

Adapting Teaching Quality: Insights from Bronfenbrenner’s Contextual Framework during the COVID-19 Pandemic

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The COVID-19 pandemic necessitated a critical examination of teaching quality and educational disruptions. Utilizing Bronfenbrenner’s bio-ecological systems theory and the Process-Person-Context-Time (PPCT) model this article explores the pandemic’s impact on teaching quality as a practice - understood as contextual and collective action. Drawing on semi-structured interviews with police educators at the Norwegian Police University College the analysis illustrates how police educators responded to the educational landscape during the pandemic. Findings show that the pandemic has altered the microsystem of direct interactions, necessitating adaptations in teaching methods and the reinforcement of relationships via digital mediums. The mesosystem's interlinkages faced recalibration as educators bridged the gap between home and institutional learning environments. At the exosystem level, institutional policy changes and community responses emerged as critical influencers of pedagogical approaches. The macrosystem, encompassing the societal response to the pandemic, also significantly shaped educational norms, and expectations. This article reveals that the pandemic has spurred a rethinking of teaching quality as a practice, highlighting the importance of adaptability, innovation, and resilience and suggesting integration of these attributes into future educational strategies. The aim of the study is to better understand the influence of environmental systems at varying proximity on teaching quality as a practice.

Keywords: teaching quality, COVID-19, Bronfenbrenner, PPCT, police education

Introduction

The COVID-19 pandemic has brought about unprecedented challenges to all sectors of society (Dagiene et al., 2022), including police training and education (Halford & Youansamouth, 2024). Schools and universities have had to rapidly adapt to changing circumstances, often shifting to online or hybrid teaching modes (Carrillo & Flores, 2020). This has led to a profound re-evaluation of what constitutes quality in teaching and learning (Bern, Özkal Lorentzen, & Nordanger, 2021). The

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rapid shift to online education particularly impacted sectors such as police training, which traditionally relied heavily on face-to-face, interactive models of teaching (Davies & Al Sharefeen, 2022). This article focuses on the exploration of teaching quality as a practice during the COVID-19 period, with an emphasis on Urie Bronfenbrenner's context concept (Bronfenbrenner & Morris, 2007).

Bronfenbrenner's bio-ecological systems theory, with its process-person-context-time (PPCT) model, provides a holistic framework for understanding and analyzing human development (Bronfenbrenner, 1986; Bronfenbrenner & Morris, 2007). In the realm of education, it allows us to examine the diverse factors influencing teaching quality. This is particularly meaningful when we approach teaching quality as a practice that is both contextual and collective in nature, as emphasized in our study (Tight, 2015; Wittek & Habib, 2012). Highlighting the efficacy of a holistic approach, Davies and Al Sharefeen (2022) emphasize its potential to minimize the negative impacts on teaching practices and improve the faculty and student experience in transitioning to online learning. This underscores the notion that teaching quality emerges from the nuanced dynamics of teaching practices themselves, enriched through collaborative engagements that shape and are shaped by these practices.

This article is the fourth of a four-part series, each article with a separate academic contribution focusing on a different aspect of Bronfenbrenner's PPCT model (Sookermany et al., 2023a, 2023b; 2024). The first three articles have addressed the process, person and time elements of the PPCT model, whilst this article focus on the 'context' perspective, which refers to the different environmental systems that a person interacts with, from the immediate surroundings to the broader societal context.

In Bronfenbrenner's model, context is envisaged as a bio-ecological system of systems surrounding the individual, consisting of four different layers: the microsystem, mesosystem, exosystem, and macrosystem (Bronfenbrenner, 1986; Bronfenbrenner & Morris, 2007). These layers are structured from the innermost to the outermost based on the principle of proximity. The closer the system, the stronger its influence on the individual's sense-making and behavior.

In the context of the COVID-19 pandemic, these layers have been significantly disrupted and reshaped. Understanding how these changes have impacted teaching quality requires giving the surroundings a meaningful place in our narrative. This involves examining the environments the individual teacher is associated with, and how these environments have influenced what is recognized as good teaching practice in their specific community (Wittek & Habib, 2012).

