worse in terms of knowledge acquisition, academic achievements and learning motivation in class. The term 'learning losses' has been used by Ms. Alicia, when describing her senior form students, whose families cannot afford private tutorial lessons for them. For these students, they have not been able to perform what students should have been able to in a normal setting. First, this is correlated to unequal resource distribution owing to one's SES; second, Ms. Alicia also specifically mentioned that the learning outcome and performance of students without extra help is simply a reflection of how well they have been learning, which she equates that to how well she has been teaching. Other informants also agreed with her, when she mentioned 'remedies must be done to reverse the learning loss in some students', and some informants also added that the socio-cognitive and social-emotional development of students should also be taken care of. This part of the focus group interview reveals that perhaps the lockdown and suspension of school have impaired students' socialisation abilities; at the same time, it also reveals how it is a problem and/or phenomenon that is observable and occurring across Taiwan, Singapore, and Hong Kong.

5.4. Acceptance of Digital Tools as a Part of Education

Before the pandemic, some teachers were reluctant to utilise digital teaching tools in class; the interview question in this section concerns teachers' views and perception regarding digital teaching and learning tools, and they were also asked to comment on ChatGPT. The appearance of ChatGPT went viral within a short period of time, and it has affected education in several ways (AbuMusab, 2023). Ms. Alicia, who has never 'relied on digital tools before', has

discussed how the pandemic made her realise the importance of online teaching, and she even expressed a sense of guilt owing to the worry that her lack of former online teaching experience has been the cause for the jeopardization of her students' learning. On top of that, she is a lot more open to the usage of digital tools in class now, and even considers that a way to practise and to prepare her students for the future. It is noteworthy that all informants agreed in the interview that digitalisation is the way of education and where it is heading. As for ChatGPT, Ms. Wong fears that her junior form students' writing, and critical thinking skills might be negatively affected if it is used more frequently. For her senior form students, she has used them in several sections as she believes it is her responsibility to prepare her students for university, and that she sees ChatGPT as the leading trend when her students graduate from high school.

On the other hand, other informants might have completely different views regarding ChatGPT; as a matter of fact, it seems that the more the informants are used to digital teaching tools, the less reluctant and the more accepting s/he is towards the use of digital tools and even ChatGPT. Mr. Tan, for instance, who is a science teacher at an international primary school in Singapore, has always relied on digital tools, flipped classrooms and blended learning in his teaching. He gave an example in which ChatGPT was used by one of his students in the science report, and instead of disciplining that student, he chose to communicate and find out how the work was generated. He described it as 'an inevitable process in this digital era' and that 'it is always better to know more about the tools, to be familiar with the pros and cons, before deciding whether or not to use it, and more importantly, how exactly to use it'. Mr. Tan's view is shared by Mr. John, who teaches Economics in a private secondary school in Hong Kong. Similar to Mr. Tan, Mr. John is also used to digital teaching and learning materials as well as the e-classroom. He specifically mentioned one more reason to use them more frequently after the pandemic, which is that the materials have been specially 'updated, prepared and digitised during the pandemic, and it only makes sense to use them more often, so the efforts do not go to waste; and second, so that students' learning is slightly more consistent'. Mr. John also shares the same view regarding ChatGPT and pointed out that 'as teachers, it is not a matter of whether or not you allow it in class, it's more about whether or not you can identify its application when your students rely on them'. He also uses ChatGPT himself in generating exam papers and rubrics for class activities he explained that 'it saves him a lot of time as compared to having to do everything from scratch'. His attitude towards ChatGPT is positive in general, he sees that as part of the digitisation of education. However, he also uses anti-ChatGPT and AI-tracking app to trace whether his students have made use of ChatGPT in assignments 'that should be used as chances to practise their critical thinking skills and application of the theories in Economics' because 'the public exam is still what matters most, and that ChatGPT is not going to be helpful during it'.

Additionally, another interesting finding is that these informants in general, agree there is a difference in which digital teaching tools and ChatGPT could be applied based on the subject that they teach. For instance, Ms. Wong and Ms. Alicia both pointed out that language subjects rely on students' frequent reading and writing practices to increase their knowledge and to ensure higher grammatical accuracy in a linguistic sense. Both did not rely on digital teaching tools before the pandemic, and both have expressed concerns regarding how digital tools could jeopardise students' reading and writing abilities. As a matter of fact, this has also been revealed as a negative effect of distance learning and online education in some research (Trentin, 2016; Benade, 2020; Moore et al., 2023). They also expressed concerns about the usage of ChatGPT and how it might possibly 'kill students' writing and even research abilities' as it has the function to generate an essay, thereby taking away the opportunity for students to practise their writing using the language. Ms. Wong has made a remark towards the end of the

interview that it is important for there to be a balance between digitisation and education itself; indicating the view that digitalisation is the inevitable trend of education, but it is a path rather than an end goal, and by striking a balance in between, it allows the maintenance of high-quality education and benefits to students' learning.

5.5. Teachers' Refined Role in the Classroom

The discussion on this section was indeed the most intriguing as my informants have spent relatively longer time in expressing their opinions on this. In general, all of them do not think that teachers will become obsolete the era of artificial intelligence, the reasons varied but on a broad level, they can be categorised using the same theme— teachers' roles have become more refined, not only that they are not merely knowledge imparters, but they have also bonded more closely with their students, taking up the role as a third parent and even to act as their moral compass. Mr. Jack, who teaches primary school students in Hong Kong, has pointed out the advantages and edge that artificial intelligence has over schoolteachers and/or the human brain. It is undeniable that AI can 'perform faster and more accurately at calculations', however, it does not mean that AI are automatically good teachers. He specifically mentioned several criteria to be a good Mathematics teacher, namely 'to be aware of students' issues and misconceptions' because 'students often lack the ability to explain what they do not understand' and it is therefore 'a good teacher's responsibility to identify those specific needs and act upon them using corresponding pedagogies and teaching methods. Mr. John shares a similar view in this regard, as both Economics and Mathematics do share some similar qualities in terms of theories and how the two subjects' function, Mr. John pointed out the benefits of utilising AI in his case in illustrating abstract concepts to his students. In both informants' explanation and elaboration, the role of AI is still an assistant to a schoolteacher in the classroom, but do not have the communication strategies and pedagogies that are enough to make teachers redundant.

In addition, it is true that the role of schoolteachers has been changing and have undergone many changes in the last two decades. From teachers-centred classroom to students-centred classroom; and with the implementation of STEM classes which encouraged an enquiry-based learning atmosphere; and now, the advancement of technology and the reliance of digitalisation and technology in education. In Ms. Wong's sharing regarding her opinion on teachers' role in the digital era, she also discussed her doubts at first when Zoom classes were introduced. The lack of in-person body language, signs and eye contacts have caused her to feel frustrated as there was no feedback from her students. Not only was she concerned about the learning progress of the students, but she was also anxious about teaching itself, as it felt like 'she is just treated as some kind of character talking on a video, some kind of person on TV that they could just mute anytime they feel like it'. At the same time, Ms. Wong mentioned her fear of being replaced even in the aspect of imparting content knowledge, as online learning resources are way too accessible and available. However, in the discussion itself, the most important idea that protrudes was that teaching is a lot more than imparting knowledge. Teaching is about communicating and 'being the moral compass for students, the role model and even acting like a third parent to one's students. All the informants mentioned that their students have approached them during the pandemic and expressed their concerns about public health, and some even asked for their opinion on whether it was the end of the world. These kinds of questions involve these informants' personal views and cosmological perception. They ought to be answered and responded carefully because their responses could be key to how their students perceive the pandemic, and eventually their future and the world. This kind of philosophical discussion which does not only involve logic, reasoning, but also considers

emotions, is exactly what is believed to have made the role of teachers more refined in this digital era.

6. Conclusion

Teaching is more than just a job; the pandemic has made everyone realise and feel this in an in-depth manner. It is true that even when the pandemic is over, digitalisation has not ceased, and it seems that education is also embarking on a journey towards technology and digitisation. Naturally there might be other issues that come along with it, such as virtual structural violence, and/or unequal resource distribution, etc. During the pandemic, when ERT was implemented despite man teachers' incompetence in online teaching, they were 'powerless elites'; however, as the disjuncture took place, and later as they have learnt and, in some cases, mastered the use of digital tools in their teaching, transformative learning is achieved, they have proceeded with the future with a much more different mindset that is open to the use of technology. The appearance of ChatGPT has also caused some disruption to education itself--- different research has revealed concerns about the desensitisation that overreliance of technology and artificial intelligence have on students' cognitive, socio-emotional, and empathetic development. This research puts emphasis on the emotional experiences of five teachers in three countries. The findings suggest these individuals have experienced transformative learning, making them harder to be replaced entirely by artificial intelligence.

Emotions and emotionality in the classroom should not be overlooked, this research provides precious perspective coming from current teachers. With the recent development of artificial intelligence, emotionality has become more important in distinguishing humans from artificial intelligence. The ability to have emotions is entangled in the mind and body of a human, the flow of emotions determines our relationships with other people and the world around us, they are evaluative, and it is exactly because of this characteristic, that emotions are also indispensable to transformative learning. We can control how emotions are handled but we cannot choose not to experience emotions; in the case of these teachers, emotions have been channelled into a positive energy that yields transformation, benefitting both the individuals themselves and their students. In an AI-assisted educational context, it is particularly important for teachers to develop reflexivity and focus on critical self-reflection. The role of teachers in this exciting era is still unfolding, but it is certain that teachers will become either completely obsolete, if the educators are not willing to nurture their reflexive thinking and undergo transformation in their habits of minds; or they will become the key to future generations, who have consolidated self-identities and will therefore, not be so irreplaceable by artificial intelligence, regardless of the field.

This research has explored several important challenges faced by teachers in the digital age, particularly their intense self-doubts during the shift to ERT. Transformative learning is evident in these teaching individuals, owing to their critical self-reflection that led them to ponder what the fundamental of a great teacher is. The research has focused on the emotions experienced by teachers and how such emotions have contributed to changes in these individuals---remote teaching anxiety because of self-evaluated lack of online pedagogies; and eventually the acceptance of digital tools as a part of teaching and education. The aftermath of ERT is also explored in the research, widened learning gap in classes and how the development and learning progress of students are interlinked with their socio-economic backgrounds. Most importantly, this research examined teachers' perceptions of the replaceability of teaching profession, a significant finding is that teachers have a more refined role in the classroom, and it is enabled by transformative learning. Teaching is an art and a process embedded with emotions, it is always changing, and it is a profession that shapes the future pillars of society.

At this stage, there is no telling for certainty regarding whether teachers will be replaced completely in the future. However, as for now, there are certainly things and approaches that we could adopt to ensure the value and preciousness of teachers are reassured, not only will this improve the quality of education across jurisdictions, it is believed that it could also be key to the distinguishment in the difference between artificial intelligence and humans. They can either remain as powerless elites, or they can experience emotions in a theoretical-reflexive manner and continue to create meaning for themselves in their teaching profession.

References

AbuMusab, S. (2023). Generative AI and human labor: who is replaceable? AI & SOCIETY, 1-3. https://doi.org/10.1007/s00146-023-01773-3

Akbana, Y. E., & Dikilitaş, K. (2022). EFL teachers' sources of remote teaching anxiety: Insights and implications for EFL teacher education. Acta Educationis Generalis, 12(1), 157-180. https://doi.org/10.2478/atd-2022-0009

Alberoni, F. (2007). The Powerless 'Elite': Theory and Sociological Research on the Phenomenon of the Stars. https://doi.org/10.4135/9781446269534.n8

Anthony, B., & Noel, S. (2021). Examining the adoption of emergency remote teaching and virtual learning during and after COVID-19 pandemic. International Journal of Educational Management, 35(6), 1136–1150. https://doi.org/10.1108/ijem-08-2020-0370

Battey, D., & Franke, M. L. (2008). Transforming identities: Understanding teachers across professional development and classroom practice. Teacher education quarterly, 35(3), 127-149.

Beatty, A. & Brunel University. (2014). Anthropology and emotion. Journal of the Royal Anthropological Institute, 20, 545–563. https://doi.org/10.1111/1467-9655.12114

Benade, L. (2020). Is the classroom obsolete in the twenty-first century? In Design, Education and Pedagogy (pp. 6-17). Routledge. https://doi.org/10.1201/9781003024781-2

Calleja, C. (2014). Jack Mezirow's conceptualisation of adult transformative learning: A review. Journal of Adult and Continuing Education, 20(1), 117-136. https://doi.org/10.7227/JACE.20.1.8

Choi, H., Chung, S. Y., & Ko, J. (2021). Rethinking teacher education policy in ICT: Lessons from emergency remote teaching (ERT) during the COVID-19 pandemic period in Korea. Sustainability, 13(10), 5480. https://doi.org/10.3390/su13105480

Chiu, Y. Y. (2021). Effectiveness of online learning relies on the dynamic between teachers and students. Journal of E-learning Research, 1(4), 61–81. https://doi.org/10.33422/jelr.v1i4.237

Creswell, J. W. (1998). Qualitative inquiry and research design: Choosing among five traditions. Sage Publications, Inc.

De Gioannis, E., Ballarino, G., & Cartagini, D. (2023). Parents and teachers' compensatory strategies during COVID-19 school closures: A scoping review. International Review of Education, 69(5), 603-623. https://doi.org/10.1007/s11159-023-10011-3

Dole, S., Bloom, L., & Kowalske, K. (2016). Transforming pedagogy: Changing perspectives from teacher-centered to learner-centered. Interdisciplinary Journal of Problem-Based Learning, 10(1), 1. https://doi.org/10.7771/1541-5015.1538

Driscoll, A., Jicha, K., Hunt, A. N., Tichavsky, L., & Thompson, G. (2012). Can online courses deliver in-class results? A comparison of student performance and satisfaction in an online versus a face-to-face introductory sociology course. Teaching Sociology, 40(4), 312-331. https://doi.org/10.1177/0092055X12446624

Dwyer, DC, Ringstaff, C and Sandholtz, JH (1991) Changes in teachers' beliefs and practices in technology-rich classrooms, Educational Leadership, 45–52.

Fitria, H., & Suminah, S. (2020). Role of teachers in digital instructional era. Journal of Social Work and Science Education, 1(1), 70-77. https://doi.org/10.52690/jswse.v1i1.11

García-Peñalvo, F. J. (2023). The perception of Artificial Intelligence in educational contexts after the launch of ChatGPT: Disruption or Panic?.

Hubalovsky, S., Hubalovska, M., & Musilek, M. (2019). Assessment of the influence of adaptive E-learning on learning effectiveness of primary school pupils. Computers in Human Behavior, 92, 691-705. https://doi.org/10.1016/j.chb.2018.05.033

Illeris, K. (2018). Transformative learning re-defined: As changes in elements of the identity. In Learning, Development and Education (pp. 185-197). Routledge. https://doi.org/10.4324/9781315620565-18

Kawalkar, A., & Vijapurkar, J. (2013). Scaffolding Science Talk: The role of teachers' questions in the inquiry classroom. International Journal of Science Education, 35(12), 2004-2027. https://doi.org/10.1080/09500693.2011.604684

Kaymakamoglu, S. E. (2018). Teachers' Beliefs, Perceived Practice and Actual Classroom Practice in Relation to Traditional (Teacher-Centered) and Constructivist (Learner-Centered) Teaching (Note 1). Journal of Education and Learning, 7(1), 29-37. https://doi.org/10.5539/jel.v7n1p29

Keengwe, J., & Onchwari, G. (2011). Fostering meaningful student learning through constructivist pedagogy and technology integration. International Journal of Information and Communication Technology Education, 7(4), 1–10. https://doi.org/10.4018/jicte.2011100101

Keiler, L. S. (2018). Teachers' roles and identities in student-centered classrooms. International journal of STEM education, 5, 1-20. https://doi.org/10.1186/s40594-018-0131-6

Kitchenham, A. (2008). The evolution of John Mezirow's transformative learning theory. Journal of transformative education, 6(2), 104-123. https://doi.org/10.1177/1541344608322678

Lave, J., & Wenger, E. (1991). Situated learning: legitimate peripheral participation. New 20 York, NJ: Cambridge University Press. https://doi.org/10.1017/CBO9780511815355

Luguetti, C., Aranda, R., Enriquez, O. N., & Oliver, K. L. (2018). Developing teachers' pedagogical identities through a community of practice: Learning to sustain the use of a

student-centered inquiry as curriculum approach. Sport, Education and Society. https://doi.org/10.1080/13573322.2018.1476336

Maksimović, J., & Dimić, N. (2016). Digital technology and teachers' competence for its application in the classroom. Istraživanja u pedagogiji, 6(2), 59-71. https://doi.org/10.17810/2015.35

Marsick, V. & Mezirow, J. (2002). New work on transformative learning. Teachers College Record, 25 January. https://doi.org/10.17810/2015.35

Megan Kuhfeld, J. S., Lindsay Dworkin, K. L., Emily Markovich Morris, L. N., Erin Castro, M. H., & Darrell M. West, J. B. K. (2023, June 27). *The pandemic has had devastating impacts on learning. what will it take to help students catch up?* Brookings. https://www.brookings.edu/articles/the-pandemic-has-had-devastating-impacts-on-learning-what-will-it-take-to-help-students-catch-up

Mezirow, J. (1989). Transformation theory and social action: A response to Collard and law. Adult Education Quarterly, 39(3),169-175. https://doi.org/10.1177/0001848189039003005

Moore, S., & Hodges, C. B. (2023). Emergency Remote Teaching. EdTechnica. https://doi.org/10.59668/371.11681

Petersen, N., & Batchelor, J. (2019). Preservice student views of teacher judgement and practice in the age of artificial intelligence. Southern African Review of Education with Education with Production, 25(1), 70-88.

Plumb, D. (2006). The Nature and Archaic Origins of Lifelong Learning Processes: The Relevance of Anthropology to Adult Education. Adult Education Research Conference. https://newprairiepress.org/aerc/2006/papers/67/

Roehrig, G. H., & Kruse, R. A. (2005). The role of teachers' beliefs and knowledge in the adoption of a Reform-Based curriculum. School science and Mathematics, 105(8), 412-422. https://doi.org/10.1111/j.1949-8594.2005.tb18061.x

Ross, A. F., & DiSalvo, M. L. (2020). Negotiating displacement, regaining community: The Harvard Language Center's response to the COVID-19 crisis. Foreign Language Annals, 53(2), 371-379. https://doi.org/10.1111/flan.12463

Russell, V. (2020). Language anxiety and the online learner. Foreign Language Annals, 53(2), 338-352. https://doi.org/10.1111/flan.12461

Sadıç, T., & Bavlı, B. (2023). Innovative teaching practices during the emergency remote teaching (ERT) process: a phenomenological inquiry. Journal of Research in Innovative Teaching & Learning. https://doi.org/10.1108/JRIT-04-2023-0037

Singh, R. (2016). Learner and learning in the digital era: Some issues and challenges. International Education & Research Journal [IERJ], 2(10), 92-94.

Sixto-García, J., & Duarte-Melo, A. (2020). Self-destructive content in university teaching: new challenge in the Digital Competence of Educators. Communication & Society, 33(3), 187-199. https://doi.org/10.15581/003.33.3.187-199

Spindler, G. (2011). Anthropology and Education: An Overview. In The Anthropology of Education Classic Readings (pp. 19–40). Cognella.

Stewart, W. H. (2021). A global crash-course in teaching and learning online: A thematic review of empirical Emergency Remote Teaching (ERT) studies in higher education during Year 1 of COVID-19. Open praxis, 13(1), 89-102. https://doi.org/10.5944/openpraxis.13.1.1177

Taguchi, N. (2020). Digitally mediated remote learning of pragmatics. Foreign Language Annals, 53(2), 353-358. https://doi.org/10.1111/flan.12455

Taylor, E. (2000). Fostering Mezirow's transformative learning theory in the adult education classroom: A critical review. Canadian Journal for the Study of Adult Education, 14(2), 1-28.

Trentin, G. (2016). Always-on education and hybrid learning spaces. Educational Technology, 31-37.

Wang, Y. M. (2002). From teacher-centredness to student-centredness: Are preservice teachers making the conceptual shift when teaching in information age classrooms? Educational Media International, 39(3-4), 257-265. https://doi.org/10.1080/09523980210166710

Wulf, C. (2002). Anthropology of Education (Vol. 2). Transaction Publishers. https://doi.org/10.2139/ssrn.3732081

Wulf, C. (2021). Emotion and imagination: Perspectives in educational anthropology. International Journal of African Studies, 1(1), 45–53. https://doi.org/10.51483/ijafrs.1.1.2021.45-53

Yung, C. Y. (2022). Emotions as an Accelerator: Case Studies on the Effects of Emotions on Teachers' Perception and Learning when being in Conflicts with School leaders. European Journal of Teaching and Education, 4(1), 48–60. https://doi.org/10.33422/ejte.v4i1.725

Zhao, Q. (2022). On the Role of Teachers' Professional Identity and Well-Being in Their Professional Development. Frontiers in Psychology, 13. https://doi.org/10.3389/fpsyg.2022.913708

frontiers | Frontiers in Education

TYPE Original Research
PUBLISHED 22 January 2025
DOI 10.3389/feduc.2025.1486449

OPEN ACCESS

EDITED BY
Lorella Giannandrea,
University of Macerata, Italy

REVIEWED BY
Noble Lo,
Hong Kong Polytechnic University,
Hong Kong SAR, China
Simona Nicolosi,
Kore University of Enna, Italy

*CORRESPONDENCE
Yin Yung Chiu
✉ yychiu.eunice@gmail.com

RECEIVED 26 August 2024
ACCEPTED 02 January 2025
PUBLISHED 22 January 2025

CITATION
Chiu YY (2025) Transformative learning: reflection on the emotional experiences of schoolteachers during and after the pandemic. *Front. Educ.* 10:1486449. doi: 10.3389/feduc.2025.1486449

Transformative learning: reflection on the emotional experiences of schoolteachers during and after the pandemic

Yin Yung Chiu*

Department of Educational Science, Heidelberg University, Heidelberg, Germany

Teachers have experienced online teaching anxiety since the pandemic, and as education continues with digitization, the emotional experiences should be addressed. By focusing on the emotions experienced by schoolteachers in online teaching, this research investigates how intense feelings, and strong emotions can be transformed into critical self-reflection and ultimately achieve transformation based on the transformative learning model. As teachers across jurisdictions reportedly experienced burnout, this research discovers that transformative learning is the gateway and a path that allows teachers' passion to be reignited. To cope with the changes and challenges brought by the use of AI and the vastness of online information, it is essential for teachers to re-examine and identify their roles in the classroom and to consolidate their valuable contributions and irreplaceable role in an effective learning environment. Through case studies that cover the life stories of five teachers in Hong Kong, Canada and Taiwan, this research discusses how the emotionality of teachers plays a key role in transformative learning and examines the process in which anxieties transcend into passion.

KEYWORDS

cross-cultural case studies, digitization, online teaching, teachers' emotions, transformative learning theory

1 Introduction

The study of emotions has continued to intrigue scholars in various disciplines; in education, teachers' emotions used to be overshadowed by "wellbeing" (Chen, 2020). Although "emotions" does not have a consent definition in academia now, it does not and should not mean that the study of emotions should be less critical. This research aims not to define emotions but to investigate the correlation between emotions and transformative learning. There are many interpretations of the word "emotions"; this research takes the phenomenology and hermeneutics approach, which postulates emotions as an interior emotional space that helps individuals make sense of the world (Beatty, 2019). A narrative approach highlights the unique aspects and the temporal progression of emotions (Beatty, 2019). While the long-term effects of emergency remote teaching (ERT) are still unfolding, education contexts have further pursued digitization (Salama and Hinton, 2023). The transition from in-person classrooms to virtual settings represents a significant transformation in the teaching and learning environment. Most importantly, the nature of teacher-student relationships has altered, as traditional interaction dynamics and established social norms have been disrupted. The digitized interaction is evident in the use of digital means and Internet language (Lee et al., 2024), how it translates to and from different emotions in the classroom must be delineated.

When teachers encounter these unfamiliar scenarios and simultaneous changes, the familiar teaching environment they rely on becomes unsettled, and the critical disjuncture identified here marks the beginning of transformative learning (Taylor, 2000; Kitchenham, 2008). Transformative learning, coined by Mezirow (1989), consists of two key aspects: habits of mind and points of view. When a person experiences a disorienting dilemma in life, which is an event that disrupts the person's familiar social reality, reflection and critical reflection might take place, preparing the individual to acquire further knowledge about the disrupting events, then reintegrating the reflections and ideas into life. However, the model does not address the fundamental connection between emotions and perception, which a vast body of research has discussed the interplaying role of an individual's value judgement, learning and emotions (Pressley, 2021a; Wulf, 2022). This study explores the intricate connection between emotions and learning among teachers, framing the pandemic as a disorienting dilemma, it conceptualizes emotions using the theoretical lens provided by Pekrun (2024)'s and Schutz and Pekrun (2007)'s theory on academic emotions and classroom emotions based on control-value theory.

When emergency remote teaching was first implemented, many teachers experienced online teaching anxiety and lack of emotional support; those emotions, however, are expected to be dealt with by themselves, as a result, many of which remained unresolved. The correlation between professionalism and its unacceptable coexistence with emotions has continuously exploited teachers' capacity for emotional provision and excessive emotional labor (Tsang and Wu, 2022; Wulf, 2023). This research examines the life stories of teachers in three different countries, through individual in-depth interviews, narrative and thematic analysis are applied to inquire into the emotional experiences during the pandemic and in post-pandemic times. In particular, the connection between emotions in the classroom and how those emotional experiences contribute to transformative learning are explored and discussed.

2 Theoretical framework

2.1 Emotions in traditional and digital classrooms

Online teaching pedagogy is very different from an in-person classroom. Instant exchange of body language, such as eye contact and nodding, etc. are limited by the camera in an online setting, teachers are burdened with identifying and dismissing boredom using a wide array of classroom interactions and activities (Naylor and Nyanjom, 2021; Taguchi, 2020). A virtual teaching space requires teachers to have high digital literacy and be familiar with the functions of the applications such as breakout rooms (Pangrazio et al., 2020), muting functions, etc. Teachers have become the central reason for the flow of emotions, apart from undertaking self-blame and self-doubt, they have to be extra observant, react swiftly to dismiss students' boredom and be pleasant enough to sustain concentration and attention from students.

The emotional transaction occurs during classroom events, in other words, the classroom itself is an emotional place (Schutz and Pekrun, 2007); the transactions depend highly on the individuality of teachers and students. In both online and in-person classrooms, an emotional transaction takes place, as it depends highly on teachers' perspectives, self-perceived identities and beliefs; the emotional flow in an online classroom is positively correlated to the teacher's beliefs in online teaching. Emotional dissonance occurs when teachers experience conflict between their feelings and the perceived display rules they are expected to follow (Morris and Feldman, 1996; Schutz and Pekrun, 2007). When such emotional baggage is not resolved, disequilibrium occurs, often resulting in emotional exhaustion. Furthermore, as emotions are constantly transacted between teachers and students, the feelings of teachers directly impact students' learning (Pekrun, 2022, 2024). Teachers' enjoyment and enthusiasm have been proven to induce enjoyment of classroom activities and instruction in students; this also relates to the contagious nature of emotions known as reciprocal causation in the dynamical systems theory (Pekrun, 2022, 2024). To regulate achievement emotions in the classroom, four aspects have been discussed: first, to target the emotion *per se* using relaxation techniques such as breathing methods; second, to address the value underlying emotions through cognitive restructuring and therapy sessions; third, to increase one's academic competences, such as training of learning skills; and lastly, to adjust the academic environments through classroom instructions and activities (Pekrun, 2022). Achievement emotions are centered on students, yet this article explores the possibility of expanding them to teachers, as teachers are also learners in the classroom, especially in an unfamiliar teaching setting. Recognizing the need to regulate and manage achievement emotions for teachers, implies that teachers should also reflect on their current values to tackle the underlying emotions, upgrade their skills such as online teaching tools and techniques, and design classroom instructions and learning environments that are mutually enjoyable for themselves and their students.

2.2 Regulation of achievement emotions and transformative learning

Transformative learning is an adult learning theory created by Mezirow (1991). The theory has three essential elements: individual experience, critical reflection, and dialogue (Mezirow, 2000a, 2012; Taylor and Cranton, 2012). As the theory develops, more core elements have been identified: a holistic orientation, an awareness of context and an authentic practice. Reflection is prioritized as it shapes how an individual makes sense of an experience or an event. The critical disjuncture marks the beginning of any possible transformation later, Taylor (2017) added that one's life experience is indeed a determinant factor of how individuals engage in dialogue and reflection; the critical disjuncture or disillusionment experienced by an individual opens a pedagogical entry point (Taylor, 2017). Upon reflection, individuals re-examine their personal and professional values; as the process takes place, Jarvis (2012) pointed out that a narrative point of view usually leads to identifying characteristics, values and actions that are opposite to one's own. It is precisely these contrasting values that provoke meaning-making and re-making and trigger critical reflection, which facilitates transformative learning, thereby enabling a more direct and holistic point of view in individuals.

An inseparable relationship exists between transformative learning and an individual's emotions and feelings. Mezirow (2000b) identifies three types of meaning perspective transformations: content, process, and premise. Perspective transformation arises from an individual's recognition of conflicting emotions, thoughts, and actions. Content transformation focuses on reflecting on how one perceives, thinks, feels, and does; process transformation examines how one carries out the act of perceiving; and premise transformation involves understanding why one perceives as they do, that is, identifying the underlying structures that developed the individual's current values (Mezirow, 2000a). Together, these elements underpin critical reflection. Gaining full awareness of one's emotions and feelings is crucial in achieving transformation in content—a connection between perception and emotions substantiated by numerous scholars (Chen, 2020; Brosch, 2021; Wulf, 2023; Moore and Hodges, 2023).

The contagious nature of emotions must not be neglected; as emotions flow in the classroom, emotions experienced by teachers reflect their self-perceived identities (Zembylas, 2003) as emotional transaction occurs, beliefs, goals and standards are also transacted at a social-historical-contextual level (Schutz and Pekrun, 2007). The phases in transformative learning could be applied to regulate such transactions. To better illustrate, Figure 1 has been created.

Pekrun has postulated 4 ways to regulate achievement emotions building on the control-value theory: emotion-oriented regulation and treatment, appraisal-oriented regulation and treatment, competence-oriented regulation and treatment, and design of academic environments (Pekrun, 2006). Emotion-oriented regulation targets emotions directly through relaxing techniques such as breathing; appraisal-oriented regulation is cognitive restructuring, which involves self-examining the underlying emotions; competence-oriented regulation reflects current skills and recognizes the need to improve; design of academic environments is about classroom instruction. Figure 1 postulates that the ways are directional, each regulation requires more in-depth reflection than the last. This overlaps with Mezirow (1991)'s transformative learning theory and describes the steps in the TL framework: self-examination of feelings, critical assessment of assumptions, and search for new roles and reintegrating them into life, which is rephrased as "enacting transformation in life" in Figure 1. According to the transformative learning framework, when an individual reflects on one's perception and becomes aware of one's feelings and thoughts that contrast each other, one examines the frame of reference. Frame of reference categorizes experiences, beliefs, people, events, and the self (Mezirow, 2000b, p. 22). Habits of mind, however, are concerned with how an individual thinks and feels on a much more individualized level as they center on one's habits of thought process. By incorporating Pekrun's four steps in regulating achievement emotions into the transformative learning framework, the key step is critical self-reflection and reintegration into life, which can be broken down into several parts: (i), teachers need to examine existent values and identify the current frames of reference; (ii) by exploring one's course of action, new knowledge must be acquired to adjust the current frames; and (iii) to build confidence and skills in assisting individuals to channel meaningful reflections into reintegration in life.

3 Method

3.1 Participants

Five schoolteachers teaching in Hong Kong, Canada and Taiwan were interviewed. These informants were approached by snowball sampling. The first two informants were teachers I know who were teaching at two different school types; each was asked to invite one other informant working in another school, and the fourth informant also invited another teacher from a different school to the research. This reduces sample biases and introduces diversity within the sample. Semi-structured interviews and open-ended questions were used so that informants could describe their stories and experiences in detail (Creswell, 1998; Mezirow and Taylor, 2009). This research examines how schoolteachers interpret the shifts in education brought about by the pandemic and how they perceive their professional identity in the context of the digital age.

These schoolteachers work in five different secondary schools in Hong Kong, Canada, and Taiwan. These three regions are selected because continuous professional development is prioritized in them; moreover, as each region has diverse classrooms, teachers' experiences might be moderate due to cultural inclusivity. Technology integration into education has also become increasingly important in these regions at a similar development speed. Owing to

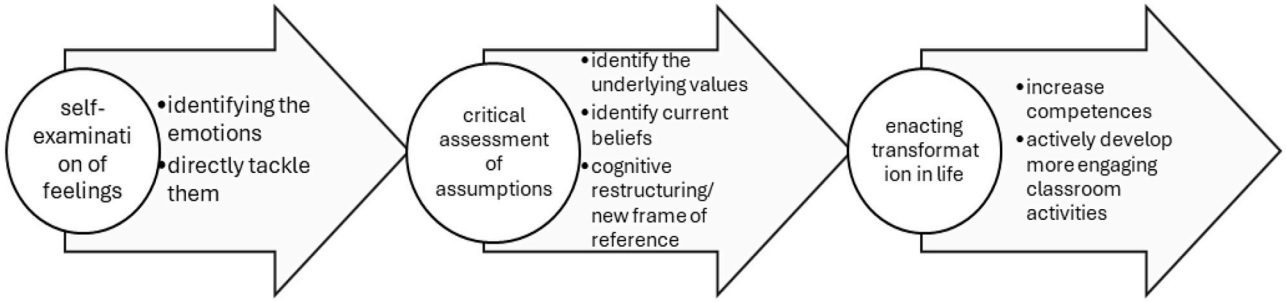


FIGURE 1
Managing achievement emotions through a transformative learning framework, incorporating ideas from Mezirow (2000a)'s management of achievement emotions and Mezirow (2000b)'s transformative learning framework.

this, it is believed that the cross-cultural case studies in this research would bring meaningful insights regarding teachers' experiences during the pandemic. Table 1 has been created to describe their demographic background.

3.2 Instruments

This interdisciplinary qualitative research incorporates digital fieldwork, including online interviews with informants and virtual classroom observations, where I participated as a guest in one of my informants' online classes. Memo writing and field notes were compiled during each semi-structured interview. Keywords, key phrases and significant emotions were jotted down in the fieldnotes to enable smoother analysis later. Due to varying consent, only two interviews were audio-recorded; the recorded interviews were conducted in English or translated into English. To increase validity, memo writing and field notes were jotted during the interviews, and a preliminary analysis of keywords was conducted immediately after the interviews based on the memo and field notes. Moreover, informants were asked to review the quotes used in the research results to verify the accuracy and completeness of the data. I have also sent a copy of the research article to them to see if the quotes and discussion reflected their thoughts and feelings accurately. All of them replied, and the feedback was positive so far.

Digital participant observation was also conducted in the study, digital ethnography was applied through online interviews and virtual participant observation. An online classroom observation session was arranged via MicrosoftTeams. To minimize the effects on Mr John's students, they were not told that I was there as a researcher, but that I was there as an observer to John's teaching. As the lesson shows the faces of students, video recording As was not conducted at all to protect the students. To increase validity, field notes were written and I also stayed behind for about 30 min to double check a few details with Mr John when the lesson was over. Digital ethnography is a new research method; though a relatively new and unconventional research method, it is a valid and valuable tool for understanding contemporary fields, particularly in studies focused on digital learning. This research is instrumental as it focuses on digital learning. Digital ethnography emerged in the 2000s, particularly regarding how ethnography could be moved to the digital world and how ethnography can help anthropologists understand the digital world (Pink et al., 2015). It is an approach that invites researchers to consider the effects of digital media in shaping ethnography; this research employs digital ethnography by conducting interviews and participant observation online.

The interview asked the following questions:

Q1. Please describe your experience of ERT during the COVID-19 pandemic.
Q1.1 What were the strongest emotions you felt during that time?
Q1.2 How did you manage those emotions?
Q2. What was the most significant challenge, and how did you overcome it?
Q2.1 How did you feel when you were facing that challenge?
Q2.2 How did you feel when the challenge was over?
Q3. Have you noticed any differences in your students when physical school resumed?
Q3.1 Are these changes observed in particular groups of students or students in general?
Q3.2 Were those differences only observed by you, or did any of your colleagues also share similar insights?
Q4. Now that the pandemic has passed, do you still rely on digital tools such as Kahoot or AI in class? Why or why not?
Q4.1 What is your take on digital tools? Are they beneficial to students?
Q4.2 Do you think your students learn better or perform worse when you teach with digital tools?
Q5. Do you think teachers will become obsolete in the coming era?
Q5.1 In your opinion, what can teachers do to avoid being replaced by artificial intelligence?
Q5.2 What kind of qualities should teachers have that are also irreplaceable by machines?

3.3 Procedure

Narrative analysis was used in the data analysis, as it allows a more complete interpretation of informants' emotional experiences, which is the focus of this research. The theoretical basis of narrative

TABLE 1 Demographic background about the five informants.

Informant (Pseudonym)	School, school types teaching subject and teaching experience	Reliance on digital tools in class before the pandemic	Main challenges during ERT
Mr. John	Secondary school in Hong Kong, government-funded, Mathematics, 10 years	Constant dependence on Google Classroom and flipped classroom	Difficulty in mobilizing other teachers to provide quality online teaching
Ms. Kelly	Local secondary school in Taiwan, public school, English, 3 years	No	Unfamiliarity with online teaching tools
Ms. Nadia	Primary school in Canada: public school, Mathematics, 2 years	No	Unconvinced about the effectiveness of online teaching
Mr. Allan	Secondary school in Hong Kong, government-funded, Economics, 4 years	Constant reliance on digital learning materials and e-classroom	Stress and burden from being expected to teach other teachers online teaching
Ms. Kayla	International school (primary section) in Taiwan, private, Spanish, 11 years	Constant dependence on digital learning materials and e-classroom	Uncertainty about the effectiveness of her teaching

TABLE 2 Thematic analysis: recurring themes and relevant quotes from informants.

Key identified emotions	Recurring themes	Quotes selected from informants (pseudonyms)
Confused; anxious; sense of helplessness; stressful	Remote teaching anxiety	"It was such a mess, people say teachers waddle through muddy waters, but it was nothing like that this time. I was very confused with Zoom, I feel so exposed in front of cameras, you don't know if the student's parents are also watching." ----------Ms. Kelly
		"I am used to blended learning and flipped classrooms, but 100% remote requires different skill sets. I felt so helpless because the other teachers counted on me to help them with Zoom and Teams, I was the only one familiar with it in my department. It was so stressful." ----------Mr. Allan
		"It was a mess no one knew what each other was doing, and there was no standardization. Some students asked if I could use Kahoot because the other teacher did so; some asked if they could attend my class instead as their teacher only read from the PowerPoint slides. I felt helpless because I don't think lack of standardization brings any good at all to students' learning, but what else can I do?" ----------Mr. John
Doubtful; disrespected; frustration	Teacher-student relationship and/or classroom management	"It's like playing chess. You need to make your students hand in their homework on time even if they know detention is not a thing anymore. It's a power shift somehow, it's even worse if their parents are the type that don't care." ----------Ms. Nadia
		"You need to be smart enough to see through the lies and tricks of students. When they refuse to turn on their camera and claim that it's broken, it's usually because they are switching apps, and that's a glitch in iPads and iPhones." ----------Mr. John
		"It was very difficult for me to not see my students in person, I felt disrespected because even if my students were staring at the screen, they could, be browsing other web pages. Sure, we can do in-class pop quizzes to check their attention and understanding, but they can also send answers around using social media. I felt bad because it was like I could not trust my students anymore." ----------Mr. Allan
Helpless; worried	Learning loss; motivation loss in students	"Basically, they lost 2 years. My Form 1 students were basically in primary school when the pandemic started. First week of school, I figured they practically are about 1–2 years behind the curriculum. I was worried because it meant I must help them catch up on all of that learning loss." ----------Ms. Kelly
		"Schooling offers much more than subject knowledge; the learning loss student challenging also in their social skills. Their communication skills, analytical thinking, logical reasoning… etc. have all fallen behind. It's the worst I have ever seen." ----------Mr. Allan
		"Language subjects require lots of practice and interactions. Online classes help as well, but it doesn't help you develop interests. My students are a lot less passionate about Spanish classes, and their motivation dropped. I felt helpless because it takes lots of time and extra work for me to rebuild all that they've lost. It's my duty as a teacher though." ----------Ms. Kayla
More accepting; less anxious	Digital means has become a part of education—post-digital education	"There should not be a difference, digital tools or not; theoretically speaking, you should still be able to deliver the subject content effectively. What matters for me is how the teacher explains the knowledge, not the means used in the process, a worksheet shouldn't make your delivery more or less effective than a Google form." ----------Mr. John
		"I tried to convince my department head not to make it compulsory to use iPads in class, I read about the harmful effects digital means have on children's cognitive development. But, of course, it was not convincing to her at all. I have become more skilful with these digital tools anyway, so I will still use them, but only because it is a school requirement." ----------Ms. Kayla
		"It is undeniably a part of education now, actually, we have always relied on flipped classrooms, and we have students use Chromebooks at school. Before the pandemic, I limited the use of it in my class because I feel more comfortable teaching without it. But the pandemic made me more digitally competent, and I also see the fun digital tools like online learning games brought to my students. I think it's important that they enjoy learning, and since the Internet has become inseparable from our everyday lives as well, I think it's just normal for education to move toward that direction." ----------Ms. Nadia

(Continued)

TABLE 2 (Continued)

Key identified emotions	Recurring themes	Quotes selected from informants (pseudonyms)
Unbothered; passionate; hopeful	Teachers need to find their values	"Generative AI is still flawed now, but if you write a good input, it can also bring perfect answers. I guess some subjects might be easier to replace, but I don't see that happening to Economics because it's a subject that requires high-order thinking and application of concepts." ----------Mr. Allan
		"It's up to the teachers to be honest. If you see it as a job, and you teach only the subject knowledge and nothing more, you are already replaceable now, AI or not, this type of teacher should not be working in a school. Teaching is not just a job, it's a vision and a mission, as long as you have that mindset, you cannot be replaced." ----------Mr. John
		"If I could choose between online classes and in-person classes, for my comfort, I would pick online classes as it means I get to sleep a lot more. But being a teacher is exactly about giving up your comfort and doing the right thing for your students, often it is a long process and a much more tiring step to take, but teaching is where my passion lies. An AI might be able to do Math a lot faster than I am, but it does not bond with students. If you want to be irreplaceable, you must find the humane side of being a teacher." ----------Ms. Nadia

analysis stems from Gadamer (2003)'s Bildung, which loosely translates as the image of humans. In-depth interviews provide the space for informants to speak about their experiences, and from the narratives they have chosen, the underlying values that protrude in the conversation allow room for researchers to grasp the perspectives to capture the image that the individual has regarding the research subject at hand. Thick description is incorporated in the data analysis and discussion to include the informants' narration and viewpoint in as much depth as possible.

Thematic analysis was employed in the data analysis process to identify and interpret repeated keywords and similar patterns within the data as reflected in Table 2. This method provides flexibility to delve beyond surface-level content, exploring underlying meanings and implicit and explicit ideas held by the informants. The recurring themes were finalized based on the recurring and strong emotions shown in my informants' story narration, the content and experiences they were describing were compared, and the commonality between them was identified as the themes.

Narrative analysis provides a clear narration from the informants regarding how they understand the experiences, how they structure the story, how it was told, and the events that they highlighted and showed specifically strong emotions reflect their personal identity, value and what the experiences mean to them. Thematic analysis provides the possibility to analyze and categorize the emerging themes and patterns across data sets. Recurring ideas are discussed and summarized, which is crucial to understanding the commonality in the informants' experiences.

While the informants come from diverse cultural backgrounds, cultural differences primarily influence their emotional expressions, reflecting the behavioral dimension of emotions. However, this paper focuses on the emotions experienced by the informants, adopting a hermeneutic perspective that posits individuals from different cultures can share similar emotional experiences (Beatty, 2019). Five key themes emerged in this research, they were identified by strong emotions repeatedly mentioned by these informants, and by linking the emotions back to the incident that they were describing, the issues were identified as the themes that protrude. These recurring themes consistently in the informants' narratives about their experiences.

4 Results

The transcripts and memos are analyzed using narrative and thematic analysis, as the research centers on emotions. Each informant's narrative, along with the common themes that emerge as patterns in their responses, is particularly important. Frequently mentioned emotions and associated themes are identified as informants recounting their experiences and sharing their opinions in response to each question. The relevant quotes and identified themes are presented in the following table.

In each research question, one big theme was identified; although other subthemes also appeared, the selected ones are the ones that protrude. My informants have different starting points regarding their views and experiences in online education. The pandemic's beginning has been a critical disjuncture for all the informants, who have all experienced reflection throughout the period. The pandemic marks a chaotic beginning of massive online education. Still, the end of the pandemic and the emergence of AI have signified an official start of a digital era.

4.1 Remote teaching anxieties

When asked to describe their experiences during emergency remote teaching, most informants agreed it was chaotic, and they all reported a lack of structure from the school and other teachers teaching the same subject, and a lack of technical support (such as tutorials on which software to use and how to utilize all functions in it) from the education bureau and the school. When ERT was implemented, only two of my informants (Ms Nadia and Mr John) had previously been trained to conduct lessons online. Still, they also shared similar emotional experiences with the others: a sense of helplessness, confusion and anxiety. Pressley (2021b)'s study on how

the pandemic impacted teachers' self-efficacy revealed that teachers had the lowest instructional efficacy when teaching virtually as compared to hybrid and in-person, which also echoes to the anxiety that is reported by informants in this study. Remote teaching anxiety denotes teachers' anxiety precisely when the teaching is conducted online (Ma et al., 2022). As reflected in these informants, one key reason was their unpreparedness for suspending in-person schooling and the shift to virtual mode <2 months after "COVID-19" was first detected. These informants have not received sufficient training on online teaching; they felt incompetent and lacked self-confidence during ERT. Full-scale remote teaching has altered my informants' familiar social realities, bringing disorientation.

Another source is the feeling of being monitored by students' parents. In a physical classroom, such possibilities could never happen without formal and former school invitations, e.g., lesson observations are quite common in schools. However, in a virtual environment, teachers will not know if students' parents are also sitting in class. At the start of ERT, this caused lots of anxiety in my informants, thereby stirring up negative emotions when they were teaching, and negatively affecting the online classrooms as these emotions are transacted to their students (Pekrun and Marsh, 2022).

A third source of anxiety comes from how other teachers in school counted heavily on his knowledge and experiences of online teaching. Mr. Allan was promoted during the pandemic to be in charge of teacher training in using digital tools. Allan did not see himself as an expert in online teaching, but he was the only one who had ever conducted blended learning before. As he pointed out, other teachers in his department have been teaching for two decades without digital tools, so they were reluctant. This is also consistent with the research findings from previous scholars, Remmi and Hashim (2021) found that veteran teachers prefer traditional methods over online tools because they are more familiar with them, making them feel more secure and comfortable.

A fourth source of anxiety is students' feedback from cross-classroom comparisons. Standardization in digital teaching and how it should be used after school was not present, teachers rely on one's judgement and rubrics. As Mr John described, *"The lack of standardization caused students to compare the lesson structure and formats with one another, resulting in extra stress for teachers."* Some teachers might be more familiar with digital tools, while it is still new for others; students' cross-classroom comparison put teachers in a position to "compete with each other." John mentioned "a sense of defeat" when he was given suggestions to use Kahoot "just like the other class."

> *"Some students asked if I could use Kahoot because the other teacher did so; I was kind of humiliated but then first things first, so I upgraded my knowledge and started to make things even more interesting. One day a student from another class asked if she could attend my class as their teacher was only reading from the PowerPoint slides. I felt quite helpless. If some teachers decide to slouch, there's not much I can do about it."*
>
> ----------*Mr John*

As reflected in John's narrative above, the frustration lies in how some teachers are not making enough effort to deliver quality online classes to students. He is also anxious because students could give constructive feedback about the delivery of the classes, which could also appear to be directive and commanding, a power dynamic that teachers are usually not used to. He also expressed concerns regarding the fact that not every student dares to voice out their needs, nor directly to the involved teachers. In the case when another student asked to join his class, it was difficult to handle as the other teacher involved was the department head. For Mr. John, mainly working in Hong Kong, a city embedded with the cultural values of respecting one's superior, it was particularly difficult and socially inappropriate in the situation.

4.2 Teacher-student relationships & classroom management

It has been established in numerous research that quality teacher-student relationships are critical to students' academic achievements; the development of rapport with students is especially important because it allows teachers to understand students better as a person, and to identify and possibly solve problems that students face in life. It has also been expected that teachers take up the role and be able to identify students with family issues and/or school bullying, etc., (Kaufmann and Vallade, 2020). Students spend the most time at school with their teachers, while the most with their parents or guardians, teacher-student relationships are therefore very important (Lave and Wenger, 1991).

In online classrooms, teachers find it challenging to feel respected from their students, as the lack of physical presence and body language make it almost impossible to ensure students are giving their full attention. The shift to a virtual classroom has made it difficult for Mr. Allan to trust his students, the power dynamic was very different, and he felt powerless and insecure as students could switch off their cameras anytime they wished. Hermino and Arifin (2020)'s research discussed the restriction of electronic devices in schools; whereas in a virtual classroom, not only is the restriction impossible, but students also face little to no consequence even when caught being on their phones. Ms. Nadia described it as "a game of chess," teachers have to find a strategic way to discipline their students as erring them too much might also cause disinterest or disengagement in online classes.

Proper and appropriate class dynamics rely on teachers' goal setting and rules writing with their class at the beginning of the semester (Sprick et al., 2021). In offline classes, rules usually focus on students' behaviors, such as not chatting amongst themselves during lessons, not talking back to their teachers, etc. Although these rules might seem trivial, they formulate the base of how *a good student* is expected to behave. In a virtual classroom, extra time is placed on administrative measures just to ensure students are present on Zoom. Some teachers place pop quizzes at random times to make sure students are still sitting in front of the computer and not wandering around or daydreaming. The effectiveness of these adjustments is often correlated to the variation of adjustments, but the variations depend highly on the digital literacy of teachers. For those who have relatively lower digital literacy, they might simply require students to keep their cameras on. However, it is not practical, first, there is the issue of privacy; second, students can still come up with excuses. In Mr. John's experience, his students lied to him about the malfunctions of their cameras. He then gave

them a deadline to get their devices fixed. Mr. John has an Instagram account that he uses to post video clips that explain Mathematics concepts to his students. He realized the students lied to him about the cameras because of a post they did, feeling disappointed, he then spoke with each of the students privately, and they promised it would not happen again. Although it worked out all right in the end, the process required lots of extra time, effort, and mental strategies.

4.3 Learning losses of students

The most significant difference in students reported was the issue of learning losses. Teachers find it worrying as the curriculum did not make any adjustments because of the pandemic, it implies that teachers are responsible for 3 years of subject knowledge in one academic year to help students catch up. As described by Ms. Kelly, students have lost 2 years. She noted that learning loss was related to students' lack of concentration in online settings, the lack of self-discipline and self-efficacy are the direct cause, although she also noted that students with lower SES might face more difficulties than others. Access to resources such as a desk, an electronic device with a camera and microphone, a stable network, etc., is not the same for every student. The correlation between resources and students' achievements has been discussed for years (Singh, 2016; Hubalovsky et al., 2019; Kuhfeld et al., 2023); yet in online learning, these inequalities are amplified; the burden and the consequences of widened learning gap have been shifted to teachers.

Another observable learning loss was social learning loss. Communication is key to learning and acquiring knowledge (Lave and Wenger, 1991). In a virtual classroom, organic interactions in students are no longer present, they are either put into "breakout rooms" to conduct compulsory academic conversations, or they simply do not interact with each other. Mr Allan has observed that students have become less sociable and more distant from their classmates after the pandemic. Mr. Allan spoke about the missed out on team-building opportunities and occasions such as Sports Day, School Outing, subject field trips, informal class gatherings, etc. However, those interactions are fundamental to peer relationships and the establishment of friendships. Teachers have expressed worries and sorrows for their students, Mr. Allan highlighted that students' social learning loss can only be resolved with time and life experiences.

4.4 The beginning of post-digital education

4.4.1 Digital participant observation: findings and highlights from fieldnotes

To understand how the experience of ERT has changed teachers in general, the interview asked about their current incorporation of digital means. Mr. John has kindly arranged for an online tutorial class for his students, I "sat in" the class using another device connected to John's account. My face was not shown, and my presence remained unknown to his students. He has always been utilizing two devices simultaneously, as it lets him check for any potential technical issues from a "participant" point of view. The field notes taken can be found below.

> *It was a 45-min Mathematics tutorial session with a class of 20, and the students were about to sit in the university entrance examination. When the lesson first started, John used about 2 min to take the attendance of his students. One of them was missing and the others immediately volunteered to contact him, and that student was online 5 min afterwards. During the lesson, students were quite attentive, they all turned on their cameras, and it clearly shows that the camera was pointing at themselves and their work desks; the entire class was very diligent, and they were doing math questions on their desks the whole time. In that particular lesson, John adapted the model of a flipped classroom, in which he arranged for a video explaining the concept of trigonometry and required his students to watch it and answer some questions on Google form. Two students did not do the assigned task, as they had forgotten about it. It was intriguing that those students told John the truth in a respectful way yet with a light tone, indicating that John has established a good teacher-student relationship with this class, and therefore students can freely express themselves, feeling in a safe and trusting environment (Fitria and Suminah, 2020). The software that was used was Teams, while John shared the screen with the class, every single student's camera and faces were shown surrounding the side of the screen. Instead of a breakout room for group work, John challenged these students with some advanced-level questions and encouraged them to pair up or to work as a team and attempt them. It seems that the students are very used to such a format, and one of them asked John "So we can use our phone?" John nodded and those students were then on their phones. When time was up, the six teams, which were grouped by the students themselves, came up with their answers. Four of them were right, and John invited some of them to show the steps and to demonstrate how they reached the answers. The entire class was very attentive, even to the ones who got the correct answer. The lesson went fast, by the end of the lesson, the students thanked John and some of them stayed and chitchat with John.*

The above field notes illustrate some important elements and observable elements that deepen the understanding of online classes. John himself describes online classes as something that should not bring a difference in students' learning. As denoted by John

> *"There should not be a difference, digital tools or not, theoretically speaking, you should still be able to deliver the subject content effectively. What matters for me is how the knowledge is explained by the teacher, not the means that is used in the process, a worksheet shouldn't make your delivery more or less effective than a Google form."*

To achieve so, it requires the extra hard work and efforts of the teacher. In John's class, before the pandemic, he barely knew those students, as they had just been sorted into the same class for the 1st year of senior high school. The pandemic has made it difficult for students to bond with each other, but John has tried to work on that by having "after-class casual conversation sessions;" he set up an Instagram account just for his students and updated the page by posting short video clips/reels that explain common misconceptions in Maths. He also asks all his students how they

are every day, sending mass messages to the entire class in private messages. He had to spend an extra hour to 2 h each day, to manage these interactions, so that he could develop a proper rapport with his students, and to have a healthy teacher-student relationship with them.

Online class observation has shown that his hard work has paid off. Students were communicative and attentive in the online classroom. John denoted that when the academic year first began, the students were relatively passive in the lesson, but their interactions with each other were quite ideal, he thinks that his strategies worked well and that students have also established good peer relationships with each other despite the physical distance. John added that a continuation of online classes would not be a problem for him, but it would not be his preference either, as developing rapport using digital means was too time-consuming. Yet, the incorporation of the flipped classroom and blended learning were more encouraged in his lessons, as he thought it was the only way for students' understanding of particular knowledge to be consistent, and it was also a way to ensure that his efforts were not wasted, as those learning materials could be reused again in other classes.

It is noteworthy that my other informants, Ms. Kayla and Ms. Nadia were not vast supporters of digital tools, yet the pandemic has strengthened their confidence and increased their competencies in using digital teaching tools. Both Kayla and Nadia teach primary school children, Kayla was particularly concerned about the harmful effects that digital tools might have on children's cognitive functional development (Small et al., 2020). Ms. Nadia was also reluctant to use Chromebooks in class before the pandemic, but the pandemic has made her feel more confident, and she now sees digitalization as a natural direction for education to proceed. The study by Nicolosi et al. (2023) revealed that younger teachers reported higher levels of negative emotions and less confidence in improving teaching skills during the pandemic. As demonstrated in the study of Lo (2024), student motivation and perception on independent learning could vary depending on their cultures, proper teachers' guidance which fosters autonomy and balances cultural differences enhances students' learning effectively. The feelings and self-efficacy are therefore crucial in the quality of education that teachers deliver. The informants in this study on the other hand, realized that they become more confident in online teaching after the pandemic, it may be a positive outcome of critical reflection and actions taken to increase digital literacy after realizing their own shortcomings. Ms. Nadia mentioned how she browsed Youtube videos about functions of Zoom and asked her husband to teach her ways to improve the resolution of the pictures that she shared in class through the screen.

Education is inevitably moving toward digitalization, especially in the digital era that we are in; and the pandemic has accelerated the process and footsteps of digitalization in education. Even though not all teachers were well-trained before the pandemic to deliver online classes, the pandemic has forced them to learn new skills and all my informants have become more digitally competent after the pandemic. Despite their initial reluctance toward using digital tools, most of them have decided to increase the portion of it in a traditional classroom, and most teachers have recognized that different types and portions of preparation work can be done to make online education a practical learning experience for students.

4.5 Transformative learning—embracing individuality

The last interview question concerns informants' views regarding teachers' obsolescence in the future, and the informants are pretty optimistic about the irreplaceability of teachers. In the process of their narrations, steps of transformative learning can be traced. In the year 2023, generative AI tools such as ChatGPT and image generation gained popularity once they became available to the public. The usage of ChatGPT has been discussed as a concerning phenomenon in the academic community, as it threatens intellectual property. Even in schools, teachers expressed concerns that students might abuse these readily available tools in doing their assignments. However, the informants can see a substantial weakness of AI, Mr. Allan noted the inaccuracy and inability to improvise based on the predicted emotional responses of users. Having said that, all informants use AI tools for lesson preparation, especially for classroom design, and rubrics writing for classroom activities. However, they all agree that further usage is not practical at this time, as high order thinking skills are not possible in these tools, thereby lacking the ability to replace teachers, who can think, feel and react based on students' responses and unspoken emotional clues and unique learning needs. For this reason, my informants are positive about teaching being sustainable in the future.

Another essential feature of the uniqueness of teachers is "teachers' voice;" as denoted by John, "*It's up to the teachers. If you see it as a job, and you teach only the subject knowledge and nothing more, you are already replaceable now, AI or not, this type of teacher should not be working in a school. Teaching is not just a job, it's a vision and a mission, as long as you have that mindset, you cannot be replaced.*" It may be true that students have access to the vastness of information online, and numerous sources of shadow educators. However, my informants pointed out that the feeling of being cared for is irreplaceable—when students feel that teachers genuinely care about them, not just their learning, but themselves as individuals, it is the foundation of a good teacher-student relationship (Kitchenham, 2008; Vighnarajah and Bakar, 2008; Keiler, 2018; Ma et al., 2022). To achieve so, teachers must recognize that "teaching is more than a job" and be able to see the teaching role as a vision, a mission that entitles them to connect with students while being their moral compass. Embracing individuality in both students and teachers, therefore, seems to be the key to avoiding being replaced by AI. Ms. Nadia described it as "the importance of enjoying my work and being passionate about teaching." More than three informants described the key to bonding with students and connecting with them is by addressing one's human side, seeing students as individuals, to treating them as equals and with respect while demanding reciprocity—a quality that AI will not be able to achieve, at least until they can think and be able to handle moral dilemma.

Transformative learning was evident in all informants, Kayla and Nadia have become more digitally competent and have shifted their perspectives regarding digital tools. Even though Nadia still believes that digital tools could be harmful to the

cognitive development of children, she is not reluctant to use them in class, "as long as it could help the students regain their interests in Spanish. As for Nadia, she has shifted her perspective from being reluctant to use Chromebooks, to using them more often and accepting that it is a natural development of education in the digital era that we are in today. Kelly and Allan did not have training in online teaching before, but the pandemic has also equipped them with some new skill sets. They all believe that the development of AI will not replace teachers, and they are hopeful about it since they see the intrinsic values of the subjects that they teach. They have all found their places in post-digital education, the pandemic allowed them to reflect deeply on their teaching identities and consolidated the perspective that teachers' irreplaceability stems from their emotionality, compassion and empathy (Lee et al., 2024). With the newly acquired narrative, these teachers have learnt to embrace their own, and their students' individuality and reintegrate into their teaching profession.

5 Discussion

This research has five key findings: (i) remote teaching anxiety experienced by teachers during the pandemic, (ii) the biggest challenge for teachers was maintaining a good teacher-student relationship and classroom management, (iii) severe learning loss and motivation loss observed in students, (iv) teachers are still relying on digital tools in class after the pandemic and have accepted that education has been digitized, and (v) Transformative learning is evident in these teachers, and they pointed out the importance of embracing one's individuality to combat the era of artificial intelligence. Some key emotions have been identified in the interviews, as the interviews are conducted after the pandemic is over, when teachers are asked to describe their emotional experience during then, the emotions they described are naturally the ones they identified as they protruded. In terms of tackling those emotions directly, as shown in Figure 1, these teachers' initial response to their feelings was to suppress them. This also echoes to Morris and Feldman's (1996) emotional labor, particularly on emotional display rules. These teachers could not directly express their negative emotions such as confusion, anxiety and stress to their students, as these negative emotions are against the perceived emotional display rules that teachers should have. Some teachers tried to tackle the feelings by talking with their colleagues, and it seemingly helped them feel better in the beginning.