Our investigation is based on semi-structured interviews with police educators and their nearest leaders at the department of Post Graduate studies (EVU) of the Norwegian Police University College (NPUC). Further we have conducted a thorough review of the quality-reports (written by the police educators and later discussed by educators and leaders). Through analyzing this data material, we aim to bring visibility to how all four of Bronfenbrenner's contextual layers have influenced their perception and practice on teaching quality. This includes examining the impact of colleague proximity, management involvement, societal risk, the lack of guidelines, and the relativization of temporality and spatiality in teaching quality as a practice, among other factors.

By examining these experiences, our objective is to provide insights into how the context of the pandemic has shaped teaching quality as a practice. This includes empirically exploring the ways in which contextual proximity and periphery have influenced the perceived quality of teaching. Through this exploration, we seek not only to better understand the present situation but also to draw lessons for the future. In an increasingly interconnected and rapidly changing world, developing a deep understanding of the context of teaching is crucial for enhancing education quality.

As we navigate our way through and beyond the pandemic, it is essential to continually re-evaluate and adapt our concept of teaching quality. This article contributes to the ongoing dialogue by providing a focused analysis of the context of teaching during a period of profound societal disruption and changes in crime. In doing so, it highlights the importance of context in shaping teaching quality and offers insights for educators, policymakers, and researchers seeking to enhance teaching practice in these challenging times.

The remainder of this article is structured as follows: The next section outlines the theoretical framework, focusing on Bronfenbrenner's PPCT model and its application to teaching quality with a particular emphasis on the Context element. This is followed by a detailed description of the research methods, including data collection and analysis. The subsequent sections present the findings, organized according to Bronfenbrenner's ecological systems, and a discussion of these findings in relation to existing literature. Finally, the article concludes with implications for future research and practice in education.

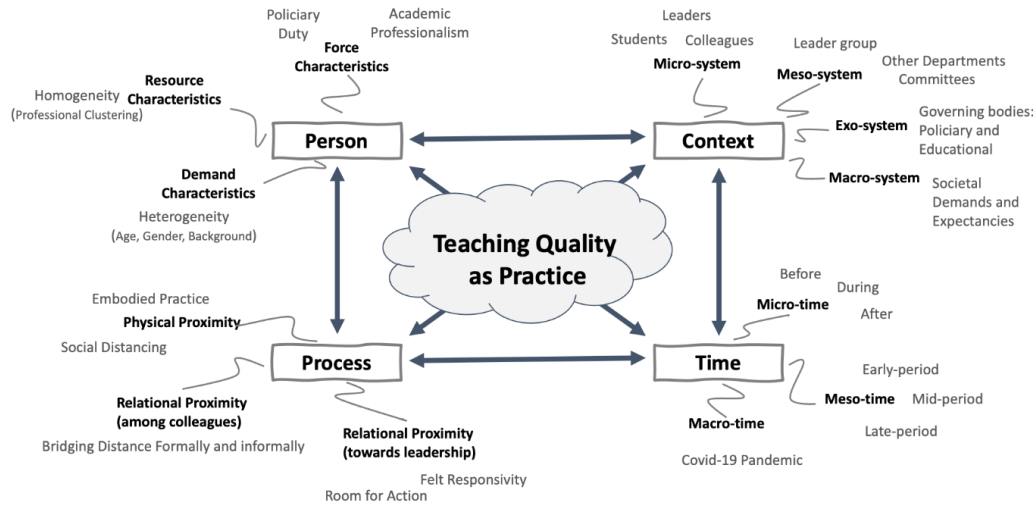
Theoretical Framework: Bronfenbrenner's PPCT Model and the Context Perspective

Urie Bronfenbrenner's bio-ecological systems theory, articulated in his Process-Person-Context-Time (PPCT) model, is a cornerstone in the field of human development (Bronfenbrenner & Morris, 2007; Rosa & Tudge, 2013). This model provides a comprehensive framework for understanding the complex interplay of factors affecting an individual's growth and development as an individual within a group, organization, or society (Christensen, 2016; El Zaatari & Maalouf, 2019). Bronfenbrenner's theory has been applied across various research fields, including public health and education, providing insights into how different systemic levels influence individual and collective processes (Bronfenbrenner & Morris, 2007; Eriksson et al. 2018; Mulisa, 2019). In the context of this article, we use Bronfenbrenner's PPCT model to analyze the multifaceted influences on teaching quality as a practice during the COVID-19 period, with a particular focus on the context perspective.