Critical self-reflection requires individuals to look reflexively into their thoughts and to examine their values (Mezirow, 2000a). When informants were describing their experiences, they described the self-doubts they had when ERT first began, and some denoted a slight sense of guilt for not knowing online teaching before the pandemic (Ross and DiSalvo, 2020; Russell, 2020; Schwenck and Pryor, 2021; Stewart, 2021). As the informants recalled their experiences, they also engaged in critical self-reflection, and some mentioned critical self-reflection during ERT. In the interview process, the second question asks about the most significant challenge and how it was overcome. My informants pointed to the same challenge, which is the teacher-student relationship and effective classroom management. This has also been mentioned by previous researchers who studied teachers' wellbeing during the pandemic (Laidlaw, 2023; Oxley et al., 2023; Tatum, 2023, etc.). In this study, these informants were asked to describe their emotions and feelings during and after the challenge, which is a process that triggers them to examine their underlying values and beliefs. As they recalled their experience, it is shown that they had gone through the mental stages as well during the pandemic. Some informants talked about their disbelief in online teaching, and their doubts on whether their students were attentive in their lessons. It is shown in their recount of experience that they overcame them by putting more trust on their students, and some of them even actively opened an Instagram account just to connect with his students in a better way. They realized that they had some biases against online learning, and since the pandemic has made it inevitable, it forced them to re-examine their existing beliefs and restructure them into a new focus, which is to employ digital means in connecting with their students, so as to develop more effective communication thereby improving classroom management. Although researchers have also had similar findings regarding how digital communication could aid students' learning (Kim et al., 2014; Jahnke, 2022; Chen et al., 2023; Mir et al., 2023, etc.), this research looks specifically at the struggles of teachers during the process of searching for solutions.

The pandemic might be over, but the impacts of ERT are still unfolding. These teachers have observed learning losses in their students, including having less passion and interests in lessons, and difficulties in socializing with peers, etc. This also parallels to the findings of researchers who studied the impacts of online learning after the pandemic (Zhang et al., 2022; Aliyyah et al., 2023; Davis et al., 2023; Song and Park, 2021; Fitria, 2021; Koutsouba et al., 2021, etc.). However, this study delineates the worries and sense of helplessness that teachers have experienced within the turmoil. Instead of blaming their students, they actively searched for solutions and realized that incorporating digital means such as interactive online games on Kahoot, blended learning, and even posting videos on social media which explain subject content have helped students regain interest in class, and in some cases, improved their communication skills as they were more actively sharing their opinions with their peers and the teachers. This is itself the process of the new frame of reference as a reintegration into life—these teachers who initially did not rely on digital tools, after experiencing the pandemic, are actively incorporating digital elements in and out of the classroom.

Additionally, the new frame of reference is also evident in the teachers' acknowledgment of the digital era that educators are working in. Their attitudes are pretty positive, accepting and a lot less anxious as compared to when they described their dominant emotions during the pandemic. Current literature has covered the benefits of online learning (Alsayed and Althaqafi, 2022; Fiorini et al., 2022; Chojczak and Starford, 2023; Haugsbakken et al., 2023; etc.), teachers' attitudes about online teaching and emergency remote teaching the pandemic (Kundu and Bej, 2021; Karakus and Gürbüz, 2022; Evangelou, 2023; Karaca and Akyuz, 2024, etc.); and ways to improve online learning such as instructions, improvement of teachers' digital literacy, etc. (Hickey, 2022; Yin, 2022; Gurvich, 2023; Kanchana et al., 2023). However, this research denotes the emotional experience and the transformation of teachers who have experienced the pandemic and how that brings changes to their views about digital tools and online teaching in general.

The last part of the interview shows that teachers are primarily unbothered, hopeful and quite passionate about the prospect of the teaching field. Although new frames of reference have been introduced to these teachers, the experience of the pandemic has also consolidated their belief and enthusiasm of teachers' mission. The informants mentioned that teaching is a mission and is more than just a job; this view has become even stronger since the pandemic helped them understand that students do need teachers to use technology in an effective way to help them learn. During the pandemic, students were physically away from teachers, but access to the Internet and artificial intelligence have always been there. However, according to my informants, many students still preferred going to them when they encounter academic and personal issues. It was also this type of interaction that gave my informants the opportunity to reflect on their roles as a teacher, and the mental strength to overcome the negative emotions they have experienced during the pandemic. This has brought a more refined frame of reference, particularly about their roles as teachers, and that led them to the state of confidence and the belief that as long as teachers embrace individuality of themselves and of their student, they will not be obsolete in the era of machines and artificial intelligence. Existent research focuses on how teachers could incorporate AI in their classrooms and the ways in which AI could be used to develop a better learning environment (Chiu et al., 2023; Su and Yang, 2023; Veletsianos et al., 2024; Younis, 2024). However, this study reveals that while teachers agree with using digital tools in their classrooms, embracing them does not necessarily signify that teachers will become obsolete in the near future.

6 Research implications

This research uses digital ethnography and in-depth interviews, it analyses the narratives of five teachers working in Hong Kong, Taiwan, and Canada. The focus of the study is the emotionality and the emotional experiences of these teachers during the pandemic and in the post-pandemic times. Using the model of Pekrun et al. (2007), classroom emotions are explored in both online and offline settings, it is suggested in this study that regulation of achievement emotions could be applied to teachers. The theoretical framework of transformative learning theory is incorporated with it, allowing a systematic delineation of teachers' emotional experiences in the process of transformative learning.

The study has identified five themes using thematic analysis, they correspond to the research questions asked in the survey, and a specific emotion is commonly described among the informants. The themes include remote teaching anxieties; teacher-student relationship & classroom management; learning losses of students; the beginning of post-digital education; transformative learning—embracing individuality. At the beginning of ERT, teachers were in a deep state of confusion and a sense of helplessness (Kaufmann and Vallade, 2020). Teachers were unfamiliar with online teaching and anxious about students' learning progress. As described by Ms. Kayla, "*My students did respond to me in class, but I don't know if they are catching on. I don't know how to create polls on Zoom, so when I ask questions, they are the direct and easy ones, and mostly for checking if they are there, but I can't see their faces and observe the presence of confusion or boredom.*" Full-scale remote teaching was a disorienting dilemma that disrupted teachers' familiar social realities (Mezirow, 2000b; Beatty, 2019; Akbana and Dikilitaş, 2022). Teachers identified the emotions, and they took corresponding actions, some of them concealed and suppressed the negativity, while others addressed them by discussing the issue with their colleagues (Izhar et al., 2021) and supervisors (Gnawali, 2020; Andrews, 2022). Applying Pekrun et al. (2007) model, emotion-oriented regulation managed emotional dissonance (Pekrun et al., 2007, p. 29). These teachers have experienced intense emotions such as anxiety and frustration, which caused them to reflect on themselves and their existent values critically. This is the second step of achievement emotions regulation—appraisal-oriented regulation. These teachers identified their biases against online teaching and acknowledged the need to improve their digital literacy to benefit their students' learning (Mezirow, 2000b; Jarvis, 2012; Calleja, 2014; Gnawali, 2020).

7 Conclusion

As discussed in this study, teachers continued to look for strategic ways to balance discipline and trust with their students, while they became more open-minded to accept constructive feedback from students, they also tried other methods such as setting up social media accounts to maintain good teacher-student relationships during the pandemic (Cairns et al., 2020; Castelli and Sarvary, 2021; Centeio et al., 2021). This demonstrates a new frame of reference being established and put into practice. At the same time, as teachers more actively seek digital tools to increase classroom dynamics and varieties of classroom activities, they are also performing competence-oriented regulation (Schutz and Pekrun, 2007, p. 29). As teachers carried on incorporating flipped classrooms and blended learning during the post-pandemic times, it shows that they have reintegrated the newly acquired knowledge into the design of academic environments and turned them into more interactive and practical learning spaces for their students (Brosch, 2021; Schwenck and Pryor, 2021; Day, 2021; Kuhfeld et al., 2023). More importantly, it is revealed in this study that teachers have achieved transformative learning on the level of self-perception. In the digital age and the post-digital education era, the emotional experiences brought about by the pandemic allowed these teaching individuals to reflect on their values and roles as teachers critically. The importance of "embracing individuality," both of teachers themselves and students, has been identified as the key that distinguishes them from AI, and it is precisely this humanness that exists in teachers that makes them irreplaceable (Barbour et al., 2020; Benade, 2020; Ross and DiSalvo, 2020; Russell, 2020; Schwenck and Pryor, 2021; Stewart, 2021; Dolighan and Owen, 2021; Brookfield et al., 2022). This study hopes to shed light on the importance of teachers regulating their emotions and becoming aware of the emotional dynamic in the classroom and how that could affect students' learning. Instead of denying the emotions, teachers should embrace them and utilize them in a way that creates a positive and encouraging learning environment for their students, emotional exchange could also help teachers connect with students and co-develop an emotionally safe environment for both of them and ultimately benefitting students' learning.

An important implication of this research is to magnify the humanistic nature of teaching, and, through analyzing the narratives in the storytelling of five individuals, to demonstrate that transformative learning might likely be the only path to transcendence (Beatty, 2019). Emotions should not be viewed as a barrier to professionalism, emotions are fundamental, humanistic elements that teachers inevitably have (Lindholm, 2007; Kitchenham, 2008; Chen, 2020; Choi et al., 2021). To address them and to manage them, this study shows the possibility of expanding and incorporating Perkun's management of achievement emotions into Mezirow's transformative learning theory. To embrace transformative learning, reflection and critical self-reflection must be consistently performed. Emotions are essential traits of humans and are significant but subtle traces of learning that take place in us, especially in transformative learning. Education will likely carry on in this digitized direction, but teaching quality will only be guaranteed if teachers actively increase digital competencies and digital literacy and reflectively incorporate technology-based teaching in an engaging and meaningful way to engage students. Lo et al. (2024) showed that goal setting and resource management played significant roles in university students' independent learning skills and motivation, further echoing to Pekrun (2006, 2022)'s emphasis on the important role that teachers have in creating an motivating and rewarding learning environment. This study has demonstrated the possibilities of embracing emotionality and individuality as the key to quality education and maintaining the irreplaceability of teachers in the journey of students' learning—whether teachers will become obsolete in the future is in the hands of teachers themselves.

Teaching is more than just a job; the pandemic has made everyone realize and feel this profoundly. Just as remarked by Mr. John, who is a passionate educator, "*Teaching is not a job; it is a mission. The students will likely not remember what you teach them in class, but even decades later, they will still remember that a good teacher once cared so deeply for him/her.*" Digitization of education has just begun, and it seems likely that the development of artificial intelligence will continue to thrive. As we co-exist with AI and digitization, we need to keep track of the changes they bring to education. It is suggested in this study that the emotional experience and the ability to feel, think, and empathize should be embraced. Still, there is a need to examine further the possibilities of systematically incorporating these skills in teacher education. Most importantly, the correlation of emotions, transformative learning and management of classroom emotions should continue to be explored, as emotions make us human.

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Ethics statement

Written informed consent was obtained from the individual(s) for the publication of any potentially identifiable images or data included in this article.

Author contributions

YC: Conceptualization, Methodology, Writing – original draft, Writing – review & editing.

Funding

The author(s) declare financial support was received for the research, authorship, and/or publication of this article. For the publication fee, we acknowledge financial support by the Heidelberg University.

Conflict of interest

The author declares that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Publisher's note

References

Akbana, Y. E., and Dikilitaş, K. (2022). EFL teachers' sources of remote teaching anxiety: insights and implications for EFL teacher education. *Acta Educ. Gener.* 12, 157–180. doi: 10.2478/atd-2022-0009

Aliyyah, R. R., Rasmitadila, N., Gunadi, G., Sutisnawati, A., and Febriantina, S. (2023). Perceptions of elementary school teachers towards the implementation of the independent curriculum during the COVID-19 pandemic. *J. Educ. Learn. Res.* 10, 154–164. doi: 10.20448/jeelr.v10i2.4490

Alsayed, R. A., and Althaqafi, A. S. A. (2022). Online learning during the COVID-19 pandemic: benefits and challenges for EFL students. *Int. Educ. Stud.* 15:122. doi: 10.5539/ies.v15n3p122

Andrews, R. L. (2022). "Teacher and supervisor assessment of principal leadership and academic achievement," in *School Effectiveness and School Improvement* (London: Routledge), 211–219. doi: 10.1201/9780203740156-17

Barbour, M. K., LaBonte, R., Hodges, C. B., Moore, S., Lockee, B. B., Trust, T., et al. (2020). *Understanding Pandemic Pedagogy: differences between emergency remote, remote, and online teaching.* Virginia Tech. Available at: https://vtechworks.lib.vt.edu/handle/10919/101905 (accessed August 15, 2024).

Beatty, A. (2019). *Emotional Worlds*. Cambridge: Cambridge University Press. doi: 10.1017/9781139108096

Benade, L. (2020). "Is the classroom obsolete in the twenty-first century?" in *Design, Education and Pedagogy* (London: Routledge), 6–17. doi: 10.1201/9781003024781-2

Brookfield, S. D., Rudolph, J., and Tan, S. (2022). Powerful teaching, the paradox of empowerment and the powers of Foucault. An interview with Professor Stephen Brookfield. *J. Appl. Learn. Teach.* 5:12. doi: 10.37074/jalt.2022.5.12

Brosch, T. (2021). Affect and emotions as drivers of climate change perception and action: a review. *Curr. Opin. Behav. Sci.* 42, 15–21. doi: 10.1016/j.cobeha.2021.02.001

Cairns, M. R., Ebinger, M., Stinson, C., and Jordan, J. (2020). COVID-19 and human connection: collaborative research on loneliness and online worlds from a socially-distanced academy. *Hum. Organ.* 79, 281–291. doi: 10.17730/1938-3525-79.4.281

Calleja, C. (2014). Jack Mezirow's conceptualisation of adult transformative learning: a review. *J. Adult Cont. Educ.* 20, 117–136. doi: 10.7227/JACE.20.1.8

Castelli, F. R., and Sarvary, M. A. (2021). Why students do not turn on their video cameras during online classes and an equitable and inclusive plan to encourage them to do so. *Ecol. Evol.* 11, 3565–3576. doi: 10.1002/ece3.7123

Centeio, E., Mercier, K., Garn, A., Erwin, H., Marttinen, R., and Foley, J. (2021). The success and struggles of physical education teachers while teaching online during the COVID-19 pandemic. *J. Teach. Phys. Educ.* 40, 667–673. doi: 10.1123/jtpe.2020-0295

Chen, J. (2020). Refining the teacher emotion model: evidence from a review of literature published between 1985 and 2019. *Cambridge J. Educ.* 51, 327–357. doi: 10.1080/0305764X.2020.1831440

Chen, L., Gillan, J., Decker, M., Eteffa, E., Marzan, A., Thai, J., et al. (2023). Embedding digital data storytelling in introductory data science course. *J. Problem Based Lear. Higher Educ.* 11, 126–152. doi: 10.54337/ojs.jpblhe.v11i2.7767

Chiu, T. K., Moorhouse, B. L., Chai, C. S., and Ismailov, M. (2023). Teacher support and student motivation to learn with Artificial Intelligence (AI) based chatbot. *Inter. Lear. Environ.* 32, 3240–3256. doi: 10.1080/10494820.2023.2172044

Choi, H., Chung, S., and Ko, J. (2021). Rethinking teacher education policy in ICT: lessons from emergency remote teaching (ERT) during the COVID-19 pandemic period in Korea. *Sustainability* 13:5480. doi: 10.3390/su13105480

Chojczak, D., and Starford, A. (2023). Interactive methods used in collaborative writing in the online ESL classroom. *Deleted J.* 39, 5–26. doi: 10.61504/CZKC7151

Creswell, J. W. (1998). *Qualitative Inquiry and Research Design: Choosing Among Five Traditions*. New York: Sage Publications, Inc.

Davis, T. E. K., Sokan, A. E., and Mannan, A. (2023). Understanding the impact of COVID-19 on students in institutions of higher education. *Higher Educ. Stud.* 13:20. doi: 10.5539/hes.v13n2p20

Day, J. V. C. (2021). Lights, camera, action? A reflection of utilizing web cameras during synchronous learning in teacher education. *Teacher Educ. J.* 14, 3–21.

Dolighan, T., and Owen, M. (2021). Teacher efficacy for online teaching during the COVID-19 pandemic. *Brock Educ. J.* 30:95. doi: 10.26522/brocked.v30i1.851

Evangelou, F. (2023). Views of Greek teachers on the implementation of teaching approaches in online classrooms. *Int. J. Technol. Educ. Sci.* 7, 152–166. doi: 10.46328/ijtes.441

Fiorini, L. A., Borg, A., and Debono, M. (2022). Part-time adult students' satisfaction with online learning during the COVID-19 pandemic. *J. Adult Contin. Educ.* 28, 354–377. doi: 10.1177/14779714221082691

Fitria, H., and Suminah, S. (2020). Role of teachers in the digital instructional era. *J. Soc. Work Sci. Educ.* 1, 70–77. doi: 10.52690/jswse.v1i1.11

Fitria, T. N. (2021). "Artificial intelligence (AI) in education: using AI tools for teaching and learning process," in *Prosiding Seminar Nasional and Call for Paper STIE AAS*, 134–147.

Gadamer, H.-G. (2003). *Truth and Method (2nd ed.)*. London: The Continuum International Publishing Group Ltd.

Gnawali, L. (2020). "Embedding digital literacy in the classroom," in *Developing Effective Learning in Nepal: Insights Into School Leadership, Teaching Methods and Curriculum,* 90–93.

Gurvich, R. (2023). Enhancing online instruction through better interactions. *J. Educ. Online* 20:9. doi: 10.9743/JEO.2023.20.4.9

Haugsbakken, H., Nykvist, S., and Lysne, D. A. (2023). The need to focus on digital pedagogy for online learning. *Eur. J. Educ.* 6, 52–62. doi: 10.2478/ejed-2023-0005

Hermino, A., and Arifin, I. (2020). Contextual character education for students in the senior high school. *Eur. J. Educ. Res.* 9, 1009–1023. doi: 10.12973/eu-jer.9.3.1009

Hickey, D. T. (2022). Situative approaches to online engagement, assessment, and equity. *Educ. Psychol.* 57, 221–225. doi: 10.1080/00461520.2022.2079129

Hubalovsky, S., Hubalovska, M., and Musilek, M. (2019). Assessment of the influence of adaptive E-learning on learning effectiveness of primary school pupils. *Comput. Human Behav.* 92, 691–705. doi: 10.1016/j.chb.2018.05.033

Izhar, N. A., Al-Dheleai, Y. M., and Na, K. S. (2021). Teaching in the time of COVID-19: the challenges faced by teachers in initiating online class sessions. *Int. J. Acad. Res. Bus. Soc. Sci.* 11, 1294–1306. doi: 10.6007/IJARBSS/v11-i2/9205

Jahnke, I. (2022). Quality of digital learning experiences – effective, efficient, and appealing designs? *Int. J. Inf. Learn. Technol.* 40, 17–30. doi: 10.1108/IJILT-05-2022-0105

Jarvis, C. (2012). "Fiction and film and transformative learning," in *The Handbook of Transformative Learning: Theory, Research, and Practice,* 486–502.

Kanchana, J. D., Amarasinghe, G., Nanayakkara, V., and Perera, A. S. (2023). A set of essentials for online learning: CSE-SET. *Disc. Educ.* 2:4. doi: 10.1007/s44217-023-00037-y

Karaca, E., and Akyuz, D. (2024). Facilitating online learning environment in math classes: Teachers views and suggestions. *J. Pedag. Res.* 20:581 doi: 10.33902/JPR.202426581

Karakus, G., and Gürbüz, O. (2022). Investigating K-12 teachers' views on online education. *Knowl. Manag. E-Learn. Int. J.* 14, 202–222. doi: 10.34105/j.kmel.2022.14.012

Kaufmann, R., and Vallade, J. I. (2020). Exploring connections in the online learning environment: student perceptions of rapport, climate, and loneliness. *Inter. Learn. Environ.* 30, 1794–1808. doi: 10.1080/10494820.2020.1749670

Keiler, L. S. (2018). Teachers' roles and identities in student-centered classrooms. *Int. J. STEM Educ.* 5:34. doi: 10.1186/s40594-018-0131-6

Kim, M. K., Kim, S. M., Khera, O., and Getman, J. (2014). The experience of three flipped classrooms in an urban university: an exploration of design principles. *Internet Higher Educ.* 22, 37–50. doi: 10.1016/j.iheduc.2014.04.003

Kitchenham, A. (2008). The evolution of John Mezirow's transformative learning theory. *J. Transform. Educ.* 6, 104–123. doi: 10.1177/1541344608322678

Koutsouba, M., Koutsouba, K., and Giossos, Y. (2021). Elements of unfairness in e-learning distance higher education in covid-19 era. *Ανοικτή Εκπαίδευση Το Περιοδικό Για Την Ανοικτή Και Εξ Αποστάσεως Εκπαίδευση Και Την Εκπαιδευτική Τεχνολογία* 17, 64–79. doi: 10.12681/jode.27008

Kuhfeld, J. S. M., Lindsay Dworkin, K. L., Emily Markovich Morris, L. N., Erin Castro, M. H., Darrell, M., West, J. B. K. (2023). *The pandemic has had devastating impacts on learning. What will it take to help students catch up? Brookings*. Available at: https://www.brookings.edu/articles/the-pandemic-has-had-devastating-impacts-on-learning-what-will-it-take-to-help-students-catch-up/ (accessed August 12, 2024).

Kundu, A., and Bej, T. (2021). We have efficacy but lack infrastructure: teachers' views on online teaching learning during COVID-19. *Quality Assur. Educ.* 29, 344–372. doi: 10.1108/QAE-05-2020-0058

Laidlaw, J. (2023). Canadian music teachers' burnout and resilience through the second wave of the COVID-19 pandemic. *Canad. J. Educ. Admin. Policy* 203, 102–116. doi: 10.7202/1108435ar

Lave, J., and Wenger, E. (1991). *Situated Learning: Legitimate Peripheral Participation*. New York, NJ: Cambridge University Press. doi: 10.1017/CBO9780511815355

Lee, J. S., Xie, Q., and Lee, K. (2024). Informal digital learning of English and L2 willingness to communicate: roles of emotions, gender, and educational stage. *J. Multiling. Multicult. Dev.* 45, 1–17. doi: 10.1080/01434632.2021.1918699

Lindholm, C. (2007). "An anthropology of emotion," in *A companion to psychological anthropology: modernity and psychocultural change*, eds. C. Casey, and R. B. Edgerton (London: Blackwell Publishing Ltd.), 30–47.

Lo, N. P. (2024). Cross-cultural comparative analysis of student motivation and autonomy in learning: perspectives from Hong Kong and the United Kingdom. *Front. Educ.* 9:1393968. doi: 10.3389/feduc.2024.1393968

Lo, N. P., Bremner, P. A. M., and Forbes-McKay, K. E. (2024). Influences on student motivation and independent learning skills: cross-cultural differences between Hong Kong and the United Kingdom. *Front. Educ.* 8:1334357. doi: 10.3389/feduc.2023.1334357

Ma, K., Liang, L., Chutiyami, M., Nicoll, S., Khaerudin, T., and Van Ha, X. (2022). COVID-19 pandemic-related anxiety, stress, and depression among teachers: a systematic review and meta-analysis. *Work* 73, 3–27. doi: 10.3233/WOR-220062

Mezirow, J. (1989). Transformation theory and social action: a response to collard and law. *Adult Educ. Quart.* 39, 169–175. doi: 10.1177/0001848189039003005

Mezirow, J. (1991). *Transformative Dimensions of Adult Learning*. Jossey-Bass.

Mezirow, J. (2000a). *Learning as Transformation: Critical Perspectives on a Theory in Progress.* San Francisco, CA: Jossey-Bass.

Mezirow, J. (2000b). "Learning to think like an adult. Core concepts of transformation theory," in *Learning as Transformation. Critical Perspectives on a Theory in Progress,* eds. J. Mezirow, and Associates (San Francisco, CA: Jossey-Bass), 3–33.

Mezirow, J. (2012). "Learning to think like an adult. Core concepts of transformation theory," in *The Handbook of Transformative Learning. Theory, Research, and Practice,* 73–95.

Mezirow, J., and Taylor, E. W. (2009). "Transformative learning in practice: insights from community, workplace, and higher education," in *Jossey-Bass eBooks*. Available at: https://ci.nii.ac.jp/ncid/BB00308958 (accessed August 12, 2024).

Mir, N. A., Fathima, A., and Suppala, S. (2023). A new paradigm for blended learning. *Int. J. Adult Educ. Technol.* 14, 1–10. doi: 10.4018/IJAET.321654

Moore, S., and Hodges, C. B. (2023). *Emergency Remote Teaching*. New York: EdTechnica. doi: 10.59668/371.11681

Morris, J. A., and Feldman, D. C. (1996). The dimensions, antecedents, and consequences of emotional labor. *Acad. Manag. Rev.* 21:986. doi: 10.2307/259161

Naylor, D., and Nyanjom, J. (2021). Educators' emotions involved in the transition to online teaching in higher education. *Higher Educ. Res. Dev.* 40, 1236–1250. doi: 10.1080/07294360.2020.1811645

Nicolosi, S., Alba, M., and Pitrolo, C. (2023). Primary school teachers' emotions, implicit beliefs, and self-efficacy during the COVID-19 pandemic. *Front. Sports Active Living* 4:1064072. doi: 10.3389/fspor.2022.1064072

Oxley, L., Asbury, K., and Kim, L. E. (2023). The impact of student conduct problems on teacher wellbeing following the onset of the Covid-19 pandemic: an interpretative phenomenological analysis. *Br. Educ. Res. J.* 50, 200–217. doi: 10.1002/berj.3923

Pangrazio, L., Godhe, A., and Ledesma, A. G. L. (2020). What is digital literacy? A comparative review of publications across three language contexts. *E-Learn. Digital Media* 17, 442–459. doi: 10.1177/2042753020946291

Pekrun, R. (2006). The control-value theory of achievement emotions: assumptions, corollaries, and implications for educational research and practice. *Educ. Psychol. Rev.* 18, 315–341. doi: 10.1007/s10648-006-9029-9

Pekrun, R. (2022). *Achievement Emotions*. London: Routledge, 319–334. doi: 10.4324/9781003013778-25

Pekrun, R. (2024). Control-value theory: from achievement emotion to a general theory of human emotions. *Educ. Psychol. Rev.* 36:83. doi: 10.1007/s10648-024-09909-7

Pekrun, R., Frenzel, A. C., Goetz, T., and Perry, R. P. (2007). "The control-value theory of achievement emotions: an integrative approach to emotions in education," in *Emotion in Education*, eds. P. A. Schutz and R. Pekrun (Elsevier Academic Press), 13–36. doi: 10.1016/B978-012372545-5/50003-4

Pekrun, R., and Marsh, H. W. (2022). Research on situated motivation and emotion: Progress and open problems. *Learn. Instr.* 81:101664. doi: 10.1016/j.learninstruc.2022.101664

Pink, S., Horst, H., Postill, J., Hjorth, L., Lewis, T., and Tacchi, J. (2015). *Digital Ethnography: Principles and Practice*. London: SAGE.

Pressley, T. (2021a). Factors contributing to teacher burnout during COVID-19. *Educ. Resear.* 50, 325–327. doi: 10.3102/0013189X211004138

Pressley, T. (2021b). Returning to teaching during COVID-19: an empirical study on elementary teachers' self-efficacy. *Psychol. Sch.* 58, 1611–1623. doi: 10.1002/pits.22528

Remmi, F., and Hashim, H. (2021). Primary school teachers' usage and perception of online formative assessment tools in language assessment. *Int. J. Acad. Res. Progr. Educ. Dev.* 10:2235. doi: 10.6007/IJARPED/v10-i1/8846

Ross, A. F., and DiSalvo, M. L. (2020). Negotiating displacement, regaining community: the harvard language center's response to the COVID-19 crisis. *Foreign Lang. Ann.* 53, 371–379. doi: 10.1111/flan.12463

Russell, V. (2020). Language anxiety and the online learner. *Foreign Lang. Ann.* 53, 338–352. doi: 10.1111/flan.12461

Salama, R., and Hinton, T. (2023). Online higher education: current landscape and future trends. *J. Further Higher Educ.* 47, 913–924. doi: 10.1080/0309877X.2023.2200136

Schutz, P. A., and Pekrun, R. (2007). *Emotion in Education*. New York: Elsevier eBooks.

Schwenck, C. M., and Pryor, J. D. (2021). Student perspectives on camera usage to engage and connect in foundational education classes: it's time to turn your cameras on. *Int. J. Educ. Res. Open* 2:100079. doi: 10.1016/j.ijedro.2021.100079

Singh, R. (2016). Learner and learning in digital era: some issues and challenges. *Int. Educ. Res. J.* 2:508.

Small, G. W., Lee, J., Kaufman, A., Jalil, J., Siddarth, P., Gaddipati, H., et al. (2020). Brain health consequences of digital technology use. *Dialogues Clin. Neurosci.* 22, 179–187. doi: 10.31887/DCNS.2020.22.2/gsmall

Song, J., and Park, M. (2021). Emotional scaffolding and teacher identity: two mainstream teachers' mobilizing emotions of security and excitement for young English learners. *Int. Multil. Res. J.* 15, 253–266. doi: 10.1080/19313152.2021.1883793

Sprick, R., Sprick, J., Edwards, J., and Coughlin, C. (2021). *Champs: A Proactive and Positive Approach to Classroom Management Third Edition*. Eugene: Ancora Publishing.

Stewart, W. H. (2021). A global crash-course in teaching and learning online: a thematic review of empirical Emergency Remote Teaching (ERT) studies in higher education during Year 1 of COVID-19. *Open Praxis* 13:89. doi: 10.5944/openpraxis.13.1.1177

Su, J., and Yang, W. (2023). Unlocking the power of ChatGPT: a framework for applying generative AI in education. *ECNU Rev. Educ.* 6, 355–366. doi: 10.1177/20965311231168423

Taguchi, N. (2020). Digitally mediated remote learning of pragmatics. *Foreign Lang. Ann.* 53, 353–358. doi: 10.1111/flan.12455

Tatum, A. (2023). Exploring teachers' well-being through compassion. *Impact. Educ. J. Transfor. Prof. Pract.* 8, 23–31. doi: 10.5195/ie.2023.325

Taylor, E. (2000). Fostering Mezirow's transformative learning theory in the adult education classroom: a critical review. *Canad. J. Study Adult Educ.* 14, 1–28. doi: 10.56105/cjsae.v14i2.1929

Taylor, E. W. (2017). *Transformative Learning Theory.* Rotterdam: Sense Publishers, 17–29. doi: 10.1007/978-94-6300-797-9_2

Taylor, E. W., and Cranton, P. (2012). *The Handbook of Transformative Learning: Theory*, *Research, and Practice*. London: John Wiley and Sons.

Tsang, K. K., and Wu, H. (2022). Emotional labour as alienated labour versus self-actualized labour in teaching: implications of the outbreak of the COVID-19 pandemic for the debate. *Educ. Philos. Theory* 21:399. doi: 10.1080/00131857.2022.2108399

Veletsianos, G., Houlden, S., and Johnson, N. (2024). Is artificial intelligence in education an object or a subject? Evidence from a story completion exercise on learner-AI interactions. *TechTrends*. 68, 411–422. doi: 10.1007/s11528-024-00942-5

Vighnarajah, Luan, W. S., and Bakar, K. A. (2008). The shift in the role of teachers in the learning process. *Deleted J.* 7, 33–41.

Wulf, C. (2022). *Education as Human Knowledge in the Anthropocene: An Anthropological Perspective*. London: Routledge. doi: 10.4324/9781003262695

Wulf, C. (2023). Emotion and imagination: perspectives in educational anthropology. *Soc. Sci. Res. Netw.* 1, 45–63. doi: 10.2139/ssrn.4400388

Yin, H. (2022). A mixed blessing: student engagement in emergency online learning during COVID-19 in China. *Assess. Eval. High. Educ.* 48, 362–376. doi: 10.1080/02602938.2022.2072469

Younis, B. (2024). Effectiveness of a professional development program based on the instructional design framework for AI literacy in developing AI literacy skills among pre-service teachers. *J. Digital Lear. Teach. Educ.* 40, 142–158. doi: 10.1080/21532974.2024.2365663

Zembylas, M. (2003). Interrogating "teacher identity": emotion, resistance, and self-formation. *Educ. Theory* 53, 107–127. doi: 10.1111/j.1741-5446.2003.00107.x

Zhang, L., Carter, R. A., Qian, X., Yang, S., Rujimora, J., and Wen, S. (2022). Academia's responses to crisis: a bibliometric analysis of literature on online learning in higher education during COVID-19. *Br. J. Educ. Technol.* 53, 620–646. doi: 10.1111/bjet.13191

Transformative Learning— A Closer Look at Critical Reflection with Franz Brentano

Abstract

Mezirow's transformative learning (TL) theory highlights the importance of critically examining frames of reference and their origins. While critical reflection is central to TL, its connection with emotions remains insufficiently addressed. This paper asserts that critical reflection encompasses rationality and emotionality, forming a unified consciousness that integrates mind and heart. By revisiting foundational psychological concepts, particularly Franz Brentano's theories of intentionality and mental phenomena, which closely connect with Mezirow's concept of critical reflection, this article offers a fresh perspective on the rational-emotional interplay. The article reviews Mezirow's TL theory, introduces Brentano's key concepts, and critiques the underrepresentation of emotionality in Mezirow's framework, emphasising its integral role in critical reflection. It explores the unity of consciousness and demonstrates how meaning-making and reflection are inherently shaped by emotional experiences. A Brentano-inspired lens clarifies the ambiguities of transformation, challenges the necessity of a disorienting dilemma and proposes alternative pathways. The paper concludes with practical recommendations for educators and directions for future research.

Keywords: critical reflection; emotions; Franz Brentano; intentionality; transformative learning theory; unity of consciousness

Who is Franz Brentano?

Franz Brentano is a renowned German philosopher celebrated for his pioneering contributions to the philosophy of mind, particularly for coining the concept of intentionality. Intentionality refers to the mind's inherent capacity to direct itself toward a specific object and towards itself in critical reflection. The object of reflection is the process of thinking itself – and by the end of the article it is towards the process of feeling also, idea, or state of affairs (Brentano, 2012). As the first scholar to bridge philosophy and psychology, Brentano explored the structure and function of mental phenomena, offering a comprehensive understanding of thought, perception, experience, and emotions. Central to his work is the notion that mental phenomena are always directed toward something—this characteristic, termed intentionality, underpins every act of consciousness, linking thinking, perceiving, and imagining to an object or idea (Brentano, 2009; Kriegel, 2017). Critical reflection involves intentionality, it requires a deliberate and conscious effort to question assumptions, analyse experiences. It involves a directed mental act where individuals actively focus on their underlying assumptions, examining not just their thoughts but the meaning and purpose behind them.

Brentano's exploration of intentionality has become the bedrock in debates about the mind and the nature of reality within philosophy. In fact, intentionality has become a key concept in debates about the mind and the nature of reality in the field of philosophy; his work also laid the groundwork for phenomenology and has had influences on many of his notable students such as Edmund Husserl, Sigmund Freud and Alexis Meinong. In this article, Brentano's theories of intentionality, mental phenomena, and emotions (Montague, 2016) are central to exploring their intersection with Mezirow's transformative learning theory, particularly in critical reflection. By integrating Brentano's insights, this discussion provides a deeper understanding of the rational-emotional dynamic in transformative learning and has significant implications for TL in areas that are increasingly needed for study It highlights the profound role of intentionality in fostering critical reflection and meaningful change.

Mezirow's Transformative Learning Theory

Transformative learning (TL) theory describes how individuals critically examine their beliefs, assumptions, values and worldviews, leading to profound shifts in perspective (Mezirow, 1978). Critical reflection is central to TL, a process that deepens an individual's awareness and understanding through thoughtful and intentional examination. TL is often initiated by a disorienting dilemma—an event or experience that disrupts existing frames of reference and challenges one's understanding of the world (Mezirow, 1991). He outlined a 10-phase framework to illustrate the stages individuals typically navigate during transformative experiences (Mezirow, 2003). These stages include: 1) encountering a disorienting dilemma, 2) engaging in self-examination accompanied by emotions such as fear, anger, guilt, or shame, 3) critically assessing assumptions, 4) recognising discontent and sharing transformative experiences socially, 5) exploring new roles, relationships, or actions, 6) developing a plan of action, 7) acquiring the knowledge and skills necessary for implementation, 8) trying out new roles on a provisional basis, 9) building competence and confidence in these roles and relationships, and 10) reintegrating into one's life with a renewed perspective (Mezirow, 1991, p.168-169). This structured approach underscores the dynamic and multi-faceted nature of transformative learning. While Mezirow's 10 phases are foundational to transformative learning (TL), he emphasised that individuals need not necessarily linearly progress through these phases, reflecting the complex and dynamic nature of moving from disorientation to reintegration. In phases 1 and 2, self-examination is emphasised, and the discomfort following a disorienting dilemma is recognised. Mälkki's theory of edge emotions offers a deeper understanding of this discomfort, describing it as intense emotional states that arise when individuals confront shifts in their foundational meaning schemes—pushing them out of their comfort zones (Mälkki, 2011; 2019). These edge emotions are pivotal, as they accompany and drive profound changes in perspective and understanding within TL.

Phase 3, critical assessment of assumptions, is a cornerstone of TL, where individuals scrutinise the validity of their beliefs, assumptions, and worldviews. This phase is essential for recognising the limitations of existing frames of reference, opening pathways for growth, open-

mindedness, and improved understanding (Mezirow, 1999; 2000). Phase 4, sharing discontent and engaging in transformation, is rooted in Habermas' communicative learning theory. Here, dialogue (or discourse in Habermas language) becomes a vital tool, enabling individuals to negotiate meaning, engage with diverse perspectives, and achieve shared understanding (Fleming, 2000; 2016; 2018; Habermas, 2015; Mezirow, 1999). Dialogic engagement with peers who have faced similar challenges further amplifies the potential for TL. Phase 5 marks the transition from reflection to action, exploring new roles and behaviours aligned with an individual's emerging understanding of themselves and the world (Mezirow, 1999; 2000). Phases 6 through 8 address the practical application of these new frames of reference through action planning, skill development, and the provisional trial of new roles. These phases require courage and adaptability as learners navigate the uncertainties of change and test their ability to embrace new perspectives and behaviours. Phase 9 involves building confidence in new roles through practice and reinforcement, culminating in phase 10, where the transformation becomes fully integrated into daily life. This final phase secures lasting change in identity, behaviours, and worldviews (Fleming, 2018; Mezirow, 1999). Together, these phases provide a comprehensive framework for understanding the multifaceted journey of transformative learning. Mezirow connected personal challenges to broader social issues, highlighting the interplay between individual experiences and societal contexts (Mezirow, 1978).

These phases underscore that transformative learning (TL) is a deeply personal and socially embedded process grounded in critical reflection, active engagement, and iterative trial-and-error, with positive changes unfolding over time. Not all individuals necessarily experience every phase to achieve TL, and delays or interruptions may occur. Critical reflection remains the cornerstone of TL (Fleming, 2018; Mälkki, 2011; Mezirow, 2000; Taylor & Cranton, 2021), driving the profound shifts in perspective that often follow a critical examination of beliefs. While Mezirow emphasised the role of disorienting dilemmas in triggering transformation, research has shown that TL can also emerge incrementally without a singular dramatic event. Taylor's review of TL literature (2007) highlighted that transformation may result from cumulative experiences and ongoing engagement with ideas, suggesting that TL can occur through continuous interaction, dialogue, and reflection. Cranton (2006) further demonstrated that learners often achieve transformation through sustained reflective practices and gradual exposure to new perspectives, highlighting that a single life-altering event is just one potential pathway. Dirkx's approach (1997; 2001) extends this view by focusing on TL's emotional and spiritual dimensions, emphasising how small but meaningful everyday experiences, such as moments of personal insight or artistic expression, can gradually lead to transformation. These experiences enable learners to profoundly engage with their inner selves, fostering change rooted in emotional and spiritual connections rather than one critical event. Similarly, Watkins and Marsick (2015) explored how TL can occur in daily life and workplace settings through informal, non-crisis-driven processes, emphasising the role of incidental and cumulative learning (Marsick & Yorks, 2001). The temporality of TL has also been well-explored by Alhadeff-Jones (2016), who emphasised the evolving, non-linear

nature of transformative processes, allowing transformation to unfold across varied contexts and timelines. This broader understanding of TL highlights its dynamic, multifaceted pathways, extending far beyond the initial focus on disorienting dilemmas (Mezirow, 1978).

Using Franz Brentano's framework (Brentano, 2012), the presence or absence of a disorienting dilemma may not be decisive in transformative learning. It is not the scale or traumatic nature of an event that directs an individual's intentionality toward it; instead, it is the underlying values triggered by the incident, situation, or person that cause the individual to fixate on the event or object, occupying their mental phenomenon (Brentano, 2009; Kriegel, 2017). Examining Mezirow's TL framework through Brentano's lens offers a more holistic and integrated perspective on transformative learning. This perspective underscores the conscious and active pursuit of a perspective shift—essentially the improvement or elevation of one's existing frames of reference—as the key to redirecting intentionality toward a new object. Only by achieving this shift can the mind be freed from its fixation, allowing for genuine transformation.

Critical reflection & emotionality

Mezirow's interpretation of critical reflection emphasises its rational nature, viewing it as a process through which individuals critically assess their pre-existing frames of reference, shaped by external and structural social and cultural influences. In his words, "all reflection involves a critique, a critique of the premises or presuppositions upon which habits of expectation are predicated" (Mezirow, 1991, p. 15). This encapsulates the essence of 'critical' reflection—questioning the underlying assumptions that govern one's beliefs, actions and world views. Mezirow contrasted critical reflection with introspection, noting that while introspection involves becoming aware of one's thoughts and feelings, it does not involve critiquing the premises behind them. Critical reflection in Mezirow's framework aligns closely with the concept of "critical awareness," often likened to Paulo Freire's notion of critical consciousness (conscientização) (Freire, 1972 1998). Both frameworks stress the importance of understanding how societal structures and power dynamics shape personal assumptions and worldviews. While Mezirow's transformative learning primarily focuses on individual shifts in perspective, he also emphasises the potential for these transformations to drive social change (Mezirow, 1999). This is central to human development and societal progress. As Mezirow articulates, "Transformation theory's focus on how we learn to negotiate and act on our purposes, values, feelings, and meanings rather than those we have uncritically assimilated from others fosters the goal of autonomous thinking. Such autonomy is fundamental to human development and the evolution of a more just, rational, and democratic society" (Mezirow, 1999, p. 169). This vision underscores the transformative power of critical reflection in both individual growth and broader societal progress.

Although emotions do not play a central role in Mezirow's published work on transformative learning (TL) theory, he acknowledges their integral role in the transformation process. He asserts, "Emotions, as well as intellect, are involved in the transformation process because they are part of the frameworks of meaning that guide how we interpret our world"

(Mezirow, 2000, p. 10). Emotions influence how individuals interpret experiences and undergo transformation. Regarding the emotional dimension of critical reflection, Mezirow notes that emotions are essential, as the process involves not only the rational examination of assumptions but also emotional and psychological changes that arise from encountering and resolving disorienting dilemmas (Mezirow, 2000, p. 22).

However, Mezirow leaves the role of emotions under theorised and does not fully explore the interaction between emotions and cognition. Critical reflection remains predominantly rational in his description. This has been critiqued by scholars who argue for a more balanced integration of emotionality within the reflective process. Mälkki, for instance, introduced the concept of edge-emotions, which emerge when individuals face situations that challenge their established assumptions or worldviews (Mälkki, 2010; 2011; 2014). She posits that navigating these edge emotions effectively can help individuals transcend disequilibrium and fostering profound personal growth. Similarly, Dirkx (1997) contends that emotions are central to critical reflection in TL, suggesting that learning is deeply intertwined with emotional experiences. Cranton (2006) also highlights how feelings of discomfort and emotional resistance are inherent in the reflective process, and learners must confront these emotions in order to engage in deeper learning.

Drawing on these critiques and the ongoing debate surrounding the emotional dimension of critical reflection, this article proposes that Brentano's psychological framework (Montague, 2016) offers a valuable perspective for understanding the otherwise undertheorised and intertwined nature of emotion and cognition in TL. By framing critical reflection as a mental phenomenon, Brentano's theory suggests that critical reflection cannot be separated from emotions; they are inseparable components of our consciousness. This approach reframes the duality of critical reflection and emotions, presenting it not as an either-or process—rational or emotional—but as a unified process in which both dimensions are complementary and essential to transforming meaning. This encourages us to go beyond the need to see emotions as an add-on to critical reflection or a parallel process- it is integral.

Intentionality, unity of consciousness and critical reflection

Brentano's theory of intentionality posits that all mental phenomena are directed toward an object—that is, every thought, emotion, or perception is always about something beyond itself. This foundational idea has shaped philosophical and psychological discussions on consciousness, meaning-making, and cognition (Brentano, 2012). Intentionality is closely aligned with critical reflection, as both involve the intentional direction of an individual's thoughts toward examining and questioning their existing beliefs, assumptions, and interpretations of past experiences (Brentano, 2012; Marsick & Yorks, 2001). When individuals engage in critical reflection, they enter a state of self-examination, where their intentionality is consciously directed toward evaluating their existing values and presuppositions . In this sense, while Mezirow emphasises enabling subjective transformation through critical reflection, Brentano's concept of 'internality'

offers a mental framework for understanding the process. It illustrates how individuals' mental phenomena are intentionally directed toward re-evaluating their frames of reference.

Critical reflection can begin with a disorienting dilemma, which, in Brentano's terms, means that the individual's intentionality is directed toward the critical incident or state of affairs, (whether the object of judgment corresponds to an external reality). This focus shapes people's thoughts, judgments, and feelings (Brentano, 2009; 2012; Montague, 2016). This connection is significant because Brentano's theory of intentionality is inherently tied to the unity of consciousness (Brentano, 2012). According to this theory, consciousness is a singular, complex phenomenon that is experienced as a whole by the individual. Mental phenomena, such as thoughts, feelings, and experiences, are part of a unified stream of consciousness, helping individuals navigate their current situations and circumstances. Unity of consciousness is an integration of thinking and feeling within consciousness as a holistic view of the mind is one that contrasts with the traditionally fragmented perspective prevalent in Western thought. Rather than treating cognition and emotion as separate domains, this approach emphasises their interdependence, recognising that conscious experience is inherently unified, with thoughts and feelings shaping and influencing one another.

An individual undergoing critical reflection may simultaneously consider several 'things', yet one mental phenomenon—critical reflection—dominates their consciousness until new frames of reference are developed. At this point, the individual can move on to the next mental phenomenon in the unified stream of consciousness (Taylor, 2007). This concept of the unity of consciousness provides a third way to understand critical reflection: it is not a matter of rationality versus emotionality. Instead, both can co-occur and are integral to the reflective process. They are not separate or opposing forces but complementary components of a unified, holistic experience within the individual's stream of consciousness. One might argue, as Carol Gilligan does, that the separation of thought from emotion is a trauma in its own way (Gilligan, 1993, 2014; Eschenbacher & Fleming, 2022). According to Gilligan, this fragmentation reflects a deeper societal tendency to devalue emotions, particularly in contexts that emphasize rationality, logic, and objectivity. In this sense, the bifurcation between thought and emotion is not merely a theoretical distinction but a harmful cultural construct that restricts authentic self-expression and emotional well-being, ultimately contributing to a sense of disconnection within individuals.

Meaning-making as a mental phenomenon

Mental phenomena are inherently subjective (Brentano, 2012), shaped by an individual's perceptions and influenced by their sociocultural background and previous experiences. Viewing transformative learning (TL) through the lens of mental phenomena allows us to understand meaning-making as an active process of engaging with and altering cognitive phenomena. In this context, transformation signifies a shift in an individual's consciousness orientation. Meaning making, therefore, is the process through which individuals reflect on and reinterpret their

experiences, ultimately leading to a shift in perspective or worldview. The ability to change is central to TL (Mezirow, 1991).

Meaning-making can be broken down into five essential elements of TL: critical reflection, rational discourse, perspective transformation, action, and emotional involvement (Mezirow, 1997). These elements encompass the process of critical reflection, engagement in dialogue, acquisition of new perspectives, actions taken to integrate these perspectives, and the emotional dimensions of learning, which are often tied to one's identity (Mezirow, 1991; 1997; 2000). Through this process, individuals undergo profound, structural changes that reshape their perceptions, beliefs, and behaviours, leading to the development of new values that help them redefine their roles and actions in the world. This transformation includes both intellectual and emotional shifts (Taylor, 2007; Marsick & Watkins, 2015).

When we view this process as an individual's central mental phenomenon, it implies that individuals ultimately experience perspective transformation, allowing them to transition to the next mental phenomenon. Like frames of reference, mental phenomena are not static; each can be altered through active engagement in internal examination and reflection.

The ambiguity of transformation

Mezirow's 10 phases of transformative learning (TL) (Mezirow, 1991) have been widely critiqued, particularly for their linear structure, which does not always align with the complex and non-linear experiences/nature of transformation. While the phases provide a valuable preliminary framework for understanding the abstract concept of transformation, they are not intended to be universally applied to every individual. The intricacies of each person's transformative journey make it impossible to reduce transformation to a rigid sequence. The real value of these phases lies in their ability to shed light on how transformation occurs at both the psychological and behavioural levels.

From a Brentano-inspired perspective, transformation can be viewed as the phenomenology of personal change, where altering one's experience structures (the acquisition of new frames of reference) is only possible through critical examination and reflection. Learners' frames of reference are influenced by various factors, including social structures, socioeconomic and cultural backgrounds, emotional navigation, and past experiences (Fleming, 2016; 2018). These factors contribute to the unity of consciousness, which is central to Brentano's framework (Marchesi, 2021). A disorienting dilemma can trigger edge emotions, where the discomfort experienced compels individuals to focus their mental phenomena on the incident, initiating the active process of meaning-making and critical reflection.

Critical awareness and reflection remain central mental phenomena, guiding the transformation process. Ultimately, perspective changes occur as new frames of reference are

acquired, directing the individual's mental phenomena toward new avenues of thought and action (Marsick & Yorks, 2001; Brentano, 2009). This approach emphasises the fluid, dynamic, and deeply personal nature of transformative learning, where critical reflection serves as both a catalyst and a continuous process of meaning-making. But this expression or articulation of the process, though accurate, is only partial, leaving effect on the side-line of the TL process.

Emotions, mental phenomena & transformative learning

Mezirow's transformative learning (TL) theory underemphasises the role of emotions, particularly in process of critical reflection. While not explicitly focused on emotions, Brentano's philosophical framework provides insights into their significance by framing them as indispensable mental phenomena. According to Brentano, emotions are not merely physiological or neurological responses but are integral parts of our consciousness. They reflect the intentionality of the mind—its directedness toward an object, situation, or person (Brentano, 2009; Antonelli, 2021). This concept situates emotions within the larger context of how individuals interpret and react to their experiences. Emotions are integrated in the hermeneutic drive for understanding.

Brentano's theory of emotions is based on three central claims:

1. *Emotions as sui generis intentional phenomena: Emotions inherently possess intentionality; they are always about something;*
2. *Emotions as evaluative phenomena: They involve value judgments, enabling individuals to assess situations or objects as good, bad, just, or unjust;*
3. *Emotions as the basis of an epistemology of objective value: Emotions help individuals perceive and evaluate values in their environment, thereby influencing their understanding and behaviour (Montague, 2016).*

How can the inter-relationship between thought and emotion be explained? Consider a student who is about to present a project in front of the class. The student's thoughts might include beliefs like, "I might mess up" or "Everyone will judge me." These thoughts generate emotions such as anxiety, nervousness, or fear. The emotional response can then further influence the student's thoughts, making them more self-critical or increasing their focus on potential failure. This feedback loop could lead to a decrease in the student's performance due to heightened anxiety and a lack of focus. In Brentano's work, these emotions, termed "feelings", are part of the individual's affective consciousness—a state where emotions and value judgments are entangled (Kriegel, 2021). Affective consciousness is significant because it shapes how individuals experience and respond to the world. Emotions influence behaviours and leave traces in – or even define - an individual's frames of reference. For instance, the anxiety experienced from the student might cause the student to stutter and speak unconfidently, leading to association with embarrassment whenever s/he needs to speak in public. Over time, this response becomes a part of the individual's frame of reference. If a different outcome occurs, such as instead of being laughed at by peers, s/he gets encouraged and praised for his/her courage, it might provoke feelings

of hope and curiosity. These lingering emotions can lead to prolonged reflection, forming a new mental phenomenon, potentially becoming the key for the student to overcome his/her fear of public speaking.

The cyclical interaction between emotions, judgments, and experiences ensures that emotions play a foundational role in shaping and reshaping frames of reference. For example, an individual's repeated emotional reactions to a specific situation and differing outcomes can lead to shifts in perspective over time. This aligns with the transformative process, where the disorienting dilemmas central to Mezirow's theory provoke emotional responses that, when reflected upon, catalyse meaningful change. Brentano's perspective highlights the inseparability of emotional and cognitive processes. Emotions are not ancillary but integral to the reflective processes underlying TL. By framing emotions as evaluative and intentional, Brentano's work enriches our understanding of their role in TL, offering a more holistic perspective on critical reflection that integrates rationality and emotionality. Emotions are fundamental to mental phenomena, shaping individuals' consciousness and guiding learners toward more profound self-examination, ultimately fostering a more thorough and integrated critical awareness. In this sense, emotions actively contribute to how one thinks, interprets situations and engages with experiences. They are not passive responses but active engagements, emerging from the interplay of rationality (thought) and emotionality (feelings). Emotions play a pivotal role by influencing both the content and direction of an individual's mental phenomena and intentionality, particularly in moments of disruption, such as after a disorienting dilemma.

Kaisu Mälkki's concept of edge emotions emphasises the micro-traumas of daily life—minor disruptions that challenge an individual's meaning perspectives. These "everyday threats to the functions of our meaning perspectives" can become learning opportunities if navigated effectively (Mälkki, 2011, p. 62). Edge-emotions, as recurring aspects of everyday life are part of an individual's consciousness and serve as tools for navigating their perspectives and values. Drawing from Brentano's theory of emotions, these edge-emotions signify a dynamic interaction between perception, judgment, and emotional response. They are indicators of where one's consciousness is directed and provide the momentum for reflection and meaning-making. Edge-emotions, arising from the tension between existing perspectives and challenging experiences, compel individuals to confront their assumptions. As Mälkki (2011, 2019) and Marsick & Yorks (2001) suggest, deeper emotional engagement increases the likelihood of perspective transformation. Feelings of discomfort triggered by edge-emotions force individuals to reflect on the triggering event or state of affairs. This reflective process makes critical examination of one's frames of reference possible, facilitating new insights and eventual transformation. When edge-emotions are understood through a Brentano-inspired lens, they become integral to mental phenomena and intentionality. Brentano's framework posits that emotions arise from perceptions and judgments, embodying the intentional nature of consciousness. In this view, edge-emotions represent a focused form of affective consciousness. They emerge when an individual's meaning

perspectives are questioned (Brentano, 2012; Mälkki, 2019). These emotions direct intentionality toward the triggering event, forming a central mental phenomenon encompassing thoughts, feelings, and judgements.

Discomfort associated with edge emotions catalyses critical reflection. It forces individuals to revisit the events that triggered the emotion, analyze its implications, and re-evaluate their assumptions and values. Over time, this process may lead to perspective transformation, whereby individuals adopt new meaning perspectives that align better with their revised understanding of the world. By integrating Mälkki's edge-emotion theory with Brentano's philosophy of emotions, a nuanced understanding of the role of emotions in transformative learning emerges. Edge-emotions are not merely reactions but active participants in shaping mental phenomena and directing intentionality. They act as both triggers and guides in the reflective process, bridging the gap between rationality and emotionality. This perspective underscores the inseparable relationship between emotions and critical reflection, emphasising their collective role in fostering a more inclusive TL.

Grasping TL without a disorienting dilemma with mental phenomena

In Mezirow's TL (1978) a disorienting dilemma is proposed as a catalyst for critical reflection; however, scholars such as Kaisu Mälkki, Edward Taylor (2002), Chad Hoggan and Patricia Cranton (2014) etc., have demonstrated in their work that TL can occur without a disorienting dilemma. Mälkki introduced incremental learning through reflection, emphasising the importance of everyday reflective moments that occur at a smaller scale rather than disruptive and traumatic crises (Mezirow, 1978). Transformation can be reached through regular and routine reflective practices that temporally challenge learners' assumptions (Mälkki & Green, 2016). Using Brentano's framework, as mental phenomena have no time limit, this type of incremental learning would mean that those events and moments occupy an individual's mental phenomena. Still, the shift of intentionality gradually occurs as new frames are formulated in that person's mind (Mezirow, 1991).

On the other hand, Taylor, Duveskog, and Esbern (2012) discussed the dialogic aspect of TL, in which social interaction and collaborative learning are believed to be vital to fostering gradual shifts in one's perspectives. It is noteworthy that although Mezirow's TL does not discuss the dialogic aspect, his theory does not reject the idea. In Brentano's framework, mental phenomena are individual and inward (Brentano, 2012); communication of one's mental phenomena is possible, but according to him, examining others' mental phenomena is not (Mezirow, 1991). Therefore, communicating one's internationality requires the individual to identify where his/her mental phenomenon is directed, and the process requires reflective and reflexive thinking. Engaging in dialogues based on such reflections might alter the person's perspective, achieving TL and, once again, proving that TL can occur without a disorienting dilemma [see: (Fleming, (2000). Even Her Nudes Were Lovely: Toward Connected Self-reliance

at the Irish Museum of Modern Art: A Research report on the Museum's Programme for Older Adults. Irish Museum of Modern Art ISBN: 1-873654-85-5] Hoggan and Cranton (2014) found that fiction, metaphors, and symbolic narratives in education can evoke emotions and critical reflection, leading to transformative learning (TL), which moves beyond Mezirow's focus on disorienting dilemmas. Using Brentano's framework, emotions are mental phenomena tied to thoughts and judgments. They connect with specific ideas, shaping an individual's affective consciousness and intentionality. This aligns with Hoggan and Cranton's findings, showing that emotions, triggered by classroom materials, can foster critical reflection and transformation.

Critical reflection intersects with Brentano's intentionality

Critical reflection is a fundamental component of transformative learning (TL), involving a deep introspection into one's beliefs, assumptions, and values. It allows learners to identify and challenge existing biases by questioning the validity of their perspectives (Mezirow, 1991). Through reflectivity and reflexivity, individuals can shift from habitual thinking to a more flexible and informed mindset (Mezirow, 1978). Reflectivity is critically examining personal thoughts, actions, and experiences, fostering a more profound understanding to improve future behaviours. Reflexivity, on the other hand, extends beyond the individual to encompass an ongoing awareness of how one's beliefs, values, and actions are both shaped by and influence broader social, cultural, and structural contexts. Reflexivity incorporates an analysis of power dynamics and social structures, offering a relational and systemic perspective (Schön, 1983). Critical reflection goes beyond deep reflective thinking, as it evaluates the structural factors underlying an individual's beliefs (Mezirow, 2012). It identifies the boundaries that shape these beliefs, fostering critical awareness that ideally leads to emancipation from original constraints. This process enables reconstructing perspectives that align with more inclusive and comprehensive understandings (Mezirow, 1991). However, critical reflection is inherently emotional, as it often evokes a range of feelings, including discomfort, curiosity, hope, and motivation (Marsick & Yorks, 2001; Mälkki, 2012, 2019; Taylor, 2007). These emotions play a crucial role in the reflective process, shaping its outcomes and fostering qualities such as empathy, resilience, and personal growth.

Growth is a concept central to John Dewey's philosophy, which occurs when reflection enables individuals to connect past experiences with new insights, equipping them to respond to future challenges more effectively (1933). Dewey's notion of growth transcends the mere accumulation of knowledge, emphasising the ability to think critically and apply knowledge meaningfully. Another key element of TL, influenced by Dewey, is the continuity of experience. Each experience builds upon previous ones, shaping future understanding and development. This concept highlights the importance of interaction and active engagement with the environment and others in co-constructing knowledge (Dewey, 1933). Together, critical reflection and the continuity of experiences underscore the transformative potential of learning as a deeply emotional, relational, and growth-oriented process.

Mezirow's theory identifies three types of reflection integral to transformative learning (TL): content reflection, process reflection, and premise reflection. Content reflection involves examining the facts and immediate details of an experience (what); process reflection focuses on the methods and strategies used to understand the experience (how), and premise reflection critically questions the underlying beliefs about the experience. Premise reflection is the most transformative, challenging fundamental worldviews and perceptions. Critical reflection, therefore, enables individuals to process experiences beyond surface-level learning, leading to profound shifts in their frames of reference. Scholars like Brookfield (2017) emphasise critical reflection as a skill that uncovers hidden assumptions, deepens understanding, and enhances the likelihood of TL. Cranton (2006) highlights that the depth of reflection correlates with the magnitude of perspective changes, while Taylor's meta-analyses (2007) confirm the importance of reflection depth as a key indicator of TL. Critical reflection can also be understood through a Brentanian lens as a mental act in which intentionality and reflexive critical awareness create the potential for transformation. Brentano's theory of intentionality posits that mental acts, including thinking, believing, feeling, and judging, are always directed toward an object, embodying a sense of "aboutness" (Brentano, 2009; 2012). When engaging in critical reflection, individuals direct their thoughts toward self-examination and the repeated consideration of the incident or state of affairs. This intentional focus forms a mental phenomenon.