The PPCT model is constituted by four interconnected elements: process, person, context, and time (Bronfenbrenner & Morris, 2007). The process component refers to the interactions between the individual and their environment. The person component emphasizes the individual characteristics that influence and are influenced by these interactions. Time refers to the temporal dimension, encompassing both the historical period and the timing of specific events or experiences. Figure 1

gives a visual overview of teaching quality as practice presented within the framework of Bronfenbrenner’s bio-ecological systems model (Sookermany et al., 2023a, 2023b).

Figure 1. Teaching Quality as Practice Presented within the Framework of Bronfenbrenner’s Bio-ecological Model



Central to our discussion in this particular article is the context element. Bronfenbrenner’s model conceptualizes context as a bio-ecological system of systems, structured as four different layers based on the principle of proximity: the microsystem, mesosystem, exosystem, and macrosystem (Bronfenbrenner & Morris, 2007).

The microsystem is the closest environment to the individual, encompassing immediate relationships and settings such as family, school, or work. The mesosystem refers to the interactions between different microsystems, like the relationship between school and family. The exosystem includes environments that the individual does not directly interact with, but which still impact on their development, such as parents’ workplaces or wider community structures. The macrosystem, the outermost layer, represents broader societal constructs like cultural norms, economic systems, and in the context of this article, the overarching effects of the pandemic.

Bronfenbrenner’s model (Bronfenbrenner & Morris, 2007) claims that all four layers are present in an individual’s life, and the proximity to these systems affects their visibility and formative power in the individual’s daily life and behaviors. The closer the system, the more noticeable its influence.

In the context of teaching quality during the COVID-19 period, the context perspective becomes particularly salient. The pandemic has profoundly disrupted and reshaped all layers of context, from the microsystem to the macrosystem. For educators especially in specialized fields like police training, the disruptions necessitated significant adjustments not only in the mode of delivery but also in ensuring the pedagogical effectiveness of such modes (Davies & Al Sharefeen, 2022). These adjustments have been crucial in maintaining the quality of teaching, thus impacting teaching practices (Carrillo & Flores, 2020; Fatani, 2020).

This paper explores how these contextual changes have influenced teaching quality as a practice. We particularly aim to draw insights from the experiences of

educators navigating these changing contexts, shedding light on how the proximity and periphery of contextual layers affect pedagogical practices and perceptions of teaching quality.

By applying Bronfenbrenner's (2007) context perspective, we aim to provide a nuanced understanding of the diverse environmental influences on teaching quality during the COVID-19 period. This theoretical framework allows us to move beyond an individualistic view of teaching quality and instead consider the broader ecological systems in which teaching and learning occur (Wittek & Habib, 2012), providing a richer and more comprehensive picture of the challenges and opportunities faced by educators during these unprecedented times.

Methods

The data consists of 20 qualitative interviews with police educators and their closest leaders from EVU who had key tasks related to planning, implementation, and evaluation of education during the pandemic. This sample constitutes a large proportion of the relevant population. Participants are strategically chosen for variation and breadth, with different educational backgrounds, professional experiences, and geographical locations. The term 'participants' is deliberately used to denote those from whom we collected our data, aligning with Morse's (1991) perspective that such terminology reflects their active engagement in our study. This choice underscores the dynamic and contributory role of these individuals in our research process, consistent with their strategic selection based on varied educational backgrounds, professional experiences, and geographical locations to enrich the study's diversity and depth. For more detailed information on the participants, we suggest looking at our first article from this project dealing particularly with Bronfenbrenner's person characteristics (Sookermany et al., (2023a). The choice of qualitative methods, particularly semi-structured interviews, was driven by the need to capture the nuanced experiences of police educators during the pandemic. This approach allowed us to explore the complex and multifaceted influences on teaching quality as they were perceived and experienced by those directly involved in educational planning, implementation, and evaluation.

The semi-structured interview guide was designed based on Bronfenbrenner's theory (Bronfenbrenner & Morris, 2007; Siraj & Huang, 2020; Tudge, Mokrova, Hatfield, & Karnik, 2009; Xia, Li, & Tudge, 2020) and issues that have previously been shown to be important for the quality of education in practice (Helgesen, 2020). The interviews were conducted both digitally and physically, with durations between 60 and 90 minutes. They were recorded and transcribed.

The questions in the interviews revolved around the participants' experiences and perspectives on various aspects of their roles during the pandemic. These included their closeness to colleagues, the involvement of their managers, any lack of guidance they experienced, perceptions of social risk, and their experiences of time relativization, among others.