According to Brentano, mental acts involve implicit self-awareness, which aligns with Mezirow's emphasis on critical awareness in TL. Both theories recognise the importance of examining pre-existing beliefs, values, and assumptions. In critical reflection, the mind deliberately interrogates internal thoughts, content, and cognitive-emotional responses to experiences. Brentano's concept of judgment, which involves the evaluation of the validity of assumptions, resonates with Mezirow's description of uncovering the boundaries and limitations of one's frames of reference. This evaluative process is crucial for enabling transformation. Brentano's perspective enriches our understanding of critical reflection by integrating the relational and complementary roles of emotionality and rationality. By framing critical reflection as a mental phenomenon, the focus shifts from the duality of rational and emotional responses to their interconnected nature, illustrating how both contribute to the transformative process. This integral view offers a deeper appreciation of critical reflection as the foundation for personal and cognitive transformation.

Applications in the classroom

Critical reflection plays a pivotal role in deconstructing power dynamics within the classroom and extending this critical awareness to broader societal contexts. This process benefits both teachers and students, who, in this setting, are considered co-learners. By fostering a heightened sense of critical awareness, classroom experiences become more meaningful, prompting positive changes and improved frames of reference. Classrooms are inherently

emotionally rich environments, with constant emotional exchanges among students (emotional transactions) and between teachers and students (emotional contagion) (Pekrun, 2006; 2012). A Brentano-inspired framework of transformative learning (TL) encourages teachers and students to understand diverse perspectives while embracing inclusivity and diversity. This approach has become increasingly significant in today's classrooms, characterised by students of varying abilities and cultural backgrounds. Through transcending and expanding their frames of reference, teachers and students cultivate open-mindedness and empathy, two essential qualities in contemporary educational settings. Compassion and empathy are vital to fostering a harmonious classroom environment and addressing the complexities of our interconnected world.

Moreover, this framework encourages learners to apply insights gained from TL to address complex problems. Pedagogical strategies such as problem-based learning and flexible grouping can nurture the mindset needed for TL by encouraging collaboration, critical thinking, and adaptability (Mezirow, 1978). As students develop a robust sense of critical awareness, they grow into adults capable of tackling multifaceted real-world challenges. Ultimately, this fosters societal betterment by creating a more just, rational, and democratic society. To apply this Brentano-inspired perspective on transformative learning, educators can take several practical steps to integrate the theory of mental phenomena into their teaching practices. For instance, fostering an environment where critical reflection is encouraged is essential. Teachers can design activities that prompt learners to engage in deep self-examination, such as reflective journals, group discussions, or case study analyses, to question underlying beliefs and assumptions.

Moreover, by focusing on the interplay between emotions and cognition, educators can create spaces where learners are invited to explore how their emotional responses shape their cognitive processes. For example, when students encounter a disorienting dilemma or a challenge in their learning, teachers can guide them to reflect on the emotional reactions these situations evoke—such as frustration or confusion—and how these emotions might inform their deeper understanding or reshape their perspectives. Additionally, by embracing a more inclusive, context-sensitive approach to TL, teachers can acknowledge the diverse sociocultural backgrounds of their learners and create learning activities that reflect these varied experiences, making the transformation process more relevant and personalised. Educators can encourage students to share and analyse their personal stories by incorporating narrative analysis into the curriculum, helping them make sense of their transformative experiences. Ultimately, this approach emphasises a holistic view of learning, where the mental, emotional, and social dimensions of the learners' transformation are recognised as interconnected and vital for growth.

Research implications

Brentano's psychological theory, which serves as a foundation for phenomenology, underscores the importance of exploring subjective experiences. As an inherently individual and subjective process, transformative learning has long been critiqued for needing a more inclusive,

holistic, and context-sensitive framework (Fleming, 2016; 2018; Taylor, 2007). Scholars have increasingly highlighted the necessity of addressing aspects such as the emotional dimension (Cranton, 2006; Dirkx, 1997; 2001; Marsick & Watkins, 2015; Marsick & Yorks, 2001), sociocultural influences (Fleming, 2013; 2022), and power dynamics (Brookfield, 2005; Marsick & Watkins, 2015). When meaning-making is viewed as the central mental phenomenon, a Brentano-inspired perspective addresses the ambiguity surrounding transformation by emphasising its nuanced and deeply personal nature. This perspective encourages researchers to adopt phenomenological approaches to explore individuals' transformative journeys. Narrative analysis, which focuses on understanding how people construct meaning through their stories, deserves more attention as it aligns closely with the core intentions of transformative learning (Bruner, 1991; Polkinghorne, 2010). Through this lens, transformative learning can be situated within a broader discourse that emphasises the intricate interplay between cognition, emotion, and sociocultural contexts.

Linking Mezirow's theory of transformative learning to Brentano's philosophy allows for a deeper conceptualisation of critical reflection as a central mental phenomenon. This connection integrates cognitive and philosophical dimensions, situating transformative learning within a more comprehensive framework. Moreover, this approach addresses critiques of transformative learning's limited engagement with emotions by presenting mental phenomena as inherently tied to complex emotional processes. By recognising the intertwined nature of emotion and cognition, this perspective offers an enriched understanding of transformation at both emotional and behavioural levels. Critical reflection, the cornerstone of transformative learning, is reconceptualised through a Brentano-inspired lens as a process deeply rooted in emotions and rationality. The journey from edge-emotions and discomfort to the self-examination of existing values reveals that reflection is not purely cognitive but also profoundly shaped by affective dimensions.

Declaration of conflicting interest

The author(s) declared no potential conflicts of interest concerning this article's research, authorship, and/or publication.

Funding statement

The author(s) received no financial support for this article's research, authorship, and/or publication.

References:

Alhadeff-Jones, M. (2016). *Time and the rhythms of emancipatory education*. https://doi.org/10.4324/9781315727899

Antonelli, M. (2021). Consciousness and intentionality in Franz Brentano. *Acta Analytica*, *37*(3), 301–322. https://doi.org/10.1007/s12136-021-00480-2

Brentano, F. (2009). *The True and the Evident (Routledge revivals)*. Routledge.

Brentano, F. (2012). *Psychology from an Empirical Standpoint*. Routledge.

Brookfield, S. (2005). *The power of critical Theory for adult learning and teaching*.

Brookfield, S. D. (2017). *Becoming a critically reflective teacher*. John Wiley & Sons.

Bruner, J. (1991). The narrative construction of reality. *Critical Inquiry*, *18*(1), 1–21. https://doi.org/10.1086/448619

Cranston, P. (2006). *Understanding and promoting transformative learning: A Guide for Educators of Adults*. Jossey-Bass.

Dewey, J. (1933). *How We Think: A Restatement of the Relation of Reflective Thinking to the Educative Process*. Houghton Mifflin.

Dirkx, J. M. (1997). Nurturing soul in adult learning. *New Directions for Adult and Continuing Education*, *1997*(74), 79–88. https://doi.org/10.1002/ace.7409

Dirkx, J. M. (2001). The power of Feelings: emotion, imagination, and the construction of meaning in adult learning. *New Directions for Adult and Continuing Education*, *2001*(89), 63–72. https://doi.org/10.1002/ace.9

Erhard, C. (2024). The Threefold Essence of Consciousness: Brentano versus Pfänder. *European Journal of Philosophy*. https://doi.org/10.1111/ejop.13011

Eschenbacher, S., & Fleming, T. (2022). Towards a Pedagogy of Trauma: experiences of paramedics and firefighters in a COVID-19 era and opportunities for transformative learning. *Education Sciences*, *12*(10), 655. https://doi.org/10.3390/educsci12100655

Esbern, F.-H., Duveskog, D., & Taylor, E. W. (2013). Less noise in the household: The impact of farmer field schools on gender relations. *Journal of Research in Peace, Gender and Development*, *2*(2), 44–55.

Fleming, T. (2016). *Toward a Living Theory of Transformative Learning: Beyond Mezirow and Habermas to Honneth* [Lecture]. 1st Mezirow Memorial Lecture, United States of America.

Fleming, T. (2000). Habermas on Civil Society, Lifeworld and System: Unearthing the Social in Transformation Theory. *Teachers College Record the Voice of Scholarship in Education*, 0. http://eprints.maynoothuniversity.ie/1058/1/HabermasTFleming.pdf

Fleming, T. (2016). Reclaiming the emancipatory potential of adult education: Honneth's critical theory and the struggle for recognition. *European Journal for Research on the Education and Learning of Adults*, *7*(1), 13–24. https://doi.org/10.3384/rela.2000-7426.rela9077

Fleming, T. (2018a). Critical theory and transformative learning. *International Journal of Adult Vocational Education and Technology*, *9*(3), 1–13. https://doi.org/10.4018/ijavet.2018070101

Fleming, T. (2018b). Critical Theory and Transformative learning: Rethinking the radical intent of Mezirow's theory. *International Journal of Adult Vocational Education and Technology (IJAVET)*, *9*(3), 1–13.

Fleming, T. (2022). Transformative Learning and Critical Theory: Making Connections with Habermas, Honneth, and Negt. In *Springer eBooks* (pp. 25–43). https://doi.org/10.1007/978-3-030-84694-7_2

Freire, P. (1970). *Pedagogy of the oppressed*.

Freire, P. (1998). *Pedagogy of freedom: Ethics, Democracy, and Civic Courage*. Rowman & Littlefield.

Gilligan, C. (1993). *In a different voice: Psychological Theory and Women's Development*. Harvard University Press.

Gilligan, C. (2014). Moral Injury and the Ethic of Care: Reframing the Conversation about Differences. *Journal of Social Philosophy*, *45*(1), 89–106. https://doi.org/10.1111/josp.12050

Habermas, J. (2015). *The theory of communicative action: Reason and the Rationalization of Society, Volume 1*. John Wiley & Sons.

Hoggan, C., & Cranton, P. (2014). Promoting transformative learning through reading fiction. *Journal of Transformative Education*, *13*(1), 6–25. https://doi.org/10.1177/1541344614561864

Kriegel, U. (2017). *The Routledge Handbook of Franz Brentano and the Brentano School*. Routledge.

Kriegel, U. (2021). Brentano on consciousness, intentionality, value, will, and emotion: Reply to symposiasts. *European Journal of Philosophy*, *31*(2), 486–493. https://doi.org/10.1111/ejop.12693

Mälkki, K. (2010). Building on Mezirow's theory of transformative learning: theorising the challenges to reflection. *Journal of Transformative Education*, *8*(1), 42–62. https://doi.org/10.1177/1541344611403315

Mälkki, K. (2011). Rethinking disorienting dilemmas within Real-Life crises. *Adult Education Quarterly*, *62*(3), 207–229. https://doi.org/10.1177/0741713611402047

Mälkki, K. (2019). Coming to Grips with Edge-Emotions: The Gateway to Critical Reflection and Transformative Learning. In *Springer eBooks* (pp. 59–73). https://doi.org/10.1007/978-3-030-19159-7_5

Mälkki, K., & Green, L. (2014). Navigational Aids. *Journal of Transformative Education*, *12*(1), 5–24. https://doi.org/10.1177/1541344614541171

Mälkki, K., & Green, L. (2016). Ground, warmth, and light facilitate reflection and transformative dialogue. *Journal of Educational Issues*, *2*(2), 169. https://doi.org/10.5296/jei.v2i2.9947

Marchesi, A. (2021). A systematic reconstruction of Brentano's theory of consciousness. *Topoi*, *41*(1), 123–132. https://doi.org/10.1007/s11245-020-09737-8

Marsick, V. J., & Watkins, K. (2015). *Informal and Incidental Learning in the Workplace (Routledge Revivals)*. Routledge.

Marsick, V., & Yorks, L. (2001). Learning and the role of emotions in creating meaning. In *New Directions for Adult and Continuing Education* (Vol. 89, pp. 25–34).

Mezirow, J. (1978a). Perspective transformation. *Adult Education*, *28*(2), 100–110. https://doi.org/10.1177/074171367802800202

Mezirow, J. (1978b). Perspective transformation. *Adult Education*, *28*(2), 100–110. https://doi.org/10.1177/074171367802800202

Mezirow, J. (1991). *Transformative Dimensions of Adult Learning*. Jossey-Bass.

Mezirow, J. (1997). Transformative Learning: theory to practice. *New Directions for Adult and Continuing Education*, *1997*(74), 5–12. https://doi.org/10.1002/ace.7401

Mezirow, J. (2000). *Learning as transformation: Critical Perspectives on a Theory in Progress*. Jossey-Bass.

Mezirow, J. (2003). Transformative Learning as Discourse. *Journal of Transformative Education*, *1*(1), 58–63. https://doi.org/10.1177/1541344603252172

Mezirow, J. (2012). Learning to think like an adult. Core Concepts of Transformation Theory. In *The Handbook of Transformative Learning* (pp. 73–95).

Montague, M. (2016). A contemporary view of Brentano's theory of emotion. *The Monist*, *100*(1), 64–87. https://doi.org/10.1093/monist/onw019

Pekrun, R. (2006). The Control-Value Theory of Achievement Emotions: Assumptions, corollaries, and implications for educational research and practice. *Educational Psychology Review*, *18*(4), 315–341. https://doi.org/10.1007/s10648-006-9029-9

Pekrun, R., & Linnenbrink-Garcia, L. (2012). Academic emotions and student engagement. In *Springer eBooks* (pp. 259–282). https://doi.org/10.1007/978-1-4614-2018-7_12

Polkinghorne, D. E. (2010). *Narrative knowing and the human sciences*. State University of New York Press.

Schön, D. A. (1983). *The reflective practitioner: How Professionals Think in Action*. Routledge.

Taylor, E. W. (2007). An update of transformative learning theory: a critical review of the empirical research (1999–2005). *International Journal of Lifelong Education*, *26*(2), 173–191. https://doi.org/10.1080/02601370701219475

Taylor, E. W., & Cranton, P. (2012). *The Handbook of Transformative Learning: Theory, Research, and Practice*. John Wiley & Sons.

Received: 28 October 2024 | Accepted: 26 March 2025

DOI: 10.1002/rev3.70061

RESEARCH REPORT

Review of Education BERA

Pandemic digital structural violence: Teachers' observation of post-pandemic learning loss in students

Eunice Yin Yung Chiu

Universität Heidelberg, Heidelberg, Germany

Correspondence
Eunice Yin Yung Chiu, Universität Heidelberg, Grabengasse 1, 69117 Heidelberg, Germany.
Email: yychiu.eunice@gmail.com

Abstract

Almost four academic years have passed since emergency remote teaching (ERT) was employed as a temporary means for continuing education. In the post-pandemic era, residual impacts from ERT are still unfolding. Teachers reported a pronounced decrease in students' academic performance, concentration and social skills. As time passes, we seem to have forgotten the negative impacts of ERT on students, which affects primary, secondary, and even university students. Using case studies, digital ethnography and autoethnography, this research explores ERT in a private school in Canada and a local Band 3 school in Hong Kong. The qualitative data allow an extensive analysis of the circumstances and outcomes of two diverse groups of students. The findings include class participation as an outcome of limited resources; students' motivation and independent learning skills differ on the basis of their socioeconomic status; and the issues of mind wandering and concentration, which manifest in various ways. Despite school resumption, these findings show that the negative impacts remain in today's classrooms. This research argues that the negative consequences differentially affect students and proposes the need to coin the term 'pandemic digital structural violence' (PDSV) to address the core problem accurately. This research urges educators to be aware of PDSV and avoid blaming their students. It also urges policy makers to address the unfairness while moving on to develop digitised education further.

KEYWORDS
emergency remote teaching, emotional literacy, learning motivation, pandemic digital structural violence, socioeconomic status

Context and implications

- **Rationale for this study:** The study explores how ERT affected students' performance, motivation, focus and emotional literacy, especially among disadvantaged groups.
- **Why the new findings matter:** Introducing 'pandemic digital structural violence' (PDSV), the study reveals overlooked long-term emotional and educational effects of ERT.
- **Implications for policy makers, practitioners and researchers:** Educators should support emotional literacy; policymakers must ensure digital equity; researchers are urged to explore digital learning's psychosocial impact.

INTRODUCTION

The COVID-19 pandemic precipitated an unprecedented shift to emergency remote teaching (ERT), exposing and exacerbating systemic inequities in education. While ERT is a necessary response to global school closures, its implementation often overlooks the diverse needs of students, leading to significant learning loss and widening achievement gaps. Notably, these disadvantages were not resolved when schools resumed regular classes, as the intersecting factors that contributed to learning loss—such as unequal access to technology, socioeconomic disparities, and varying levels of parental support—continued to persist in the post-pandemic landscape. This observation served as a catalyst for our study, prompting an examination of how these multifaceted factors intersect to perpetuate educational inequities and hinder recovery efforts. Understanding the lingering effects of ERT is critical for developing targeted interventions that address the root causes of learning loss. By elucidating the factors that exacerbated educational disparities during the pandemic and continue to impact students, this study aims to inform policies and practices that promote equitable recovery and resilience in education systems. The methodological approach, grounded in case studies and narrative analysis, allows us to explore these issues in depth, offering insights that are both timely and actionable.

'Pandemic digital structural violence' (PDSV) is a term coined in this study to denote the educational inequities heightened during the pandemic and ERT, in which the quality of education has directly resulted from students' socioeconomic status (SES). A similar term, 'digital structural violence', was coined by Winters et al. (2019) in their research on the 'potential negative consequences of artificial intelligence in learning' (p. 17). Their focus is on digital inequality and social exclusion related to the incorporation of AI in humans' lives. Unlike their terminology, this research focuses on the disproportionate consequences found in students currently owing to the injustice and suppression imposed on them during ERT. It argues that PDSV must be identified and delineated as it impacts students across jurisdictions, and the profound impacts are still unfolding and will likely continue if the affected students are

not healed properly or guided to heal from the inequalities inflicted on them during the pandemic. PDSV deprives students of lower SES of opportunities to learn effectively in an online environment. Worse, they are often blamed for not being motivated during home learning and are punished by grading systems, which directly impact their educational opportunities in the future. PDSV is revealed as the underlying cause of students' decreased emotional literacy, motivation and academic performance.

As Paul Farmer (2004) noted, structural violence takes a new form in every era; as artificial intelligence (AI) emerges, a new form of structural violence, which Winters et al. (2019) referred to as 'digital structural violence', has appeared. However, the structural violence that caused learning loss in students, specifically during the pandemic, has not been addressed. The term structural violence fails to cover this specific, episodic form of structural violence. We tend to equate students' learning loss to unequal access to resources, but it does not fully address students' gradual motivation for learning loss during ERT or the fact that teachers blame their students for not trying hard enough. Digital structural violence addresses the educational inequalities that could occur in the AI era, but it fails to address the digitised structural violence that has already taken place and has had profound negative impacts on particular groups of students. Researchers have discussed the relationship between students' SES and academic achievements (Kim et al., 2022; Schneider et al., 2022). Students' access to resources is directly correlated with the SES to which they belong, and inequality is manifested in resource access during the pandemic. Some students struggle with having stable internet connections; others do not even possess electronic devices. Several scholars have discussed pandemic learning loss (Farhan & Lismandasari, 2022; Gierczyk & Hornby, 2023; Zhdanov et al., 2022). However, in this research, the negative impacts are revealed to be rooted primarily in unequal access to resources. The irony is that ERT was conducted to counter disruption to education, but the outcome is that PDSV was not regarded as an impact beforehand; problems such as the digital divide and unequal access to resources have led to widened learning gaps in many schools. On the surface, it seems that the effectiveness of online learning strongly depends on students' self-efficacy and learning motivation (Carrasco-Hernández et al., 2023; Sason et al., 2023; Shen et al., 2024). However, many studies have confirmed that students' SES dominates these key factors, as they determine their access to resources. The profound impacts of such unfairness were not foreseen or addressed when ERT was implemented. Hence, we have placed our students in an intensely unfair learning environment in which their SES dominates the quality of education they receive at home. Ranging from a proper home-learning environment, a fully equipped electronic device, to private tutorial lessons (Chan et al., 2024; Sason et al., 2023), students whose families can afford minimal resources are deprived of a proper learning environment. It is beyond the unfairness that lies within the quality of education under marketisation (Ball, 2008), but the circumstances of some students have made participation in class impossible.

This research argues that the issues that students with lower SES have faced since the pandemic, such as learning loss and loss of learning motivation, are founded on invisible violence in the socioeconomic structure of education. Stephen Ball postulated that globalisation is a large-scale world system that transforms individuals' everyday lives, changing how individuals engage in and experience the world and impacting individuals in terms of consciousness, disposition, and affect (Ball & Collet-Sabé, 2021). The pandemic has opened a window for the digitalisation of education to take place on a global level; in a sense, it provides the possibility for human interactions to transcend limitations in space and time; on the other hand, it has confined human interactions and connections to digital tools and applications. How individuals experience the world has changed and transformed; the digitisation of schooling, work, and the experience of social distancing and isolation have had irreversible and transformational effects on individuals (Kaubisch et al., 2022; Morris et al., 2024).

In education, students have been impacted by the pandemic in different ways, depending on circumstances determined by the SES that they are in. Structural violence is not a new concept, but the increase in digitalisation has further worsened the situation. This research reveals that the PDSV is not only an online version of structural violence faced by students from lower SESs but also that the invisible violence inflicted on students is very real and has had adverse effects on their academic and socioemotional learning since the pandemic.

Since schools resumed, teachers have reported learning loss and a widening achievement gap (Feng et al., 2021; Förster et al., 2023). This research reveals that, beyond academic setbacks, significant learning loss affects students' social skills and emotional literacy. ERT limited peer communication, and pandemic policies like social distancing made in-person interaction nearly impossible, leaving social media as the main communication tool. Research shows that over-reliance on digital means harms communication skills (Galbava et al., 2021; Riggio, 2024; Tratnik et al., 2017). Teachers observed severe declines in students' metacognition, critical thinking, and logical argumentation. Socioemotional management has also worsened, with students showing signs of social anxiety (Kalman-Halevi et al., 2023; Steinsbekk et al., 2024). Issues like depression and bullying have risen among lower-SES students, while higher-SES students show increasing signs of isolation.

THEORETICAL FRAMEWORK

Johan Galtung and Paul Farmer on structural violence

Galtung introduced structural violence in 1969 to describe how social structures harm or disadvantage individuals (Galtung, 1969). Structural violence is embedded in societal systems; unlike physical violence, it is invisible and is often normalised and unnoticed, as it is hidden in the hegemony of societies. Structural violence can sometimes be hard to identify as it does not involve an apparent perpetrator. An example is the wealth gap and education levels for marginalised sectors. Galtung described structural violence in a broad sense as something that applies to all forms of systemic inequality, such as gender, economies and education. His theoretical work has provided a framework for understanding peace and conflict, which involves the absence of direct violence and the presence of equity and fairness within social structures (Dilts et al., 2012; ibid.).

Building on Galtung's concept, Farmer expanded it to the fields of public health and social justice; he focused on how structural violence perpetuates health disparities and explained how global inequalities harm marginalised populations (Farmer, 2004). Farmer's version of structural violence takes the healthcare lens, in which the unequal access to healthcare and disparities in disease burden between wealthier and impoverished communities are discussed. Through a case study of Haiti, Farmer also emphasised historical colonialism and racism and delineated the ways in which modern inequities are shaped. More importantly, Farmer argued for the ethical responsibility of privileged societies in helping marginalised communities improve global health equity.

Digital structural violence

Winters et al. (2019) explored Galtung's and Farmer's concept of structural violence further and introduced the term digital structural violence (DSV), which focuses on the ways in which digital systems and technologies perpetuate harm and inequalities in marginalised groups. Their article proposes the future use of an AI algorithm to design personalised learning to address the needs of the marginalised groups that suffer the most from digital

structural violence. Data inequities, algorithmic bias and digital exclusion are discussed as manifestations of DSV. Winters and her team (2019) highlighted the importance of the need for 'researchers to codevelop a better understanding of the biases that are already embedded in the structures of AI systems' (p. 9). They also noted that early exposure of young people and teachers to both positive and negative possibilities of AI is key to addressing digital structural inequalities. In the article, the central message is the need to address DSV by recognising the embedded inequities before it is taken as a 'conventional norm' (p. 6) and, ultimately, to make use of AI in a way that 'privileges the language, perspectives, experience and capabilities of marginalised learners' (p. 9). The DSV to which they refer would likely happen in the future, in an era of AI, and most importantly, Winters and the team are advising practical ways to prevent DSV.

Pandemic digital structural violence

Building on the idea of Galtung, Farmer and Winters et al., this article proposes the term 'pandemic digital structural violence' (PDSV) to denote the digital inequalities and digital exclusion that specifically occurred during the pandemic, and those negative impacts that are still lingering today. This is important because the negative consequences of PDSV are still unfolding in students today. When the pandemic occurred, schools worldwide shifted abruptly to online teaching, and most teachers were unprepared for sudden changes. This type of unprepared online teaching is called emergency remote teaching (ERT), which is regarded as temporary teaching delivery in response to an emergency (Flores, 2023). PDSV is similar to DSV; it also describes the inequities from technological usage. However, PDSV specifically discusses the inequities that arise from ERT during the pandemic, and it focuses on the negative impacts of unprepared online teaching and how PDSV amplifies them.

This is significant, as the effects are still unfolding among students, indicating that urgent action must be taken in these few critical academic years to alleviate the negative impacts of PDSV. This article aims to shed light on the existence of PDSV and its aftermath so that teachers will not blame individuals for their circumstances (such as lagging behind them in class and losing learning motivation) but will examine the structural forces shaping these circumstances and develop appropriate solutions accordingly. It is also critical that policy makers address these circumstances and make changes in the curriculum and support system to redistribute resources and enable equitable access to education; to create parameters that confront discrimination that exists against students whose progress is lacking far behind after the pandemic; and to recognise the importance of the global solidary in the sense that different nations address the injustice as a global system and, through policy learning, to improve the system as a whole. The core purpose of coining the term PDSV is to place the correct term of the critical, episodic disruption in education so that systemic changes can be made to address the root cause of students' suffering.

LITERATURE REVIEW

Emergency remote teaching and online teaching

Both ERT and online teaching describe forms of instruction delivered through digital platforms, but they differ significantly in intent, design, and execution (Hodges et al., 2020). ERT emerged as a temporary solution during crises that abruptly disrupted face-to-face instruction to maintain education despite extraordinary circumstances, such as the pandemic. The goal of ERT is to temporarily maintain education despite extraordinary circumstances.

Hodges and his team (2020) were the first to use ERT to describe the remote teaching that took place during the pandemic. Online teaching, on the other hand, is deliberately planned and designed as a permanent mode of instruction; it focuses on leveraging the advantages of digital platforms to conduct effective teaching and learning (ibid.). In terms of course design, as teachers have limited time for redesigning materials, they are often hastily adapted from traditional formats and rely heavily on synchronous tools such as Zoom, Google Meet, and so on. For online teaching, courses are thoughtfully created to optimise the online learning environment, from the selection of tools to the integration of multimedia and pedagogical strategies, which are tailored to online learners.

With respect to pedagogical approaches, ERT often lacks instructional coherence and interactive elements because of time constraints; classroom activities focus heavily on content delivery rather than fostering engagement in the classroom (Fuchs, 2022). Online teaching is much more structured, and it makes use of instructional design models to create interactive and learner-centred experiences. In terms of assessments, the unpreparedness of ERT also signifies that assessments might be improvised, with minimal attention to ensure validity and fairness in an online classroom, whereas online teaching has sophisticatedly designed assessments that employ formative assessment strategies and reviews to ensure fairness and validity. Owing to the lack of structure in pedagogy and assessment design and the lack of focus on fostering interactions and engagement, students often face challenges such as insufficient engagement and technical difficulties in ERT, and learning effectiveness is often jeopardised (Fuchs, 2022; Hodges et al., 2020).

Emotions and learning in ERT

Research has shown that emotions play a critical role in learning, influencing students' motivation, attention, memory and overall cognitive processes (Fredrickson, 2001; Immordino-Yang & Damasio, 2007; Pekrun, 2006; Tyng et al., 2017). Positive and negative emotions are constantly exchanged in the classroom between students and their peers and between students and their teachers (Pekrun, 2006, 2022, 2024); a stressful and anxious environment can disrupt working memory, making it difficult to retain information. Motivation can be increased or decreased on the basis of emotional exchange in the classroom, and boredom or fear of failure can reduce motivation and lead to disengagement. To avoid this, teachers are encouraged to foster collaboration to encourage interactions between peers and teachers; in a traditional classroom, teachers are trained and experienced in identifying students' emotional changes, and they can provide support to help students cope with stress and anxiety (Hargreaves, 1998; Reyes et al., 2012; Schonert-Reichl, 2017).

However, the COVID-19 pandemic was a global public health crisis that threatened the lives of many people; teachers and students faced considerable stress and anxiety because of this crisis (McCullin, 2023). Owing to the lack of structure and support during ERT, many teachers had to conduct online lessons despite having limited digital literacy and knowledge about different software. The quality of teaching was significantly jeopardised because of this frustration; the frustration that teachers experienced, the stress they were under, and their limited skillsets in online teaching tools also made it much more challenging and emotionally demanding to maintain a positive learning environment for their students. Bond (2021) noted a decline in instructional quality due to unprepared teachers and inadequate digital tools during ERT; Bao (2020) discussed the challenges of ensuring teaching quality in online environments and highlighted the importance of teachers' knowledge and training beforehand to include elements of interactivity strategically. Hodges et al. (2020) explained how ERT differs from online education and explored how teaching effectiveness is compromised during ERT. As such, the online classrooms of ERT during the pandemic were filled with confusion

from teachers and students. The unprepared nature of ERT also made pedagogical remedies impossible, and the adverse effects severely hampered students' learning progress following the pandemic (Dorn et al., 2021; UNESCO, 2021; Asim et al., 2024).

Barriers due to the emotional climate on ERT

Research has revealed that students' reluctance to turn on their cameras can be related to their sense of shame, especially for those without a proper work desk (Castelli & Sarvary, 2021; Meishar-Tal & Forkosh-Baruch, 2022). However, this was often misinterpreted as a sign of rebellion against their teachers. Even if teachers understand and respect students' privacy and do not make cameras a rule in class, some students gradually lost the sense of being a part of the class. The feeling of isolation and alienation is especially serious among students with lower SES, as their extent of class participation is restricted by their family resources, which does not reflect their learning motivation (Arztmann et al., 2023). However, given the lack of interactions combined with teachers' lack of self-efficacy and low confidence in online teaching during ERT, students' reluctance to turn on cameras is often viewed as a sign of disobedience/rebellion by teachers. Negative emotions are built up owing to this assumption, and the negative emotional exchange between teachers and students in an online classroom thereby causes students to become more frustrated about being unable to turn on their cameras. From the perspective of students, teachers lack empathy for their situation, and research has shown that students learn better and more effectively when their perception of teacher empathy is high (Cornelius-White, 2007; Roorda et al., 2011). This means that the simple decision of keeping the camera on or off could become a trigger that has profound implications in an ERT classroom.

By keeping their cameras off, emotional exchange is limited to teachers' voice and tone, text messages on the application, and perhaps classroom activities. The emotional feedback from students then decreases to a minimum, which often creates feelings of disrespect and insecurities in teachers (Nicolosi et al., 2022). Notably, students' participation in classroom activities, such as drawing on a shared whiteboard or an online interactive game such as Kahoot, is also restricted to whether they have equipped devices and stable internet connections. The inability to participate fully contributes to a broader learning gap and learning motivation and, consequently, a decrease in academic achievements (Surianshah et al., 2022), which is itself a vicious cycle. This concept is illustrated in Figure 1. More importantly, as an emotional exchange between teachers and students, students and peers have become so limited, and as their academic underperformance has also made emotional exchange mostly negative, students with lower SES have a stronger sense of isolation, misunderstanding, and a lack of affect from their teachers (Dougall et al., 2023); unfortunately, these feelings continue to worsen their learning and even their well-being.

RESEARCH GAP AND CONTRIBUTION OF THIS STUDY

While existing research has extensively documented the challenges of ERT, including its impact on the emotional climate, student engagement, and learning outcomes, there remains a critical gap in understanding how these challenges persist in the post-pandemic era. Specifically, few studies have explored the long-term effects of emotional and pedagogical disruptions caused by ERT or examined how these factors continue to shape educational inequities as schools transition back to regular classes. This study addresses this gap by investigating the lingering effects of ERT on students' emotional well-being, engagement, and academic performance, with a focus on the intersecting factors that perpetuate these

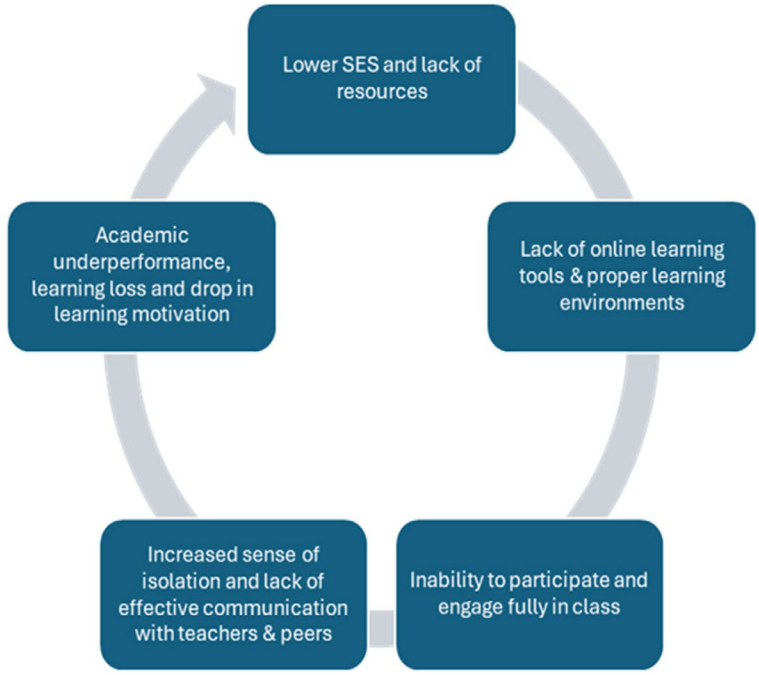


FIGURE 1 A vicious cycle of learning loss and motivation loss due to limited access to resources.

challenges. By doing so, it aims to provide actionable insights for fostering equitable recovery and resilience in education systems.

Research questions

1. What are the key challenges faced by teachers and students during emergency remote teaching (ERT)?
2. How does ERT impact students' emotional well-being, engagement, and academic performance?
3. What are the long-term effects of ERT on teaching practices and student outcomes in the post-pandemic era?

Answering these questions is critical for understanding the multifaceted impacts of ERT and informing strategies to address educational inequities. The findings provide actionable insights for policy makers, educators, and institutions in the design of interventions that support equitable recovery and resilience in education systems.

METHODS AND METHODOLOGY

This qualitative research uses digital ethnography and autoethnography to explore teachers' experiences in depth. Digital ethnography is used to study the online community, as this research focuses on teachers' experiences during the pandemic. Conducting interviews online allows room for demonstrating the technical issues they face and the solutions they employ. The informants were also encouraged to demonstrate the software they used during ERT and to share their screen when explaining how students' feedback looked on

their screen; this enhances understanding and enables thick descriptions to include more operational details regarding the online teaching environment during ERT. Autoethnography allows researchers to use their lived experiences as primary data to explore social phenomena (Tracy, 2019). Narrative inquiry enables rich, detailed storytelling that includes emotional insights and specific contexts. In this research, autoethnography provides an insider perspective, which is particularly useful in bonding with the informants and grasping the stories and narratives offered by them more accurately.

For data analysis, both thematic analysis and narrative analysis are used, as they provide a systematic way to analyse the data while fulfilling the aim of understanding participants' experiences, beliefs and perspectives (Creswell, 2013). Thematic analysis might easily overlook unique narratives if the themes are not repeated or found across data, to counter the limitations of thematic analysis, narrative analysis is used. Narrative analysis focuses on examining the structure and content of stories or narratives adopted by informants, allowing a deeper understanding of how individuals make sense of certain experiences (Creswell, 2013). In this research, narrative analysis is critical, as both informants have diverse teaching backgrounds, and both are passionate about teaching. During the pandemic, they were working at different types of schools, which produced an interesting contrast in how they narrated their experiences. Commonalities in the narrated incidents and strong emotions elicited in the narration are extracted as key themes. Since I also resonate with both my informants' teaching experiences, the issues that I would notice and spot might provide a more insider narrative, as I ask for further elaboration from both informants, an even more in-depth and meaningful conversation is made possible, enabling insightful discussion and contributions to certain themes.

Overview of the analytical approach

The data analysis process employed in this study integrates thematic analysis and narrative analysis, guided by Creswell's (2013) framework for qualitative research. These methods were chosen to explore the complex, multifaceted experiences of participants during and after ERT, allowing for both a broad understanding of recurring themes and an in-depth exploration of individual narratives. The analysis was conducted iteratively, ensuring that emerging insights were continually refined and validated. The ways in which thematic analysis and narrative analysis were applied will be explained in this section.

Thematic analysis was used to identify, analyse and report patterns (themes) within the data, following the six-phase approach outlined by Braun and Clarke (2006) and aligned with Creswell's (2013) recommendations. Table 1 is created to illustrate how the themes were generated accordingly. The process involved the following steps:

1. Familiarisation with the data through repeated reading of transcripts.
2. Generating initial codes to identify meaningful patterns.
3. Searching for themes by grouping related codes.
4. Reviewing the themes to ensure coherence and relevance.
5. Defining and naming themes to capture their essence.
6. Producing the final report with illustrative excerpts.

Narrative analysis focused on participants' stories, examining how they constructed meaning from their experiences. This involved:

1. Identifying key narratives within the data.
2. Analysing narrative structure (e.g., sequence of events, turning points).

TABLE 1 Mapping the thematic analysis process: From initial codes to findings.

Initial codes	Themes	Narratives/ findings
Teachers observed students struggling due to lack of resources; students' passivity in class; lack of immediate school support	Resource-related participation barriers	Class participation restricted by resources at home
Students using mobile phones in unsuitable environments; lack of digital infrastructure; delayed institutional response	Digital divide and its consequences	Class participation restricted by resources at home
Disruptions in learning motivation due to poor access; alternative solutions like self-study	Learning loss due to digital exclusion	Students with limited resources suffer from motivation loss
Teachers noticed students disengaging post-pandemic; an increase in students relying on entertainment rather than studying	Long-term motivational decline	Students with limited resources suffer from motivation loss
Shortened attention span post-pandemic; behavioural changes in classroom engagement	Cognitive impact of ERT	Post-ERT: The issue of mind-wandering lingers until now
Emotional responses from teachers and students; negative interactions like teachers muting students; lack of emotional support	Emotional challenges in ERT	Negative emotional transactions in ERT classrooms and today's decline in emotional literacy

3. Interpreting the underlying meanings and emotions in participants' stories.
4. Contextualising narratives within broader themes identified through thematic analysis.

The findings from the thematic and narrative analyses were integrated to provide a comprehensive understanding of the data. Thematic analysis highlighted recurring patterns and shared experiences, while narrative analysis provided depth and nuance by exploring individual stories. This dual approach ensured that the analysis captured both the collective and individual dimensions of participants' experiences during and after ERT. Throughout the analysis process, reflexivity was maintained by documenting the research team's assumptions, biases, and decision-making processes. This ensured transparency and rigour in the analysis. Additionally, member checking was conducted by sharing preliminary findings with participants to validate the interpretations and ensure their accuracy.

Justification

Although digital ethnography and autoethnography allow in-depth and detailed comparisons of teaching experiences, the experiences and insights are personal and do not necessarily reflect broader sociocultural contexts. This limitation is alleviated by critical reflection, which encourages informants and me to reflect on the teaching experiences at different schools in different contexts. Importantly, this research does not seek to generalise a conclusion that comprehensively captures broader contexts; however, it is believed that the similar observations that we share could point to a phenomenon that needs to be followed up. Autoethnography is often critiqued as highly subjective. However, as detailed journaling was performed during the pandemic, it reduces the biases from mere recall of experiences. Moreover, the data were triangulated with some teaching videos, which made the data more reliable. When I was conducting the interviews with my informants, I also shared some of the teaching videos with them, and they also did the same with me during the session. It allowed

me to systematically study and compare the pedagogical skills we used; the limitations and difficulties faced by students from lower SES backgrounds also became more directly comparable and visualisable. To protect students' privacy, none of the students' information is mentioned in this article. Additionally, video recordings of the interviews were paused when we exchanged teaching clips during the pandemic.

Ethical issues

The purpose of the research was mentioned explicitly to my informants; they agreed to share with me their experiences during ERT in three key aspects: how it was like for them as teachers, how they would describe their students' experiences and performances during ERT and how they would describe their students after experiencing ERT and the pandemic. Consent forms were sent to the informants by email, and their signatures were obtained before the interviews were conducted. The interview guide was sent to them 3 days prior to the interview, so it gives my informants some time to reflect on the questions and to be able to provide relatively more in-depth answers. We conducted the interviews via Zoom; video recording was performed through the function of the software, and audio was recorded via phone. They were aware of the recordings and agreed to them before the recording started. During the interview, when they showed me teaching materials they designed themselves, due to intellectual property rights I paused the recording during that time and restarted when they changed their screen. However, audio recordings remained. When they showed me teaching videos during ERT, I also paused the video recording as the screen showcased students' faces. To protect their privacy, I only kept the audio recording running. I also ensured that only abbreviations of their names were used in the research article and that all other personal information was kept confidential. This study was reviewed by the Ethics Commission of the Faculty of Behavioural and Cultural Studies, Universität Heidelberg, which determined that formal ethics approval was not required because the study involved minimal risk and used anonymised data. The research was conducted in accordance with the ethical principles outlined in the Declaration of Helsinki and the guidelines provided by Universität Heidelberg.

Digital ethnography

Digital ethnography refers to the process of digital media becoming a part of ethnography, in the sense that the researchers and the research contexts are digitally engaged (Pink et al., 2015, p. 2). In this research, interviews were conducted via Zoom, as my geographical location differs from that of my informants. Moreover, since the research focuses on online teaching, meeting online with my informants allows them to demonstrate the technical difficulties they face when teaching online. For example, one informant shared his screen with me when using Zoom and contrasted it with Microsoft Teams to explain to me that Zoom does not display every student's face at once, which is why he switched to Microsoft Teams later on.

Both informants were willing to show me messages from their students on social media, such as Instagram and WhatsApp. They shared the conversations with me to illustrate how students actively seek help and advice when needed. Digital ethnography is an appropriate means in this research, as it also enables the recording of interviews via Zoom, which is an unalarming method compared with a video-recording camera or a recording pen. In the current digital age, the application of digital ethnography has enabled the greatest possibility for research that involves digital settings, such as this one. In addition, digital ethnography

increases the reliability and validity of the research, as narratives and stories from my informants are supported and demonstrated with proof, such as conversational exchanges or recordings of classes during the pandemic.

Autoethnography

Autoethnography is an autobiographical genre of research writing that considers the author's lived experience. It connects the researcher's insights with issues such as identity, emotions, values, symbols, tradition, and so on (Denzin, 2013). Reflection and reflexivity are key to autoethnography, and it is important that the author interrogates the intersections between self and society, through which, to show people the meaning of their struggles, a balance between intellectual and methodological rigour, emotions and creativity, and striving for social justice (Adams et al., 2014, p. 2). The most fundamental and essential element in autoethnography is active self-reflexivity, which refers to 'the careful consideration of how *researchers'* past experiences, points of view, and roles impact these same researchers' interactions with, and interpretations of, the research scene' (Tracy, 2019, p. 2).

Storytelling and field notes were used in the autoethnography applied in this research. During the pandemic, I was working as a part-time teacher and researcher. I was writing fieldnotes and recording my personal experience with remote emergency teaching. I also journaled and jotted down details during my lesson preparations, classes were recorded, and copies of after-class reports were used in the analysis. I utilised those data in the discussion and cross-compared them with the field notes I obtained from interviewing the informants. The shared feelings and similarities regarding challenges during ERT were mentioned in the discussion. Autoethnography is particularly useful in this research, as difficulties such as online classroom management are experiences that are better understood when experienced personally, which helps create a bond between me and the informants, which was beneficial for the interviews in this research.

Since 2018, I have been a secondary school teacher in Hong Kong. My work is by contract, and I teach English at multiple schools during the same period. Between 2018 and 2021, I worked in eight local schools, two Band 3 schools, one Band 2 school and one Band 1 school. The diverse experiences allowed me to compare the different types of problems students might face because of their different SES backgrounds. During the pandemic, I was a teacher in two secondary classes for four students at a Band 2 school; it was a STEM class, and I was in charge of an elite class. At the same time, I was also in charge of another elite programme for English writing at a semi-private school. The experiences offered me two very different experiences in terms of ERT; the frustrations faced in both classes were completely diverse, and the students' learning attitudes were incomparable. I started jotting down notes and journalling about the experiences; first, I wanted to record the historical event and write records about details during the pandemic amidst the chaos. In less than a week, the habit shifted to serve a functional purpose, as the Band 2 school lacked structure and support for teaching staff. I started writing down skills and strategies employed by the Band 1 school and transferred some of them to my class at the Band 2 school to improve teaching quality. As such, I closely connect with my two informants regarding our views and experiences towards teaching students from different SES backgrounds.

In-depth interviews

Two in-depth, semi-structured interviews were conducted in this research because the interviews were quite in depth, and the criteria for informants was that (1) they were veteran

teachers, (2) they have observations of their students during the pandemic and post-pandemic, and (3) they possess notes, recordings or journals they did during the pandemic. Although only two informants were recruited, the interviews lasted for 3 h and were divided into three sessions on separate days spread out across a month. This helped create the opportunity and allowed for sufficient time to develop trust between my informants and myself. The two informants were passionate about teaching, and both viewed teaching as a mission rather than a job. They kindly shared their insights with me, and the in-depth discussions helped incredibly in the formulation of this study.

Each interview was audiotaped, and memo writing was carried out during it. The interviews were intended to be semi-structured, as they would allow flexibility in expanding the discussion. To ensure the validity of the data, I have also answered the same set of questions, and I also spent approximately 2 h recalling the teaching experiences, revisiting used materials such as assessment samples, to ensure that in-depth critical reflection was engaged in a meaningful manner as I recalled the experiences. I did the critical reflection and answered these questions by writing them down before conducting the interviews with my informants, and during the interviews I also shared with them my answer occasionally, and we also had meaningful conversational exchanges about our views and insights. For the conversations that overlap greatly in our discussions and the topics that the informants spend more time on, they are compared across data, and similar conversations are identified as the themes/findings in this article. Thematic analysis and narrative analysis are used in this article.

The prepared questions for the interview guide are as follows:

1. How was teaching for you during the pandemic?
2. What challenges did you face during ERT?
3. Do you think that communication with students was more difficult during the pandemic—why or why not?
4. What were your students like during the pandemic on ERT—were they well behaved or cooperative?
5. What were some common difficulties that you have observed in your students?
6. When school resumed, did any of those observed difficulties linger?
7. Did new difficulties emerge in the classroom after school resumed?
8. Do you think there is sufficient support for your students during the pandemic?
9. Do you think sufficient post-pandemic support was given to your students?
10. What should still be done for the students in your opinion?
11. What would you say is the most important quality as a teacher?
12. Do you find teaching more or less challenging now, after experiencing the pandemic?
13. In what ways did your relationship with students change during and after the pandemic?
14. Did you gain any new thoughts about teaching after the pandemic?

Context for the interview questions

As outlined in the Ethics Issues section, participants agreed to share their experiences during ERT in three key aspects:

1. Their personal experiences as teachers during ERT include challenges, adaptations and emotional responses.
2. Their observations of students' experiences and performances during ERT focused on engagement, learning outcomes and emotional well-being.

3. They reflected on students' experiences after ERT and the pandemic, including long-term effects on learning, motivation and relationships.

This agreement ensured that the interviews focused on the study's objectives while allowing participants to share their stories in depth. The interview questions were designed to explore these three aspects systematically, providing a structured yet flexible framework for data collection.

Participants and working contexts during ERT

Using the three selection criteria, I found two informants who perfectly suited the criteria. I relied on personal connections and reached out to an old teaching group; one of my supervisors introduced me to TC. The second informant, HH, was introduced to me through a friend of mine who recently quit her job; she was an English teacher in Canada.

TC is a secondary school economics teacher in Hong Kong; he has previously taught in three types of schools, including private and government-funded schools. He currently works in a co-educational school, which belongs to the lowest banding in the Hong Kong school system, meaning that the school mainly accommodates students from lower SESs and students with less severe special educational needs. Schools are categorised into three bandings in Hong Kong: Band 1 schools target academically outstanding students and students from higher SES; Band 2 schools accommodate students with above-average academic standing but from slightly lower SES; and Band 3 schools are intended for students from low SES and those with special educational needs. Because of TC's unique background, having worked in all types of schools has allowed him to gain holistic insight into the particular issues that students face because of their SES. Moreover, since TC is still in touch with students from his previous workplaces, he also knows about what ERT was like in those schools; therefore, his unique insights contributed greatly to this study.

HH is a chemistry and mathematics teacher; she worked in Hong Kong for a decade before moving to Toronto, Canada, in 2018. She continued her career at an international school in Toronto. Before that, she worked in a Band 2 school in Hong Kong. Because of this background, she understands very well the benefits that students from higher SES enjoy, and she also provides some insights into the importance of access to resources by contrasting her experience in teaching students from lower SES and her current students, who are likely from the upper middle class. Both TC and HH are very passionate about teaching; they believe that being a teacher is more than just a job and that it is a mission to enlighten students throughout their careers.

During the pandemic, TC worked at a Band 3 school in Hong Kong, teaching economics at a co-educational school, and TC was still working in the same school after the pandemic. According to TC, students attending that school mainly came from lower SES backgrounds, resided in public housing estates and belonged to the low-income sector. In Hong Kong, approximately 215,700 people live in subdivided flats, approximately 86 sq. ft. In fact, in a survey conducted by the Caritas Development Project for Grassroots Organisations in May 2020, approximately 55% of the surveyed parents mentioned that light insufficiency and inadequate internet connection negatively impacted students' learning and motivation to learn. According to TC, 50% of his students have special learning needs, such as attention deficit hyperactivity disorder (ADHD) and dyslexia. However, owing to limited resources at school, not all of them are given an individual learning profile. Therefore, their already lagging-behind progress further worsened during ERT. Two students with TC suffered from ADHD, and two students were diagnosed with depression in TC's class during ERT. Two weeks after the education bureau announced school suspension, TC's school launched Zoom teaching. Both

teachers and students were unprepared for the situation; most teachers were not familiar with Zoom, and most students relied on their smartphones to attend Zoom classes, as they did not own other digital learning devices such as laptops or iPads. Students with ADHD had the most difficult time catching up in class; often, they were not able to follow through with the instructions. The student with dyslexia received minimal support from the language teachers, but in TC's class, he specifically mentioned that 'without body language, it was almost impossible to tell if the student was catching on'. The Education Bureau did not give specific instructions at the beginning of ERT, and schools had the autonomy to decide the ways in which the lessons were delivered.

HH was teaching chemistry at an international school in Toronto during the pandemic, and she is still working in this school after the pandemic. It is a private elite institution with substantial tuition fees, and her students are mainly from the upper class. According to HH, two students in her class were diagnosed with ADHD, and one student was dyslexic. Before the pandemic, each of them had a team consisting of specialists and linguists to follow up on their learning progress. However, those private sessions were disrupted during ERT, as it was nearly impossible to recreate a similar environment online. As for her other students, they mostly rely on private tutors to help them catch up at school, but HH also felt that her students were under lots of stress and that their decreased emotional management skills concerned HH. As HH recalled, the transition to ERT occurred quickly once in-person classes were suspended. However, many international students face technological challenges in having access to stable internet; some of them are affected by travel restrictions, which cause significant financial strain on their schools, as it negatively affects enrolment rates.

As for myself, I stopped teaching by the end of 2021, but I am close with the students I taught before; they are now in tertiary education, and some of them are working in Hong Kong. However, they do share with me their feelings and troubles throughout these years and seek advice from me. Therefore, the way I know these students might be from something other than a formal teaching environment, but I am still in direct contact with many of them and, therefore, could observe their changes after experiencing ERT. During the pandemic, I remotely taught two classes: one STEM class to Form 4 students at a Band 2 school and one English writing class to Form 4 students at a semiprivate Band 1 school. The STEM department was relatively new at that school; they initially hired me to help expand the department and to write up some courses for students. Because of ERT, I also developed and designed several courses that are specifically suitable for online teaching and explored different digital tools and platforms, such as Kahoot, Padlet, Zoom and Google Classrooms.

The difficulty for me was that I was the youngest STEM teacher in the department, and I was the only one without a permanent contract, which made it slightly more difficult for me to convince the other veteran teachers to try my methods and ideas. In the beginning, they believed that the pandemic would be over soon, and no one was expecting it to be something that lasted for two academic years. Another challenge is that the school had only started using flipped classrooms, and most teachers were slightly reluctant to digitise in the classroom. Compared with the Band 1 schools, most teachers are already familiar with blended learning, and most importantly, their teaching materials are mostly digitised; the use of PowerPoint and multimedia is very common even in traditional classrooms, so ERT is relatively less chaotic for them. Moreover, only 50% of the students in the STEM class had a proper learning desk and electronic devices to learn properly, and the other half relied on their smartphones and often kept their cameras off and were quite detached in class. The class at the Band 1 school was very different; most of them had proper electronic devices and an area that allowed them to attend lessons without being disturbed. When ERT first started, I remember feeling conflicted and stunned by how vividly and cruelly it was that students' SES backgrounds directly impact the quality of learning they receive.

Applying the PDSV framework in thematic and narrative analysis

In this study, the theoretical framework of PDSV provided a critical lens through which the data were analysed using thematic and narrative analysis. Thematic analysis was employed to identify recurring patterns in teachers' and students' experiences of digital exclusion and inequities during ERT, with PDSV serving as the conceptual anchor for interpreting these themes. For example, codes related to technological barriers, lack of institutional support, and student disengagement were examined not just as isolated challenges but as manifestations of structural violence exacerbated by the pandemic. Narrative analysis complemented this by capturing the lived experiences of students and teachers, illustrating how PDSV shaped their educational trajectories. By analysing personal stories through the lens of PDSV, the study moved beyond individual struggles to highlight the systemic forces perpetuating digital inequities. This approach ensured that the theoretical framework was not merely a backdrop but an active tool in dissecting how digital inequalities unfolded during the pandemic and continue to impact students today.

FINDINGS

Class participation restricted by resources at home

The data reveal stark disparities in students' ability to participate in online learning, shaped largely by their socioeconomic status and access to resources. TC, a secondary school economics teacher in Hong Kong, vividly describes the challenges faced by students from lower SES backgrounds:

> There was zero classroom management when online teaching first started. My students are from lower SES, and you can't expect much from them. There are minimal things they can do. We're talking about students who are trying to learn with a phone and probably squatting on the corner of the bed or something. It was difficult for them, and our school did help those without a stable network or a device. We provided those students with an internet access data card and handed out some old laptops in the school, but it was only at the third wave; the school did not react fast enough. Imagine how frustrating it must have been for my students; you can even see it in how passive they seemed in the lesson.

This account highlights how limited access to proper devices and inadequate learning environments—such as cramped subdivided flats—severely hindered students' participation. By ‘the third wave’ (late August 2020 to early 2021), the school provided internet access data cards and old laptops, but this delayed response left many students struggling during critical months. TC's observation that students were often ‘lying in bed and unwilling to turn on their cameras’ underscores the emotional toll of these conditions, as students felt ashamed of their living situations.

In contrast, HH, a teacher at an international school in Hong Kong catering to higher SES families, describes a different set of challenges. While HH's students had access to personal devices, they faced issues such as restricted access to Google in mainland China and unstable internet connections in regions like India and Turkey. However, the school's resourcefulness—switching platforms, offering recorded lessons, and providing small-group catch-up sessions—allowed these students to minimise disruptions. As HH noted: ‘We simply switched platforms, replicated the same thing on Zoom, and it was all good afterwards.’ This disparity in resource availability highlights a critical dimension of what we term

'pandemic digital structural violence' (PDSV): systemic inequities that disproportionately disadvantage students from lower SES backgrounds. While higher SES students could rely on private tutors and family support to supplement their learning, TC's students depended entirely on school-provided resources, which were often insufficient or delayed.

The data also reveal how schools' responses to ERT varied based on their resources and priorities. TC's government-funded school faced bureaucratic hurdles in reallocating funds, delaying the provision of devices to students. In contrast, HH's international school quickly expanded its IT team and provided additional support to teachers and students, albeit at significant financial cost. As HH explained: 'We sometimes got extra pay because of all the overtime we did, especially at the beginning of ERT, but soon it was not a sustainable way… so the school board decided to expand the IT team to increase support for both teachers and students.' This difference in institutional capacity underscores how structural inequities is perpetuated not only by individual SES but also by the resources and flexibility of educational institutions.

Emotional and pedagogical consequences further compound these inequities. TC's observation that some teachers 'simply muted a student when he asks a question' reflects a lack of empathy and adaptability in addressing students' challenges. This 'nonverbal violent gesture,' as I experienced in my own teaching, further alienated students already struggling with inadequate resources. In contrast, HH's school prioritised community spirit and well-being, fostering a more supportive environment despite the challenges of ERT. These findings challenge the assumption that ERT was a universally disruptive but ultimately manageable transition. Instead, they reveal how systemic inequities—rooted in SES, institutional resources, and geopolitical factors—shaped students' experiences in profoundly unequal ways.

> Students usually have their own private tutors, schooling is important, but we all are aware that most of them rely on their tutors for exam drilling; our school focuses on students' well-being and administrative aspects, such as career advice and personal statements, or arranging for internships. Our principal also cares a lot about our students' academic results. Nevertheless, knowing that they also receive external help, our school could afford other focuses, such as developing students' overall profiles and socioemotional learning.
>
> (HH)

This contrasted strongly with TC's students since they did not have the resources to afford private tuition; most relied on their teachers to learn and acquire the knowledge needed in the Hong Kong Diploma of Secondary Education Examination (HKDSE). As such, the school's focus was the delivery of subject knowledge, and ERT presented very different challenges to TC than to HH. TC's experience is similar to my teaching experience; in the STEM class I had with 20 high school students, only half had a proper work desk and proper devices, such as a headset and a camera, during the lesson. The other half was learning in the living room, and other family members kept interrupting the class with television noises since they also lacked the equipment for online courses. At first, echoes kept occurring as my students unmuted themselves; however, since it was a discussion-based class, muting my students was not a proper solution. TC also shared his observations with other teachers regarding the muting function, which he had heard about from his students:

> There are teachers who would simply mute a student when he asks a question, or for a break, instead of addressing the student properly, the teacher simply muted him and carried on with the lesson. This would not have been possible in

> an in-person classroom. That gesture shows impatience, aggression and anger; for sure, it made online learning an even worse experience for students!
>
> (TC)

This echoes my personal experience as well. I remember feeling that the mute button was a non-verbal violent gesture to silence a student. Since, in my case, it was about technical issues related to echoing and background noise, it almost felt like those students were punished because of the poorer learning environments that their homes offered.

Interestingly, these technological and technical issues are less troubling to HH. However, issues such as students' restricted access to Google and unstable internet connections in the entire region jurisdiction were also not TC's or my concerns. These examples indicate that students' participation in class during ERT is determined by their home equipment, which is directly related to their SES backgrounds. For HH's students, material resources were not the challenge they faced. However, it is noteworthy that remedial actions taken by the school also resolved other issues. As remarked by HH:

> For our Chinese students who can't log on to GoogleClass, we simply switched platforms, we replicated the same thing on Zoom, we simply switched, and it was all good afterwards. Internet issues were present in the beginning for our students in India and Turkey, so we gave them special sessions in smaller classes to help them catch up. We also recorded the lessons and uploaded them online so that they could rewatch them, and the special sessions allowed them to interact with a few of their peers and the teacher. Later, many of the students decided to enter Canada and stay there because it was easier for them. From what I know, their families are quite supportive of that too.

The solutions to these problems are related to resources from the school and the families. The abundant resources allowed these students to minimise disruption to their online lessons. Nevertheless, the solutions require many extra human resources from the school, which also signifies extra expenses from the school.

> We sometimes got extra pay because of all the overtime we did, especially at the beginning of ERT, but soon it was not a sustainable way, as it also drained our energy too much, so the school board decided to expand the IT team to increase support for both teachers and students. It was much better for everyone.(HH)

In contrast, this solution is considered a luxury, as resources are not very flexible in the schools where TC works:

> It is a government-funded school, meaning that everything you do needs to be approved by the government and the education bureau. We have some funding aside, but they are all assigned for specific purposes beforehand; at the beginning of ERT, we only had enough funding to fund 30 students for a new iPad, so we did not do it immediately; it was something the school considered, though.
>
> (TC)

The intricate issue presented here is that access to resources directly impacts students' participation in class. While students from higher and lower SES backgrounds face challenges during ERT, those with more resources are much more likely to be able to solve and overcome these challenges than those from lower SES backgrounds. PDSV undoubtedly hampers students' learning from lower SES backgrounds during ERT. The concept of

PDSV provides a framework for understanding these disparities, emphasising the structural barriers that hinder equitable access to education during crises. For policy makers and educators, these insights underscore the urgent need to address systemic inequities in digital education. This includes providing devices and internet access, fostering empathetic teaching practices, and ensuring institutional flexibility to support vulnerable students. As the data show, the long-term impacts of ERT extend beyond academic performance, affecting students' emotional well-being and motivation to learn. Addressing these challenges requires a holistic approach prioritising equity, resilience, and inclusivity in post-pandemic education systems.