To deal with the intricacies of the context element within Bronfenbrenner's PPCT model, our methodological approach was multi-layered, ensuring a rich and

nuanced analysis of the collected data. Initially, we embarked on an inductive analysis, sifting through the data to unearth recurring themes and patterns (Braun & Clarke, 2006). The inductive analysis enabled us to identify emergent themes that were not anticipated in the initial research design, such as the role of adaptability and resilience. These themes were then explored in greater depth through deductive, theory-informed analysis (Braun & Clarke, 2006; Fauskanger & Mosvold, 2014; Tjora, 2013), by employing Bronfenbrenner's framework as a lens to examine the micro, meso, exo, and macro system levels (Bronfenbrenner & Morris, 2007). Each interview was explored, with relevant statements that shed light on the context dimension being highlighted, extracted, and categorized. This process was conducted individually for each interview before synthesizing across the dataset, allowing us to map out the contextual landscape influencing the phenomena under study.

To enhance the credibility of our findings, we engaged in discussions with both participants and scholarly peers, facilitating a validation process that honed our interpretative accuracy and enriched our analysis. This iterative dialogue ensured that our analytical journey was not only anchored in theoretical rigor but also resonated with the lived experiences of our study's participants and the broader research community.

This methodological strategy, characterized by its blend of inductive, deductive, and abductive reasoning, was instrumental in grounding our analysis theoretically while fostering a reexamination and deepened understanding of the data (Tjora, 2013). By focusing specifically on the contextual levels defined by Bronfenbrenner—micro, meso, exo, and macro—we were able to discern how these varying layers of environmental systems interact and shape the educational landscape, thus providing comprehensive insights into the context element of the PPCT model.

Ethical Considerations

The study was conducted in line with research ethical guidelines (NESH, 2021) and was reported to the Norwegian Agency for Shared Services in Education and Research (SIKT) (reference number 733619). The participants received information and gave written consent to participate. The researchers were aware of the potential ethical issues, such as discussing sensitive topics, and they made an effort to allow participants to renegotiate consent during the process. The researchers also acknowledged their roles as “insider researchers” (Brown, 1996) and were aware of how this might impact the information gathered and their reflections on the data. By engaging in continuous discussions throughout the project period the research team were able to balance their roles as “insider researchers”. They managed to be supportive colleagues to the participants, while still maintaining an academic critical perspective informed by theory.

One key lesson learned from this research is that the applied method for investigating teaching quality provides a more nuanced understanding of how different members of a department perceive, debate, and negotiate teaching quality. This insight might inform future research design and implementation, allowing for the capture of a richer diversity of experiences and perspectives.

Context Perspective – Findings

Micro-system

In the face of the pandemic's enforced distancing, the intimate fabric of our daily interactions—what Bronfenbrenner characterizes as micro-systems—were stretched to their limits (Bronfenbrenner, 1979; Bronfenbrenner & Morris, 2007). These micro-systems, the center of our social ecology, consist of the interactions and relationships that occur in proximity, such as those with family, friends, and immediate colleagues (Tudge, Mokrova, Hatfield, & Karnik, 2009). Our findings suggest that while physical distance was mandated, the faculty members found avenues to maintain the essence of these systems virtually.

One police educator described improvising with his partner to replicate their pre-pandemic routine: “We call each other in the morning, and we leave the phone open. We sit and work as if we are sitting next to one another ... We are together separately”. This quote demonstrates an adaptive approach to preserve the micro-system's function, highlighting the resilience and creativity of individuals in sustaining close relationships despite physical barriers.

Moreover, our participants revealed a proactive stance in nurturing their professional relationships. A civilian academic shared how a relationship with a pedagogy teacher from a class she had taken recently became a resource in realigning her own teaching at the beginning of the pandemic, “She followed us a bit along the way, so we got a bit of extra follow-up on the pedagogics... We got a particularly good connection through this”. This quote underscores the significance of established relationships as a springboard for continued professional growth and support, even in the absence of traditional face-to-face interactions.

Bronfenbrenner emphasized the role of micro-systems as the foundational level of human interaction where the individual's most immediate surroundings and activities occur (Bronfenbrenner, 1979; Bronfenbrenner & Morris, 2007). In our study, it became evident that the pandemic did not dissolve these micro-systems but rather prompted an evolution in their expression. Participants reported leveraging technology to recreate the micro-system's intimacy, hinting at an expanded definition of proximity beyond the physical sense.