Students with limited resources suffer from motivation loss

TC mainly works with less motivated students, but some occasionally demonstrate self-efficacy. The reasons are usually unclear, although, from TC's observations, they are usually related to whether students favour the subject teacher. TC is usually relatively close to his students and open to sharing personal issues. However, during the pandemic, he noticed some distance from the very same group of students who used to be quite close to him:

> Almost no students would use the hand-raise button and ask questions in class. I had to reach out to them and send them WhatsApp messages individually. After doing that consistently for a week, a few finally told me their difficulties. This was mostly related to unstable connections or eye exhaustion from staring at the phone for too long. Many of these issues are specific to these students. It is understandable but also quite unfair that they have to suffer in their learning because of poverty. Frequent disruptions in the lesson can kill the small spark of learning motivation. From what I know, a few of them resort to self-study, and they send me emails and messages on WhatsApp about content that is ahead of class progress. I don't mind that at all. However, most stopped learning and spent the day on other entertainment, such as gaming. Even if we informed their parents, little improvement was seen; they are adolescents.
>
> (TC)

The quote denotes his students' gradual motivation and learning loss: ‘The number of students with cameras on did not begin high, around half of the class. However, very soon after, around 1 week, when they realised that there were no punishments/negative consequences for those keeping their cameras off, it started becoming pretty bad for me. I felt so much like I was talking to the air, and it was one full hour in the beginning!’ TC identified several factors leading to students' motivation loss. The first was caused by technological resource constraints: unstable internet connections and eye exhaustion from looking at the phone. This is related to the limited resources that TC students have, especially at the beginning of ERT, before extra funding was granted by the government to schools to support students' purchase of devices. The second was due to a lack of structural regulations; school rules were not structurally transferred into codes of conduct complied with by students; even if the TC wanted to implement the rule to mandate that students turn on the camera, ‘it was not possible at all because it infringes their privacy, especially when they are all teenagers’. Owing to this, students were even less motivated in class and became more distant and detached from their peers and TC.

> My students are used to learning through a device; the problems I faced were more about their learning attitudes. Some relied on private tutors and did not

> pay much attention in class; the other high-achieving tutors worked harder than usual for fear of falling behind. I could observe an improvement in the quality of the assignments they sent me. Of course, there is also a group that slouches, but the situation improves significantly after talking with them and their parents. These are things that I know would not have been the same if I were still in the old school where I worked. Students here have their study room, and I see from the camera that their equipment is usually quite decent.
>
> (HH)

Several keynotes emerge when we compare and contrast HH's and TC's experiences. First, resources such as a proper home learning environment and private tutors impact students' self-efficacy. Second, parents' involvement in their children's studies seems more useful in groups from higher SES backgrounds. Third, students' fear of falling behind contributes to increased efficiency; a group of TC students started self-study, and a group of HH students worked even harder than before.

> They would send me a list of questions they have regarding an assignment or a concept, they care about every single detail of the online learning materials, and they watch every video posted almost instantly; I know because I can see the number of views and when did who viewed it.(TC)

Finally, students fall behind/slouch for different reasons, and TC students lose interest and motivation due to limited access to resources. Because the problem is not resolvable by TC alone, 'many of them only started studying again when in-person classes are resumed, during the on and off period, it was pronounced'; however, since school suspension has lasted for approximately 1.5 academic years in Hong Kong, this means that TC's students have lost 1.5 years of learning and knowledge, and the effects are long term. In contrast, HH's students lost interest because of boredom, which was related to teaching quality, as analysed by HH:

> I was not familiar with online teaching. We caught up with Padlet and Kahoot in a month, but in that month, I could see that my students were bored and seemed uninterested. Later, it improved a lot because I started incorporating phone games. The school also purchased Loilonote, which allows for more engagement. Some stopped paying attention in class because they relied too much on their private tutors.

Nevertheless, after HH discussed the issue with her department, she devised a strategy:

> We started giving random quizzes on the content not found in their textbooks, but that was only covered in class. Sometimes, they were a bit out of the syllabus, but it still helped them learn better. It worked very well; later on, when we started putting recorded lessons on the platform, the view rates also went up a lot because students revisit the lessons from time to time so they can pass the quizzes.

When I asked TC if the school developed strategies to help students stay on track, he remarked:

> We decided to count students as 0.5 absent if their cameras are off for the entire day, so at least they have to turn it on at some point to avoid that penalty. I find that the effects are quite limited. Three students in my class had a total of 250 or 280, absent remarks that year, but the school did not follow up on that either. Because in our school, resources are minimal, and you must be able to justify it if you let your students repeat a year. Those students did not have to repeat because the opportunity went to the one who had a total of 320 absence remarks. I think it's more beneficial if they repeat a year, but that's not how things work.

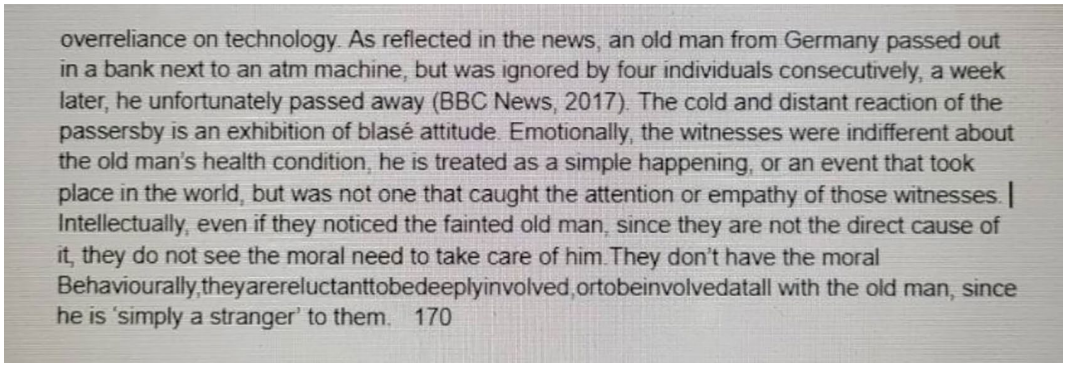
Although learning motivation and self-learning skills depend on students, we see here that they depend on students' circumstances. The school and the teacher might be responsible for guaranteeing the quality of delivery, but the receiving ends are a direct outcome of the resources a student has access to. Second, students' motivation can decrease because of the detrimental circumstances in which they are placed; their SES background, for example, is something they and their parents do not choose.

Post-ERT: The issue of mind-wandering lingers until now

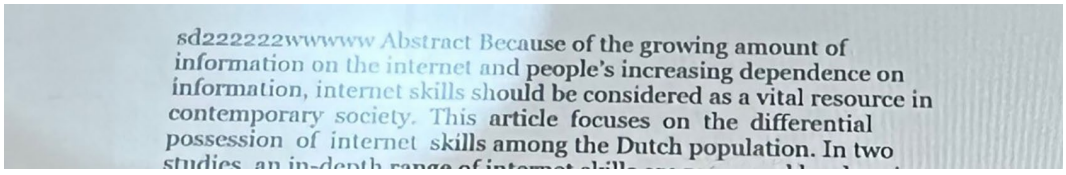
> Students' attention span is much shorter online; all teachers agreed it in my school, and in a month, we adjusted the 40-min lesson by adding a 5-min break. It was so much preparation for me at first as I had to come up with ideas and classroom activities that took less time but enough for me to teach a concept. I relied on videos and Instagram reels I made. However, I didn't expect the effects to linger until now; I see it in my students: their attention span does not last for the whole lesson in person. For this reason, I still rely on videos in class to catch their attention.
>
> (TC)

> My students became more easily distracted and seemed to have difficulty focusing on one task. Even in their writing, their arguments have become more jumpy and somewhat disorganised; it shows that they have trouble staying on a train of thought, or perhaps the problem was that they no longer know how to judge whether something is fully elaborated. I think it is not too problematic usually with guiding questions; their ideas become more solid and connected, but it is a more serious problem than before.
>
> (HH)

Although I am no longer a teacher after the pandemic, I stay in touch with my past students, and two of them, who are currently at universities, reached out to seek help with their assignments. One is studying sociology, and the other is studying business management. I also made observations similar to those of HH's in these students' writing. These two students were from the Band 1 school before, and I remember them in particular because they were also on the debate team, and their logic links have always been outstanding. However, in the recent assignments they sent me, I see that their writing worsened quite a lot. After their consent, they agreed to let me give examples of their writing in this article.


overreliance on technology. As reflected in the news, an old man from Germany passed out in a bank next to an atm machine, but was ignored by four individuals consecutively, a week later, he unfortunately passed away (BBC News, 2017). The cold and distant reaction of the passersby is an exhibition of blasé attitude. Emotionally, the witnesses were indifferent about the old man's health condition, he is treated as a simple happening, or an event that took place in the world, but was not one that caught the attention or empathy of those witnesses. Intellectually, even if they noticed the fainted old man, since they are not the direct cause of it, they do not see the moral need to take care of him.They don't have the moral Behaviourally,theyarereluctanttobedeeplyinvolved,ortobeinvolvedatall with the old man, since he is 'simply a stranger' to them. 170

SAMPLE 1


sd222222wwwww Abstract Because of the growing amount of information on the internet and people's increasing dependence on information, internet skills should be considered as a vital resource in contemporary society. This article focuses on the differential possession of internet skills among the Dutch population. In two studies, an in-depth range of internet skills

SAMPLE 2

Sample 1 is a writing piece on the blasé attitude, which describes the state of remaining unimpressed or indifferent to something. The student attempted to discuss the idea by linking it to over-reliance on technology, but her example and elaboration became irrelevant to the initial concept. When I asked her to elaborate on the idea, she explained that she thought it was clear that people were on their phones. The image she had in mind was that everyone was busy with their phones, but in her writing, she failed to mention it, went off-track, and started discussing a lack of moral needs. When I discussed this case with HH, she also confirmed that it is similar to what she observed in her students' writing:

> They assume people know what they mean; they make an assumption and don't see the need to explain what they meant by a certain word; maybe it's because they rely on memes too much. This may be because they communicated worse after the long social isolation period. I am unsure, but we cannot deny that the problem exists.
>
> (HH)

Sample 2 is from the business management student; the assignment required them to discuss the importance of e-commerce in the Netherlands. The logic links could be more robust in the sample, especially in the first sentence. The student explained that she described the difficulties of business owners with low digital literacy. The leap in logic and inability to focus on fully elaborating an idea was previously absent in their work. Perhaps I could not accurately reason why such deterioration is observed in both my and HH's students. However, it is safe to say that the decline affects some of our students, some of whom are currently at universities.

Concerning the attention issue TC observed, HH also mentioned that students became more easily distracted. TC and HH observed that students become exhausted and bored faster than before. As observed by HH:

> I always look at when my student takes the first yawn. Before the pandemic, I would say, on average, perhaps midway through the lesson. After school resumed, I almost did not remember when the students were not yawning. I had to put on music or incorporate multimedia such as videos or pictures and increase the interactive classroom activities to keep my students 'alive'.

The issue at hand is that students' attention spans seem to have decreased, the possibility for them to stay focused on one thing for a specific time has decreased, and the attention window has decreased, and it is still observable in classrooms today. Although HH, TC and my students are from various SES sectors, they all seem to have an observed drop in attention span. However, the key difference lies in the effects on their academic performance.

> The other subjects that require reciting and revision, such as geography and business, perform fine. However, there has been a dip in academic performance in subjects requiring critical thinking, such as history and psychology, especially in the first semester they were back. After the first internal exam, students became more aware of their progress, and many worked extra hard; the improvements were reflected in the following school tests.
>
> (HH)

TC's observations contrast strongly with HH's observations. TC distinguished a significant point after the pandemic in late 2022 and early 2023 when schools finally resumed:

> Depending on which period, if it is right after the pandemic, it was quite bad. Students' academic results decreased substantially. None of them made it to universities that year. Students in junior years also performed much worse than before; we were using primary school materials for some of our classes. When schools returned to full-day face-to-face classes in late 2022, we entered another type of chaos. Most of us were shocked. First, it doesn't feel like you're teaching 16- and 17-year-old teens; it feels exactly like 13- and 14-year-old kids as if time during the pandemic froze them from maturing; and the 13- and 14-year-old ones felt like 9- and 10-year-old kids to you. I am not exaggerating. I had to spend half a lesson teaching a class of 15-year-olds how to write their names and dates on a worksheet. It's true!
>
> (TC)

The apparent difference between HH's and TC's students is that although both groups showed decreased academic performance, TC's students exhibited a more significant learning gap in academic knowledge and general life skills. Research has confirmed that a lack of in-person schooling harms neurodevelopment and learning outcomes, especially for students from low-SES households (George et al., 2024). Although students with higher and lower SES also suffer from shorter attention spans and increased distractibility in class, TC's students' problems seem more profound. TC also mentioned that his students had difficulty completing assignments because they failed to understand instructions:

> I asked them to work in groups to develop a real-life example to apply the demand and supply model. It is a standard assignment piece that I give students every year. However, from 2022 to 2023, my Form 4 students wrote an essay, and some of them worked only on the 'supply' side and explained that they could not find groupmates to work on the 'demand' side. It's preposterous and

> ridiculous; first, it's not how the model works, and second, it is nothing similar to my demonstration or instructions! However, I accept it now; they did lose 2 years of learning, and these Form 4 students were only 12 and 13 years old when COVID-19 started.
>
> (TC)

Learning loss is evident in both TC's and HH's students, and there is no doubt that the issues of short attention spans and distractibility still occur in our classrooms today, affecting local schools, international schools, and even higher education. This finding is significant not only because it reveals this phenomenon but also because changes and follow-up actions are to be taken by teachers and educators in different sectors. More importantly, if we examine TC's and HH's students, we can see that their decreased academic performance further weakens their opportunities for the future. As the TC predicted, 'At this rate, I dare say 90% of them won't make it to university'. The unfairness lies in the fact that students from lower SESs suffer more under this structure; they suffer severely more under the same global pandemic that affects the entire world. However, their limited access to resources makes their academic learning losses more significant.

Negative emotional transactions in ERT classrooms and today's decline in emotional literacy

The unpreparedness of schools and teachers during ERT led to significant challenges in maintaining fair and effective assessment practices. Traditional methods, such as sit-in exams and weekly quizzes, became difficult to implement, forcing teachers to adapt hastily. As TC, a secondary school teacher in Hong Kong, explained:

> Assessments have completely changed; I used to rank my students based on their grades to identify those who need extra help. However, they are used mainly for administrative purposes during the pandemic, to see if students are present, on time, or paying attention. The school required us to do pop quizzes to ensure the students were there. I tried to do something more intellectual, but since each session is only 20 minutes, it is impractical. I tried handing out assignments, but they were not even bothered. I stopped insisting; there's no point in that anymore. [*taking a long sigh*] Well, I know my students well. If I force them, they will have other students write their work for them, or they might use ChatGPT, anything to avoid work.
>
> (TC)

TC's frustration reflects the challenges of maintaining academic rigour and fairness during ERT. He felt that the situation was beyond his control, as administrative demands clashed with the realities of remote teaching. His attempts to engage students often led to disappointment, as many resorted to dishonesty or disengagement. This sense of helplessness was compounded by personal grief during the pandemic, as TC recalled:

> I remember the week that my uncle passed away from COVID-19; I could not take it anymore. That week, I always yelled at them for not paying attention or showing enough care for the lessons. I think only five students came to my class on the worst day that week. I guess everything plays a part.
>
> (TC)

This emotional toll on teachers like TC had a ripple effect on students. Research shows that teachers' emotional states significantly influence classroom dynamics and student motivation (Pekrun, 2006). When teachers exhibit frustration or anger, these emotions can transfer to students, creating a negative feedback loop that undermines engagement and learning. TC acknowledged this impact:

> Some students in my Form 5 class last year were also in the class I taught during the pandemic. One of them joked about me becoming angry easily, and that was the moment I realised what I did that week might have hurt some students' feelings. I don't regret it, though; what's done is done. I don't want them to feel like they can't tell me the truth or cannot speak to me. (TC)

In contrast, HH, a teacher at an international school in Canada, adopted a more proactive and empathetic approach. Faced with students who relied heavily on private tutors and sometimes displayed disrespectful behaviour, HH devised creative strategies to maintain a positive classroom environment:

> I organised '10-minute teaching time from students' and let them volunteer to be the teacher for 10 minutes, and the others had to ask as many questions to them as possible. I find it useful, and it was fun for the class as well.
>
> (HH)

HH's ability to adapt and foster a sense of community, even during ERT, highlights the importance of teacher resilience and emotional intelligence in mitigating the challenges of remote teaching. Her school's focus on well-being and support systems further enabled her to maintain strong relationships with students:

> We provide all sorts of support we can, from visa arrangements and applications to tuition fee reductions, searching for accommodations for international students for quarantine, etc. Anything to help support them, we are ready to help out our students in different aspects.

However, for TC, the lack of institutional support and the socioeconomic challenges faced by his students made such strategies untenable. Many of his students came from families struggling with unemployment and financial instability, leaving them with little support at home. As TC noted:

> Those parents have better things to worry about. Many of them lost jobs during the pandemic. I know a student whose mother worked as a shop assistant in a tourism gift shop, and the father was a security guard at a motel; during the pandemic, they both became unemployed because the economy took a hit. My point is, often, the students I have are from families with financial problems when they are already troubled by life, plus they don't have the knowledge to discipline their children; of course, they rely 100% on the school, and most of the time they expect teachers to force their kids to attend school, they don't understand it is their responsibility as well.

This disparity in resources and support systems underscores the concept of PDSV, which disproportionately affected students from lower socioeconomic backgrounds. The emotional and academic toll of ERT extended beyond the pandemic, as both TC and HH observed a

decline in students' socioemotional skills and mental health. TC recounted several troubling cases:

> Just the beginning of the academic year 2022–2023, there were two students who attempted suicide. They did not talk about the cause directly, but one of them was hospitalised afterwards for severe depression. As I know, the other student was worried about his future and felt hopeless, as his family was in financial trouble and counted on him to help. He was stressed out, which affected his grades negatively, so he started worrying about his chances at university.

Similarly, HH noted changes in her students' social behaviours:

> Peer-to-peer communication seems to become slightly problematic. They seem more reluctant to bond with their classmates, and in group projects, more students approach me in private, saying that they cannot find other groupmates or express that they prefer writing an essay by themselves.

These observations align with research highlighting the pandemic's impact on students' mental health and socioemotional development (Durlak et al., 2011; OECD, 2015). The prolonged isolation and lack of meaningful social interactions during ERT exacerbated feelings of anxiety, depression and disconnection, particularly among students already facing socioeconomic challenges. The decline in emotional literacy and the rise in mental health issues among students like TC's highlight the long-term consequences of PDSV. While HH's students benefited from a supportive school environment and family resources, TC's students faced compounded challenges that hindered their academic and emotional recovery. This inequity underscores the urgent need for systemic interventions to address the lingering effects of ERT, particularly for vulnerable populations.

DISCUSSION

This research explored the impacts of ERT on students through case studies, comparing students from high and low SES groups. The qualitative data reveals the differential effects of ERT, highlighting the urgent need to address the unfairness of 'pandemic digital structural violence' (PDSV). However, it is important to note that these findings are based on limited case studies, and while they provide valuable insights, they may not be fully representative of the broader student population. The generalisability of these results is constrained by the scope and context of the selected cases.

This research reveals four key findings that underscore the pervasive impact of PDSV on students' educational experiences: (1) class participation is constrained by limited access to resources at home; (2) students with fewer resources suffer from significant motivation loss; (3) the issue of mind wandering persists even post-pandemic; and (4) negative emotional transactions and a decline in emotional literacy are evident in classrooms. These findings highlight how the quality of education students receive is intrinsically tied to the resources their families can afford, particularly during ERT. This linkage exposes a systemic inequity where educational outcomes are disproportionately determined by socioeconomic status, perpetuating cycles of disadvantage.

Beyond the digital divide: Understanding structural violence in ERT

The COVID-19 pandemic has exposed and exacerbated pre-existing educational inequities, with the digital divide emerging as a central concern. Scholars such as Van Lancker and Parolin (2020), Pietro Giorgio et al. (2020), and Andrew et al. (2020) have documented how unequal access to technology disproportionately affected low-income students during school closures. Bacher-Hicks et al. (2021) further highlighted how socioeconomic disparities influenced access to critical resources like internet connectivity, devices and parental support. While these studies provide valuable insights into the quantifiable impacts of the digital divide, they often fail to capture the lived experiences of students and teachers during ERT. This study addresses this gap by centring the narratives of teachers, who observed firsthand the multifaceted challenges students faced during ERT. These observations reveal that the issues extend beyond the digital divide to encompass PDSV, a systemic phenomenon rooted in structural inequities that were amplified during the pandemic.

The digital divide, while significant, is only one dimension of the broader issue of PDSV. PDSV encompasses not only disparities in access to technology but also the structural barriers that prevent marginalised students from fully participating in their education. These barriers include limited access to conducive learning environments, inadequate parental support, and the emotional and psychological toll of navigating an inequitable system. By framing these issues as PDSV, this study highlights the need for a systemic approach to addressing educational inequities, one that goes beyond temporary solutions like financial aid to address the root causes of structural violence. Researchers have discussed the negative effects of the digital divide and its impacts on students' learning. Van Lancker and Parolin (2020) highlighted how the digital divide differentially impacts low-income students during a pandemic. Pietro Giorgio et al. (2020) wrote a reflective account of how the digital divide affects access to quality education during school closures. Andrew et al. (2020) examined the unequal distribution of learning resources such as technology and its impact on students' learning outcomes. The issue examined here is similar to the findings of previous researchers: access to technology has caused students to face significant challenges in remote learning, the digital divide has differentially impacted low-income students, and the educational disparities caused during the pandemic have led to potential long-term socioeconomic effects. Bacher-Hicks et al. (2021) analysed how socioeconomic disparities influence students' access to resources such as internet connectivity, parental support and devices during remote learning. The role of the digital divide during the pandemic has been discussed profoundly in an array of research, especially those that focus on educational outcomes during the pandemic. However, since other studies are quantitative, they allow us to explore the correlations among students' resources, learning outcomes and SES. However, it does not provide a narrative account on the basis of teachers' observations.

Unlike those studies, this study explores the observation and experiences of teachers in watching the gradual drop in class participation, the struggles they face in trying to increase students' class participation and helplessness, especially during ERT, which is before any educational policies or social resources are given to particular groups of students. The finding here concerns not only the negative effects of limited resources but also the restrictions that students face because of limited resources. Even if they want to take part fully in class, they are not able to do so. The fundamental structural problem embedded in the socioeconomic system, amplified by the ERT pandemic, is explored. The unfairness lies in the deprivation of students' participation and their learning opportunities, which highlights the very presence of pandemic digital structural violence. PDSV must be addressed because it is not only about the digital divide but also the outcome of PDSV, and the core issue at hand is PDSV. As long as we do not address the problem correctly, alleviation attempts will only cease at financial and resource aid. This research demonstrates that students affected

by PDSV suffer more than those affected by learning loss, and the issues are intricate in nature; it is not to be 'fixed' simply by financial aid.

The role of teachers in mitigating motivation loss

Educators and researchers have long discussed the importance of learners' motivation, as it directly impacts their learning outcomes; however, it is also known that motivation is not purely intrinsic; instead, teachers often play a significant role in students' motivation. Skinner and Belmont (1993) demonstrated that students' engagement and motivation are related to teacher involvement, structure and autonomy support; the effects are reciprocal. Wentzel (1997) explored student motivation in middle school and revealed that students' perceptions of teacher care positively correlate with their academic motivation. Patrick et al. (2003) investigated how teachers' classroom management styles and relational strategies affect students' motivation to engage in challenging tasks. Hattie's (2008) meta-analyses related to achievement also included the impact of teacher clarity, feedback and expectations on student motivation and achievement. Teachers' behaviours, attitudes and teaching styles undoubtedly play a significant role in shaping students' learning motivation; however, ERT is a teaching and learning environment involving unprepared individuals. Teaching pedagogies and classroom management styles are disrupted during ERT, and students whose schools have not relied on online learning before ERT are almost always destined to suffer from an environment that decreases their motivation. Pokhrel and Chhetri (2021) conducted a literature review on the impact of the pandemic on teaching and learning; their research revealed that ERT necessitated the development of students' self-regulated and independent learning skills. Similar findings are revealed in Bozkurt and Sharma's (2020) research; Pelikan et al. (2021) examined self-regulated learning during the pandemic and revealed its positive correlation with student competence in online learning.

Teachers observed that students from low-income families faced significant barriers to class participation during ERT. These barriers were not merely about access to technology but also about the structural constraints that prevented students from fully engaging in their education. For example, even when students were motivated to participate, they were often unable to do so due to a lack of conducive learning environments, parental support or reliable internet access. This deprivation of opportunities for meaningful participation underscores the systemic nature of PDSV, which goes beyond the digital divide to encompass the structural violence embedded in the socioeconomic system. The findings of this study align with previous research on the digital divide but extend the discourse by highlighting the systemic nature of the barriers faced by students. For instance, while Van Lancker and Parolin (2020) and Andrew et al. (2020) documented the differential impacts of the digital divide on low-income students, this study reveals that the challenges go beyond access to technology to include the cumulative effects of limited resources, motivation loss and inadequate teacher support. These findings underscore the need for a more nuanced understanding of the barriers to educational equity and the importance of addressing the root causes of structural violence.

During ERT, students are held accountable for staying motivated in lessons which is equivalent to expecting them to demonstrate high independent learning skills. This research challenges this assumption and sheds light on students already suffering from limited resources. Not only do circumstances restrict their class participation, but cultivating independent learning skills is also much more challenging for them, especially when they already suffer from motivation loss. In their research, Tadesse and Muluye (2020) revealed students' challenges in developing independent learning skills in low-resource settings. They noted that independent learning challenges for these students are due to the digital divide, which has widened

educational inequalities, and the inadequacy of technological infrastructure during ERT. In other words, the motivation loss faced by students from lower SES backgrounds is another unfortunate outcome of their circumstances. Rather than blaming students themselves for not being able to acquire higher independent learning skills, we should examine their circumstances and address the unfairness they face under the system. The structural violence during this period must be addressed clearly as PDSV, since it is the violence that was amplified during the pandemic and ERT. PDSV is not the same as 'inequalities' or the 'digital divide' and addresses the core issue of this unfairness rather than describing the problems that students face during ERT. The findings of this study challenge the assumption that students are solely responsible for their motivation and highlight the need for systemic support to address the structural barriers that hinder student engagement. For example, while Pokhrel and Chhetri (2021) and Bozkurt and Sharma (2020) emphasised the importance of self-regulated learning during ERT, this study reveals that students from low-income families faced significant challenges in developing these skills due to their circumstances. These findings underscore the need for targeted interventions to support students from marginalised backgrounds and address the systemic inequities that hinder their educational success.

Mind-wandering in ERT: Differential impacts across student groups

Mind wandering was observed across all student groups, but its manifestations varied significantly based on SES. Students from high-income families struggled with academic writing and logical coherence, while those from low-income families faced challenges in understanding and operationalising instructions. This disparity highlights the differential impacts of PDSV, as students from low-income families were not only disadvantaged by their lack of resources but also by the cumulative effects of motivation loss and limited teacher support. The findings of this study align with previous research on learning loss during the pandemic (Engzell et al., 2021; Kuhfeld et al., 2020; OECD, 2020) but extend the discourse by highlighting the qualitative differences in how students from different socioeconomic backgrounds experienced learning loss. For example, while previous studies focused on quantifiable measures like grades and test scores, this study reveals that learning loss also manifests in students' ability to understand instructions, stay focused, and produce quality work. These findings underscore the need for a more holistic approach to addressing learning loss and the importance of considering the diverse challenges faced by students from different backgrounds.

Kuhfeld et al. (2020) highlighted that school closures exacerbated learning gaps, particularly for students from lower SES backgrounds. Engzell et al. (2021) reported that students from lower SES backgrounds experienced more significant learning losses due to limited access to remote learning tools. The OECD (2020) also confirmed that socioeconomic disparities intensified learning losses and that students from families with lower SES faced more significant challenges stemming from inequitable access to quality education during the pandemic. Learning loss is greater in students from low-SES families, and the findings of this research parallel this finding. Students from higher SES families have better resources, ranging from access to technology and a conducive home learning environment to parental support. In contrast, students from lower SES families struggle to obtain similar support. Previous research relies on quantifiable academic performance, such as grades and scores, to conclude that learning losses are more significant in students from lower SES backgrounds. However, this research focuses on the qualitative differences observed by teachers, particularly in their ability to understand instructions, stay focused on a given task, or be as delicate as students' ability to stay on track of an idea and give a full elaboration in their writing.

According to the findings, students from high- and low-SES backgrounds both show setbacks in concentration, and the issue of mind wandering is observable in both groups of students. However, they manifest in very different ways. Students from higher SES families have more problems in their writing; their ability to communicate academically and produce formal speeches and writing pieces has dropped, and logic links seem to be an area with which these students struggle. Students from lower SES families struggle with understanding and receiving instructions; the discrepancy between the given instructions and the ability to grasp accurately the keys to effectively operationalise them seems to be the area they struggle with the most. One key difference between these two groups of students is motivation loss, which is more serious and evident for students with lower SES, whereas the issues faced by students with higher SES are resolvable by the support given to them by the school and afforded by their families. Regarding motivation loss, it is also important to mention that teachers of students with more resources can incorporate classroom activities that focus on interactivity and student engagement, two elements that are essential to effective online teaching (Hodges et al., 2020). While the other group of students struggled to participate fully in class during ERT, the teachers of these students struggled with gaining students' participation, involvement, and engagement in the lesson. In a learning environment, not only is the classroom emotional climate primarily negative, but since engagement and motivation are reciprocal to teacher involvement, structure and autonomy support (Skinner & Belmont, 1993), they also worsen the vicious cycle mentioned in Figure 1, where teachers lack effective communication with their students, leading to underperformance and even more motivation loss. This shows that a lack of effective communication between teachers and students can cause students' deterioration in understanding, grasping and operationalising instructions by teachers.

In other words, the period during ERT signifies learning loss not only from academic outcomes but also from the lack of effective communication, which also means a lack of practice for students in operationalising teachers' instructions and producing quality work accordingly starting from the pandemic. This research reveals that learning loss manifests in many forms and that mind wandering is significant, as seen in all the students. However, students with lower SES are affected by ERT differently, and the unfair outcome has once more pointed to the importance of addressing PDSV. Students from the lower SES group are negatively and more severely affected because of the circumstances of their family's socioeconomic status; this is not something that they choose, and the outcome is more than an educational inequity. This inequity has always existed, but during ERT, it intensifies, and the effects are more long term and are based on the deprivation of students' quality of learning. This type of structural violence must be addressed rather than simply equating to an outcome of the digital divide.

Negative emotional climate and its impact on emotional literacy in (post-)ERT classrooms

Many scholars have researched emotional transactions between teachers and students during ERT and reported that isolation and disconnection have contributed to feelings of loneliness and a diminished sense of belonging in many students (Greenhow et al., 2020; Karalis, 2020; Peimani & Kamalipour, 2021; Pietro Giorgio et al., 2020). The emotional toll of ERT was profound, with teachers and students alike experiencing feelings of isolation, anxiety and disconnection. For students from low-income families, the negative emotional climate was compounded by the lack of resources and support, leading to a decline in emotional literacy. This decline has long-term implications, as emotional literacy is critical

for socioemotional development and academic success (Allen et al., 2013; Eccles & Roeser, 2011).

The findings of this study align with previous research on the emotional impacts of the pandemic (Bond, 2021; Greenhow et al., 2020; Peimani & Kamalipour, 2021) but extend the discourse by highlighting the differential impacts of PDSV on students from low-income families. For example, while all students experienced negative emotional transactions during ERT, students from low-income families were more severely affected due to their circumstances. These findings underscore the need for trauma-informed practices to address the emotional and psychological impacts of the pandemic on students and the importance of creating supportive learning environments that promote emotional well-being. The impact is profound and extends beyond motivation loss in students; teachers have also been found to experience emotional fatigue due to stress and anxiety, which often translates into a strained classroom atmosphere (Bond, 2021; MacIntyre et al., 2020; Pokhrel & Chhetri, 2021). Students learning in such an environment tend to show increased levels of anxiety, depression and behavioural issues (Allen et al., 2013; Hamre & Pianta, 2005; Wang & Degol, 2015); researchers have noted that toxic and negative school climates lead not only to decreased motivation and engagement but also to socioemotional consequences and even long-term effects, such as higher dropout rates (Reyes et al., 2012; Roeser et al., 2000; Thapa et al., 2013). In particular, Allen et al. (2013) demonstrated that negative teacher-student interactions are correlated with lower academic outcomes and decreased emotional engagement. Eccles and Roeser (2011) also highlighted how negative learning environments lead to poor emotional well-being among adolescents.

The findings of this study align with previous research on the emotional impacts of the pandemic (Bond, 2021; Greenhow et al., 2020; Peimani & Kamalipour, 2021) but extend the discourse by highlighting the differential impacts of PDSV on students from low-income families. For example, while all students experienced negative emotional transactions during ERT, students from low-income families were more severely affected due to their circumstances. These findings underscore the need for trauma-informed practices to address the emotional and psychological impacts of the pandemic on students and the importance of creating supportive learning environments that promote emotional well-being. The impact is profound and extends beyond motivation loss in students; teachers have also been found to experience emotional fatigue due to stress and anxiety, which often translates into a strained classroom atmosphere (Bond, 2021; MacIntyre et al., 2020; Pokhrel & Chhetri, 2021). Students learning in such an environment tend to show increased levels of anxiety, depression and behavioural issues (Allen et al., 2013; Hamre & Pianta, 2005; Wang & Degol, 2015); researchers have noted that toxic and negative school climates lead not only to decreased motivation and engagement but also to socioemotional consequences and even long-term effects, such as higher dropout rates (Reyes et al., 2012; Roeser et al., 2000; Thapa et al., 2013). In particular, Allen et al. (2013) demonstrated that negative teacher-student interactions are correlated with lower academic outcomes and decreased emotional engagement. Eccles and Roeser (2011) also highlighted how negative learning environments lead to poor emotional well-being among adolescents.

This research's findings also echo previous scholars' works; in both TC and HH students, symptoms of disengagement and detachment, isolation and loneliness are traceable. The interesting point lies in TC's students, where depression rates and bullying increased immediately after the pandemic. Espelage and Swearer (2010) demonstrated that negative emotional climates in classrooms, such as a lack of empathy and support, foster bullying behaviours. In TC's recount, he also experienced being unempathetic towards his students. During ERT, he also felt relatively powerless, as ‘not much can be done to increase students' participation’. In the research conducted by Gendron et al. (2011), we know that negative classroom climates contribute to bullying, promoting hostility and reducing accountability.

Rucinski et al. (2018) reported that a decrease in prosocial behaviours increases the likelihood of student aggression and bullying. Weyns et al. (2017) reported that negative classroom management and a lack of teacher support exacerbate classroom bullying dynamics. The issue here, therefore, signals the possibility that the deprivation of social interactions during the pandemic and the limited class participation of students during ERT caused a reduction in pro-social behaviours, thereby leading to more violence and aggression, hence increasing the number of cases of cyberbullying among TC students. The negative impact on emotional literacy is more severe among students from lower SES backgrounds, as for students from higher SES backgrounds, the signs of distress are much more subtle. The lower SES group suffered more profoundly due to educational inequities in terms of the quality of education and limited learning resources. ERT differentially affects these students, and unfairness stems from the social structure, which leads to the deprivation of positive learning environments for particular groups of students. This inequality intensified during ERT when the pandemic started, and the core problem is PDSV. The significance of addressing the presence of PDSV lies in the fact that negative consequences resulting from PDSV are still roaming in today's classrooms, in both high schoolers and even university attendees. The trauma to and negative consequences for their socioemotional learning must not be ignored. The pandemic has created a generation of traumatised students but underneath it, some students are more severely affected in more profound ways. This research demonstrates that students with lower SES tend to suffer more, and PDSV is the core issue. If we neglect this or equate it to educational inequities, the unfairness done to those students will never be treated with proper remedies. The fundamental matter is that the students affected negatively by ERT have been forced to move on and are forgotten; their life phase must have moved on, but the negative impacts on them still linger. The impacts are not just on academic performance but also on socioemotional skills. This generation of teenagers and young adults will soon become the core pillars in societies; if we do not address PDSV, many of them will not even be aware that they have been suppressed and that such unfair experiences have to be healed. The impact on our societies and jurisdictions is vast and profound.

Theoretical implications: PDSV as a framework for understanding inequities

PDSV offers a framework for understanding the systemic inequities exacerbated by the pandemic. Unlike the digital divide, which focuses on access to technology, PDSV highlights structural barriers that prevent marginalised students from fully participating in education, including limited resources and the emotional toll of navigating an inequitable system. This study emphasises the need for a systemic approach that addresses the root causes of these inequities, beyond temporary solutions like financial aid.

The findings contribute to the literature on educational inequities by offering a nuanced understanding of the challenges faced by students and teachers. By centring teachers' experiences, the study reveals the human dimension of PDSV and underscores the need for targeted interventions that consider the diverse needs of students from different socioeconomic backgrounds.

CONCLUSION AND CALL TO ACTION

This research explored the impacts of ERT on students through case studies. The comparison was performed via qualitative data, demonstrating in depth how ERT differentially affects students from high and low SES groups. Through this comparison, this research argues

that there is an urgent need to address the unfairness of PDSV, which covers the strand of negative impacts inflicted on students, including academic underperformance, mind-wandering and concentration issues and lower emotional literacy during ERT.

Unlike DSV, PDSV is specific to the pandemic, and its importance lies in the fact that many students in that generation are still under the impact of PDSV. This finding urges teachers and educators to remember that the generation of students who have experienced the pandemic is not the same as others; when the learning gap in a class becomes more expansive, it also places more pressure on teachers in terms of classroom management and expectation management. However, instead of blaming the students for their laziness, punishing them through a harsher assessment system, or giving up on those who have very low to zero motivation in class, the circumstances of these groups of students must be addressed and examined so that a relatively more effective teaching strategy can be developed.

The first and most crucial step is to acknowledge the existence of PDSV so that the circumstances of the suppressed students will be examined and there is a possibility to alleviate PDSV by improving the circumstances. Perhaps through a new grading system for a particular period of time so that those students will not be deprived of educational opportunities in the future, or perhaps through financial aid, not only on the provision of materials and resources but also addressing the receiving ends to improve effectiveness or perhaps a curriculum that focuses on fostering self-learning skills in students so that our future students will be more prepared for another pandemic or global crisis. To combat PDSV, policy makers and educators must adopt a multifaceted approach that addresses both the immediate and long-term impacts of the pandemic on students. Key recommendations include:

1. Investing in infrastructure to ensure equitable access to technology and internet connectivity for all students.
2. Providing targeted support for low-income families, such as subsidies for digital resources and training for parents to support their children's learning.
3. Implementing trauma-informed practices to address the emotional and psychological impacts of the pandemic on students.
4. Reforming assessment practices to account for the diverse challenges students face and avoid penalising those affected by PDSV.

These recommendations align with previous research on the need for systemic reforms to address educational inequities (Bacher-Hicks et al., 2021; Engzell et al., 2021; Kuhfeld et al., 2020) but extend the discourse by emphasising the importance of addressing the root causes of structural violence. By adopting a systemic approach to addressing PDSV, policy makers and educators can create a more equitable educational system that supports the diverse needs of all students. The findings of this study underscore the urgent need to address the systemic inequities exposed by the pandemic. By framing these issues as pandemic digital structural violence, this research highlights the need for a systemic approach to addressing educational inequities, one that goes beyond temporary solutions to address the root causes of structural violence. The pandemic has created a generation of students who have been profoundly impacted by PDSV, and it is our collective responsibility to ensure that these students are not left behind. Addressing PDSV is not just a matter of educational equity; it is a matter of social justice. Finally, further studies should investigate the impacts of PDSV in different geopolitical and cultural settings to confirm, clarify or extend the findings of this research. By examining the effects of PDSV in various regions, we can better understand whether the negative consequences identified in this study hold true across different political environments, socio-economic contexts and educational systems.

AUTHOR CONTRIBUTIONS

Eunice Yin Yung Chiu: Conceptualization; methodology; data curation; validation; formal analysis; investigation; resources; writing – original draft; writing – review and editing; project administration.

ACKNOWLEDGEMENT

Open Access funding enabled and organized by Projekt DEAL.

FUNDING INFORMATION

The author received no financial support for this article's research, authorship, and/or publication.

CONFLICT OF INTEREST STATEMENT

The authors report there are no competing interests to declare.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

ETHICS STATEMENT

This study was reviewed by the Ethics Commission of the Faculty of Behavioural and Cultural Studies, Universität Heidelberg, which determined that formal ethics approval was not required because the study involved minimal risk and used anonymised data. The research was conducted in accordance with the ethical principles outlined in the Declaration of Helsinki and the guidelines provided by Universität Heidelberg.

ORCID


Eunice Yin Yung Chiu https://orcid.org/0000-0002-3128-5868

REFERENCES

Adams, T. E., Jones, S. H., & Ellis, C. (2014). *Autoethnography*. Understanding qualitative results. Oxford University Press.

Allen, J., Gregory, A., Mikami, A., Lun, J., Hamre, B., & Pianta, R. (2013). Observations of effective teacher–student interactions in secondary school classrooms: Predicting student achievement with the classroom assessment scoring system—Secondary. *School Psychology Review*, *42*(1), 76–98. https://doi.org/10.1080/02796015.2013.12087492

Andrew, A., Cattan, S., Dias, M. C., Farquharson, C., Kraftman, L., Krutikova, S., Phimister, A., & Sevilla, A. (2020). Inequalities in children's experiences of home learning during the COVID-19 lockdown in England*. *Fiscal Studies*, *41*(3), 653–683. https://doi.org/10.1111/1475-5890.12240

Asim, S., Bashir, S., & Gera, R. C. (2024). Learning loss as a result of COVID-19: Evidence from a longitudinal survey in Malawi. In *Policy Research Working Paper* (No. 10843). World Bank.

Arztmann, M., Alfaro, J. L. D., Hornstra, L., Jeuring, J., & Kester, L. (2023). In-game performance: The role of students' socio-economic status, self-efficacy and situational interest in an augmented reality game. *British Journal of Educational Technology*, *55*(2), 484–498. https://doi.org/10.1111/bjet.13395

Bacher-Hicks, A., Goodman, J., & Mulhern, C. (2021). Inequality in household adaptation to schooling shocks: Covid-induced online learning engagement in real time. *Journal of Public Economics*, *193*, 104345. https://doi.org/10.1016/j.jpubeco.2020.104345

Ball, S., & Collet-Sabé, J. (2021). Against school: An epistemological critique. *Discourse Studies in the Cultural Politics of Education*, *43*(6), 985–999. https://doi.org/10.1080/01596306.2021.1947780

Ball, S. J. (2008). *The education debate*. Policy Press.

Bao, W. (2020). COVID-19 and online teaching in higher education: A case study of Peking University. *Human Behavior and Emerging Technologies*, *2*(2), 113–115. https://doi.org/10.1002/hbe2.191

Bond, M. (2021). Schools and emergency remote education during the COVID-19 pandemic: A living rapid systematic review. *Zenodo (CERN European Organization for Nuclear Research)*. https://doi.org/10.5281/zenodo.4425683

Bozkurt, A., & Sharma, R. C. (2020). Emergency remote teaching in a time of global crisis due to CoronaVirus pandemic. *Zenodo (CERN European Organisation for Nuclear Research)*. https://doi.org/10.5281/zenodo.3778083

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, *3*(2), 77–101. https://doi.org/10.1191/1478088706qp063oa

Carrasco-Hernández, A., Lozano-Reina, G., Lucas-Pérez, M. E., Madrid-Garre, M. F., & Sánchez-Marín, G. (2023). Impact of an emergency remote teaching model on students' academic performance during COVID-19. *Technology, Knowledge and Learning*, *29*(1), 483–508. https://doi.org/10.1007/s10758-023-09665-7

Castelli, F. R., & Sarvary, M. A. (2021). Why students do not turn on their video cameras during online classes and an equitable and inclusive plan to encourage them to do so. *Ecology and Evolution*, *11*(8), 3565–3576. https://doi.org/10.1002/ece3.7123

Chan, S., Chung, G. K., Chan, Y., Lee, T. S., Chen, J., Wong, H., Chung, R. Y., Chen, Y., & Ho, E. S. (2024). Online learning problems, academic worries, social interaction, and psychological well-being among secondary school students in Hong Kong during the COVID-19 pandemic: The socioeconomic and gender differences. *European Journal of Psychology of Education*, *39*(3), 2805–2826. https://doi.org/10.1007/s10212-024-00882-x

Cornelius-White, J. (2007). Learner-centered teacher–student relationships are effective: A meta-analysis. *Review of Educational Research*, *77*(1), 113–143. https://doi.org/10.3102/003465430298563

Creswell, J. (2013). *Qualitative inquiry and research design: Choosing among five approaches* (3rd ed.). Sage Publications.

Denzin, N. K. (2013). *Interpretive autoethnography*. SAGE Publications.

Dilts, A., Winter, Y., Biebricher, T., Johnson, E. V., Vázquez-Arroyo, A. Y., & Cocks, J. (2012). Revisiting Johan Galtung's concept of structural violence. *New Political Science*, *34*(2), e191–e227. https://doi.org/10.1080/07393148.2012.714959

Dorn, E., Hancock, B., Sarakatsannis, J., & Viruleg, E. (2021). *COVID-19 and education: The lingering effects of unfinished learning*. McKinsey & Company. https://www.mckinsey.com/industries/education/our-insights/covid-19-and-education-the-lingering-effects-of-unfinished-learning

Dougall, I., Vasiljevic, M., Kutlaca, M., & Weick, M. (2023). Socioeconomic inequalities in mental health and well-being among UK students during the COVID-19 pandemic: Clarifying underlying mechanisms. *PLoS One*, *18*(11), e0292842. https://doi.org/10.1371/journal.pone.0292842

Durlak, J. A., Weissberg, R. P., Dymnicki, A. B., Taylor, R. D., & Schellinger, K. B. (2011). The impact of enhancing students' social and emotional learning: A meta-analysis of school-based universal interventions. *Child Development*, *82*(1), 405–432. https://doi.org/10.1111/j.1467-8624.2010.01564.x

Eccles, J. S., & Roeser, R. W. (2011). Schools as developmental contexts during adolescence. *Journal of Research on Adolescence*, *21*(1), 225–241. https://doi.org/10.1111/j.1532-7795.2010.00725.x

Engzell, P., Frey, A., & Verhagen, M. D. (2021). Learning loss due to school closures during the COVID-19 pandemic. *Proceedings of the National Academy of Sciences of the United States of America*, *118*(17), e2022376118. https://doi.org/10.1073/pnas.2022376118

Espelage, D. L., & Swearer, S. M. (2010). A social-ecological model for bullying prevention and intervention: Understanding the impact of adults in the social ecology of youngsters. In S. R. Jimerson, S. M. Swearer, & D. L. Espelage (Eds.), *Handbook of bullying in schools: An international perspective* (pp. 61–72). Routledge/Taylor & Francis Group. https://doi.org/10.4324/9780203842898

Farhan, F. S., & Lismandasari, L. (2022). The impact of online learning process during the COVID 19 pandemic: Possibly leading to learning loss? *Education Quarterly Review*, *5*(4), 290–296. https://doi.org/10.31014/aior.1993.05.04.591

Farmer, P. (2004). An anthropology of structural violence. *Current Anthropology*, *45*(3), 305–325. https://doi.org/10.1086/382250

Feng, X., Ioan, N., & Li, Y. (2021). Comparison of the effect of online teaching during COVID-19 and prepandemic traditional teaching in compulsory education. *The Journal of Educational Research*, *114*(4), 307–316. https://doi.org/10.1080/00220671.2021.1930986

Flores, M. A. (2023). Studying teachers' work and lives: Insights from research before and during the COVID-19 pandemic. In *International Encyclopedia of Education 4th Edition* (pp. 622–635). Elsevier eBooks. https://doi.org/10.1016/b978-0-12-818630-5.04070-7

Förster, N., Forthmann, B., Back, M. D., & Souvignier, E. (2023). Effects of the COVID-19 pandemic on reading performance of second grade children in Germany. *Reading and Writing*, *36*(2), 289–315. https://doi.org/10.1007/s11145-022-10379-y

Fredrickson, B. L. (2001). The role of positive emotions in positive psychology: The broaden-and-build theory of positive emotions. *American Psychologist*, *56*(3), 218–226. https://doi.org/10.1037/0003-066x.56.3.218

Fuchs, K. (2022). RETRACTED: The difference between emergency remote teaching and e-learning. *Frontiers in Education*, *7*, 921332. https://doi.org/10.3389/feduc.2022.921332

Galbava, S., Machackova, H., & Dedkova, L. (2021). Cyberostracism: Emotional and behavioral consequences in social media interactions. *Comunicar*, *29*(67), 9–20. https://doi.org/10.3916/c67-2021-01

Galtung, J. (1969). Violence, peace, and peace research. *Journal of Peace Research*, *6*(3), 167–191. https://doi.org/10.1177/002234336900600301
Gendron, B. P., Williams, K. R., & Guerra, N. G. (2011). An analysis of bullying among students within schools: Estimating the effects of individual normative beliefs, self-esteem, and school climate. *Journal of School Violence*, *10*(2), 150–164. https://doi.org/10.1080/15388220.2010.539166
George, T., Manski-Nankervis, J. A., Klaic, M., Kang, G., & Sudarsanam, T. D. (2024). Interventions in adult patients with multimorbidity in low-income and middle-income countries: Protocol for a mixed-methods systematic review. *BMJ Open*, *14*(3), e074038.
Gierczyk, M., & Hornby, G. (2023). Summer learning loss: Review of research and implications for remediation of postpandemic learning loss. *Preventing School Failure: Alternative Education for Children and Youth*, *67*(3), 132–140. https://doi.org/10.1080/1045988x.2023.2204823
Greenhow, C., Lewin, C., & Willet, K. B. S. (2020). The educational response to Covid-19 across two countries: A critical examination of initial digital pedagogy adoption. *Technology, Pedagogy and Education*, *30*(1), 7–25. https://doi.org/10.1080/1475939x.2020.1866654
Hamre, B. K., & Pianta, R. C. (2005). Can instructional and emotional support in the first-grade classroom make a difference for children at risk of school failure? *Child Development*, *76*(5), 949–967. https://doi.org/10.1111/j.1467-8624.2005.00889.x
Hargreaves, A. (1998). The emotional practice of teaching. *Teaching and Teacher Education*, *14*(8), 835–854. https://doi.org/10.1016/s0742-051x(98)00025-0
Hattie, J. (2008). *Visible learning: A synthesis of over 800 meta-analyses relating to achievement*. Routledge.
Hodges, C., Moore, S., Lockee, B., Trust, T., & Bond, A. (2020). The difference between emergency remote teaching and online learning. *Educause Review*, *27*(1), 1–9.
Immordino-Yang, M. H., & Damasio, A. (2007). We feel, therefore we learn: The relevance of affective and social neuroscience to education. *Mind, Brain, and Education*, *1*(1), 3–10. https://doi.org/10.1111/j.1751-228x.2007.00004.x
Kalman-Halevi, M., Tutian, R., & Peled, Y. (2023). Postsecondary students with LD/ADHD facing a sudden shift to online learning during the COVID-19 pandemic—Emotional costs and implications. *Learning Disabilities Research and Practice*, *38*(3), 239–247. https://doi.org/10.1111/ldrp.12315
Karalis, T. (2020). Planning and evaluation during educational disruption: Lessons learned from COVID-19 pandemic for treatment of emergencies in education. *European Journal of Education Studies*, *7*, 125–142. https://doi.org/10.46827/ejes.v0i0.3047
Kaubisch, L. T., Reck, C., Von Tettenborn, A., & Woll, C. F. J. (2022). The COVID-19 pandemic as a traumatic event and the associated psychological impact on families – A systematic review. *Journal of Affective Disorders*, *319*, 27–39. https://doi.org/10.1016/j.jad.2022.08.109
Kim, B. H., Bird, K. A., & Castleman, B. L. (2022). Crossing the finish line but losing the race? Socioeconomic inequalities in the labor market trajectories of community college graduates. *Education Finance and Policy*, *19*(2), 283–307. https://doi.org/10.1162/edfp_a_00392
Kuhfeld, M., Soland, J., Tarasawa, B., Johnson, A., Ruzek, E., & Liu, J. (2020). Projecting the potential impact of COVID-19 school closures on academic achievement. *Educational Researcher*, *49*(8), 549–565. https://doi.org/10.3102/0013189x20965918
MacIntyre, P. D., Gregersen, T., & Mercer, S. (2020). Language teachers' coping strategies during the COVID-19 conversion to online teaching: Correlations with stress, wellbeing and negative emotions. *System*, *94*, 102352. https://doi.org/10.1016/j.system.2020.102352
McCullin, M. (2023). Two years of trauma. *Georgia State News Hub*. https://news.gsu.edu/research-magazine/two-years-of-trauma#:~:text=The%20research%20determined%20the%20association,pandemic%20was%20harder%20for%20you
Meishar-Tal, H., & Forkosh-Baruch, A. (2022). "Now you see me, now you don't": Why students avoid turning on their cameras in synchronous online lessons? *Interactive Learning Environments*, *98*, 1–14. https://doi.org/10.1080/10494820.2022.2127778
Morris, E. A., Speroni, S., & Taylor, B. D. (2024). Going nowhere faster: Did the COVID-19 pandemic accelerate the trend toward staying home? *Journal of the American Planning Association*, 1–19. https://doi.org/10.1080/01944363.2024.2385327
Nicolosi, S., Alba, M., & Pitrolo, C. (2022). Primary school teachers' emotions, implicit beliefs, and self-efficacy during the COVID-19 pandemic. *Frontiers in Sports and Active Living*, *4*, 1064072. https://doi.org/10.3389/fspor.2022.1064072
OECD. (2015). *Skills for social progress. OECD skills studies*. https://doi.org/10.1787/9789264226159-en
OECD. (2020). Were schools equipped to teach – and were students ready to learn – remotely? In *Programme for International Student Assessment* (No. 108).
Patrick, H., Turner, J. C., Meyer, D. K., & Midgley, C. (2003). How teachers establish psychological environments during the first days of school: Associations with avoidance in mathematics. *Teachers College Record the Voice of Scholarship in Education*, *105*(8), 1521–1558. https://doi.org/10.1177/016146810310500804

Peimani, N., & Kamalipour, H. (2021). Online education in the post COVID-19 era: Students' perception and learning experience. *Education in Science*, *11*(10), 633. https://doi.org/10.3390/educsci11100633
Pekrun, R. (2006). The control-value theory of achievement emotions: Assumptions, corollaries, and implications for educational research and practice. *Educational Psychology Review*, *18*(4), 315–341. https://doi.org/10.1007/s10648-006-9029-9
Pekrun, R. (2022). *Achievement emotions* (pp. 319–334). Routledge eBooks. https://doi.org/10.4324/9781003013778-25
Pekrun, R. (2024). Control-value theory: From achievement emotion to a general theory of human emotions. *Educational Psychology Review*, *36*(3), 83. https://doi.org/10.1007/s10648-024-09909-7
Pelikan, E. R., Lüftenegger, M., Holzer, J., Korlat, S., Spiel, C., & Schober, B. (2021). Learning during COVID-19: The role of self-regulated learning, motivation, and procrastination for perceived competence. *Zeitschrift für Erziehungswissenschaft*, *24*(2), 393–418. https://doi.org/10.1007/s11618-021-01002-x
Pietro Giorgio, D., Federico, B., Da Costa Patricia, D. M., Zbigniew, K., & Jacopo, M. (2020). The likely impact of COVID-19 on education: Reflections based on the literature and recent international datasets. *RePEc: Research papers in economics*. https://doi.org/10.2760/126686
Pink, S., Horst, H., Postill, J., Hjorth, L., Lewis, T., & Tacchi, J. (2015). *Digital ethnography: Principles and practice*. http://researchbank.rmit.edu.au/view/rmit:34133
Pokhrel, S., & Chhetri, R. (2021). A literature review on impact of COVID-19 pandemic on teaching and learning. *Higher Education for the Future*, *8*(1), 133–141. https://doi.org/10.1177/2347631120983481
Reyes, M. R., Brackett, M. A., Rivers, S. E., White, M., & Salovey, P. (2012). Classroom emotional climate, student engagement, and academic achievement. *Journal of Educational Psychology*, *104*(3), 700–712. https://doi.org/10.1037/a0027268
Riggio, R. (2024). Developing student leader emotional and social communication skills. *Journal of Campus Activities Practice and Scholarship*, *6*(1), 68–73. https://doi.org/10.52499/2024007
Roeser, R. W., Eccles, J. S., & Sameroff, A. J. (2000). School as a context of early adolescents' academic and social-emotional development: A summary of research findings. *The Elementary School Journal*, *100*(5), 443–471. https://doi.org/10.1086/499650
Roorda, D. L., Koomen, H. M. Y., Spilt, J. L., & Oort, F. J. (2011). The influence of affective teacher–student relationships on students' school engagement and achievement: A meta-analytic approach. *Review of Educational Research*, *81*(4), 493–529. https://doi.org/10.3102/0034654311421793
Rucinski, C. L., Brown, J. L., & Downer, J. T. (2018). Teacher–child relationships, classroom climate, and children's social-emotional and academic development. *Journal of Educational Psychology*, *110*(7), 992–1004.
Sason, H., Blau, R., & Wasserman, E. (2023). Student motivation in learning and perceptions of online teachers. *Journal of Education and e-Learning Research*, *10*(4), 742–752. https://doi.org/10.20448/jeelr.v10i4.5197
Schneider, J., Abel, A., & Maguire, M. (2022). Vocabulary knowledge and reading comprehension account for SES-differences in how school-aged children infer word meanings from sentences. *Language Learning and Development*, *19*(4), 369–385. https://doi.org/10.1080/15475441.2022.2081573
Schonert-Reichl, K. A. (2017). Social and emotional learning and teachers. *The Future of Children*, *27*(1), 137–155. https://doi.org/10.1353/foc.2017.0007
Shen, J., Zhang, H., & Zheng, J. (2024). The impact of future self-continuity on college students' online learning engagement: A moderated mediation model. *Psychology in the Schools*, *61*(4), 1694–1709. https://doi.org/10.1002/pits.23133
Skinner, E. A., & Belmont, M. J. (1993). Motivation in the classroom: Reciprocal effects of teacher behavior and student engagement across the school year. *Journal of Educational Psychology*, *85*(4), 571–581. https://doi.org/10.1037/0022-0663.85.4.571
Steinsbekk, S., Bjørklund, O., Valkenburg, P., Nesi, J., & Wichstrøm, L. (2024). The new social landscape: Relationships among social media use, social skills, and offline friendships from age 10–18 years. *Computers in Human Behavior*, *156*, 108235. https://doi.org/10.1016/j.chb.2024.108235
Surianshah, S., Hassan, S., & Jamin, N. A. S. (2022). Technology and student motivation in online learning based on socioeconomic background. In N. Wahi, M. A. Mohd, & R. Hasni (Eds.), *Proceedings of the international conference on mathematical sciences and statistics 2022* (pp. 456–465). Atlantis Press. https://doi.org/10.2991/978-94-6463-014-5_39
Tadesse, S., & Muluye, W. (2020). The impact of COVID-19 pandemic on education system in developing countries: A review. *Open Journal of Social Sciences*, *08*(10), 159–170. https://doi.org/10.4236/jss.2020.810011
Thapa, A., Cohen, J., Guffey, S., & Higgins-D'Alessandro, A. (2013). A review of school climate research. *Review of Educational Research*, *83*(3), 357–385. https://doi.org/10.3102/0034654313483907
Tracy, S. J. (2019). *Qualitative research methods: Collecting evidence, crafting analysis, communicating impact*. John Wiley & Sons.
Tratnik, A., Urh, M., & Jereb, E. (2017). Student satisfaction with an online and a face-to-face business English course in a higher education context. *Innovations in Education and Teaching International*, *56*(1), 36–45. https://doi.org/10.1080/14703297.2017.1374875

Tyng, C. M., Amin, H. U., Saad, M. N. M., & Malik, A. S. (2017). The influences of emotion on learning and memory. *Frontiers in Psychology*, *8*, 1454. https://doi.org/10.3389/fpsyg.2017.01454

UNESCO. (2021). The State of the Global Education Crisis: A path to recovery. In *A Joint Unesco, Unicef and World Bank Report* (UNESCO ISBN: 978-92-3-100491-9). International Bank for Reconstruction and Development/The World Bank, UNESCO and UNICEF. https://www.unesco.org/en/covid-19/education-response/initiatives?hub=800

Van Lancker, W., & Parolin, Z. (2020). COVID-19, school closures, and child poverty: A social crisis in the making. *The Lancet Public Health*, *5*(5), e243–e244. https://doi.org/10.1016/s2468-2667(20)30084-0

Wang, M., & Degol, J. L. (2015). School climate: A review of the construct, measurement, and impact on student outcomes. *Educational Psychology Review*, *28*(2), 315–352. https://doi.org/10.1007/s10648-015-9319-1

Wentzel, K. R. (1997). Student motivation in middle school: The role of perceived pedagogical caring. *Journal of Educational Psychology*, *89*(3), 411–419. https://doi.org/10.1037/0022-0663.89.3.411

Weyns, T., Verschueren, K., Leflot, G., Onghena, P., Wouters, S., & Colpin, H. (2017). The role of teacher behavior in children's relational aggression development: A five-wave longitudinal study. *Journal of School Psychology*, *64*, 17–27. https://doi.org/10.1016/j.jsp.2017.04.008

Winters, N., Eynon, R., Geniets, A., Robson, J., & Kahn, K. (2019). Can we avoid digital structural violence in future learning systems? *Learning, Media and Technology*, *45*(1), 17–30. https://doi.org/10.1080/17439884.2020.1708099

Zhdanov, S. P., Baranova, K. M., Udina, N., Terpugov, A. E., Lobanova, E. V., & Zakharova, O. V. (2022). Analysis of learning losses of students during the COVID-19 pandemic. *Contemporary Educational Technology*, *14*(3), ep369. https://doi.org/10.30935/cedtech/11812

How to cite this article: Chiu, E. Y. Y. (2025). Pandemic digital structural violence: Teachers' observation of post-pandemic learning loss in students. *Review of Education*, *13*, e70061. https://doi.org/10.1002/rev3.70061