An employee with a police background detailed leveraging his network for problem-solving, indicating that while the pandemic erected barriers, it also unveiled new possibilities for relationship-building: “We could bounce ideas off each other ... we have addressed one thing at a time to keep the wheels turning”. This example reflects the dynamic nature of micro-systems and their capacity to adapt and reconfigure in response to external challenges.

Our research illustrates that the micro-systems, defined by Bronfenbrenner & Morris (2007), are not static entities but living, breathing constructs that can morph to meet the demands of the moment. The pandemic's constraints necessitated a reimagining of interaction and support within these systems, revealing both their fragility and their profound adaptability. It is through these closest connections that individuals found comfort and continuity, crafting an aspect of normalcy in an unprecedented time.

Meso-system

Transitioning from the proximal environments of micro-systems to the broader context of meso-systems, our findings explore the spaces where these personal ecosystems and institutional structures meet and interact. Bronfenbrenner's concept of the meso-system includes the connections and activities happening between two or more settings that involve the individual in development (Bronfenbrenner & Morris, 2007). In our study, this meso-system is seen in how home offices, digital classrooms, and the administrative frameworks of educational institutions are closely connected, directly influencing each other.

The onset of the pandemic compelled a swift pivot to digital platforms, altering the traditional meso-system dynamics. One informant, a senior adviser, captured the essence of this shift: "We sat in a meeting room, went through our portfolio of studies, and had a kind of concrete assessment of the study plans, descriptions of learning outcomes, and established what would be possible to do digitally". This statement reflects the practical adaptations institutions undertook, redefining their meso-systems to uphold educational integrity against the tide of uncertainty.

The interplay between micro- and meso-systems became a dialogue of adaptation and negotiation, as individuals and institutions sought balance between wants and needs, challenges, and regulations. A police educator reported, "Then we used evaluations from the local instructors... Then we tried to adapt accordingly". This reflection demonstrates the reciprocal nature of meso-systems, where feedback loops between various micro-systems—like individual officers and their departments—guide collective actions and decisions.

As Bronfenbrenner proposes, the meso-system is crucial in shaping outcomes by providing the connective tissue between an individual's immediate environment and the larger institutional context. The introduction of a crisis management team at NPUC is a telling example of an emergent meso-system, established to navigate the pandemic's challenges. Weekly staff meetings were held with the rectorate, which in turn led to local measures. These meetings represent meso-systemic responses to the crisis, serving as critical junctures for decision-making and support dissemination.

Moreover, our findings reveal a concerted effort within meso-systems to maintain the quality of education. The informant from the management group described the evaluative process: "Concrete assessment of the study plans, learning outcome descriptions... were put in place". This narrative underscores the behind-the-scenes negotiations and prioritizations necessary to sustain educational services.

Yet, challenges within the meso-system surfaced, particularly around digital competency and resource allocation. A civilian academic's experience speaks to this tension: "I feel there are some administrative departments that become the bottleneck". Such insights expose the strains within meso-systems when adapting to new modalities of operation.

In conclusion, our study illustrates that meso-systems, while robust in their ability to connect and support various micro-systems, are also subject to strain under rapid transformation. The pandemic has tested the resilience of these systems, revealing both their vulnerabilities and their capacity for innovation. The voices of our participants highlight the collaborative spirit that defines the meso-system,

echoing the collective endeavor to uphold educational standards and societal functions amidst a global crisis. Still, there are indications that both leaders and employees wish for more initiative from the other, and that their understanding of facilitation and what adapting to the situation looks like are not necessarily the same.

Exo-system

In exploring the exo-system's influence on educational practice during the pandemic period, our findings delineate a complex interplay between external policies and the inner workings of the NPUC. Bronfenbrenner's bio-ecological systems theory illuminates how broader socio-political structures penetrate and shape the intimate realm of micro-systems, those immediate interactions and relationships crucial to an individual's development (Bronfenbrenner & Morris, 2007).

The exigencies of the pandemic introduced a new legal framework that functioned as a directive force on the NPUC's operations. The crisis law, an exo-systemic element, mandated sweeping changes including the shift to digital teaching and the implementation of infection control measures (Solberg et al., 2021). These government-enforced regulations, though distant from the day-to-day interactions of our participants, had profound ripple effects on their professional practices and the micro-system dynamics.

Participants within the NPUC community articulated the tension between maintaining high educational standards and adapting to a rapidly evolving professional field. This aligns with the findings of Ghavami, Thornton, and Graham (2021), who demonstrate how contextual and historical factors play a crucial role in shaping how institutions and professions adapt to new challenges. A senior adviser encapsulated this sentiment: "We sat in a meeting room, going through the study plans and outcomes, grappling with what could feasibly translate into a digital format". This statement captures the strategic maneuvering required to navigate the exo-system's pressures while preserving the integrity of the micro-system's educational interactions.

The voice of the participants is particularly salient when discussing the adaptation to these exo-systemic pressures. A civilian academic lamented the lack of immediate support in transitioning to digital platforms: "I often experience that decisions are made, and then there hasn't been foundational efforts taken to understand the on-the-ground needs. That's a bit unfortunate". This description echoes Bronfenbrenner's assertion that effective functioning within micro-systems relies heavily on the support and resources from higher systemic levels.

Moreover, the faculty's innovative responses to these challenges underscore their resilience and dedication. As earlier mentioned, a police trained educator described how he and his partner circumvented the physical separation by establishing a work routine that simulated proximity "working together separately". This act of creating a 'virtual micro-system' underscores the adaptability of individuals in maintaining essential communication and collaboration, despite exo-systemic barriers.

This adaptive ingenuity also extended to the meso-system, where the leadership and support departments of NPUC played a pivotal role. The formation of a crisis management team and the adaptation of study administrative rhythms to pandemic constraints underscore the meso-system's responsiveness to the exo-systemic changes.

In conclusion, our findings reveal that the exo-system, during the pandemic, exerted a considerable influence on the daily professional lives of those within NPUC. The narratives of our participants, framed by Bronfenbrenner's bio-ecological model, highlight a dynamic interplay where external forces challenge and reshape the micro-systems, compelling individuals to devise creative strategies to uphold the quality of education. The exo-system, though distant, is deeply interwoven with the immediate educational environment, influencing decisions, pedagogical approaches, and ultimately, the evolution of the teaching and learning experience.

Macro-system

As we probe deeper into the macro-systemic influences on the educational sphere during the pandemic, our findings underscore the pervasive impact of societal attitudes, cultural norms, and overarching policies on the NPUC. Bronfenbrenner's conceptualization of the macro-system serves as a lens through which we can understand the broadest contextual factors that frame the subtler dynamics of micro-systems (Bronfenbrenner & Morris, 2007).

The societal response to the pandemic, reflective of the macro-system, created a backdrop against which all educational entities had to navigate. Our participants' experiences reveal how this macro backdrop informed the ethos and practices within NPUC. A palpable shift in cultural norms around work and communication gave rise to innovative educational strategies, which would have been inconceivable in a pre-pandemic world.

The macro-system's influence was also manifested in the public discourse surrounding the role of education during a crisis. The societal valuation of 'critical to society' roles underscored the importance of maintaining robust educational standards for essential services like police education. Still, among faculty at the NPUC there were voices that questioned the reality of this regarding our educational programs: One informant said "We were several colleagues discussing that we found it a bit strange that the Police University College continued operations when all other universities and colleges were closed. Are we so unique and indispensable? ... Yes, indeed, it's important to have police, but there are quite a few other educations that are also important".

Here, the understanding of NPUC's education is compared with other universities and colleges, raising the rhetorical question: "are we [NPUC] so unique?" in comparison to them. A police trained educator elaborates on this criticism by asking whether NPUC prioritized correctly in terms of which programs were conducted, that is, were it the unique courses related to the time-critical aspects of the pandemic period that were prioritized: "In such an extraordinary situation as the corona pandemic has been, I think that driving instructors are prioritized. That they are more important than border control instructors. To me, that's a bit strange".

This societal expectation, a macro-systemic pressure, shaped the micro-systems within NPUC where educators and students interact. Educators felt a weighty responsibility to deliver quality education amid constraints, a challenge that was echoed in their pedagogical adjustments and the resilience with which they approached the pandemic barriers: One police trained educator expressed "I just

jumped into the car as an examiner during the period when there were face masks and all that. We didn't have restrictions on it, and I went the extra mile so that the students could get their certificates of competence". Indicative of the macro-system's reach, global health concerns translated into local action, with faculty and students at NPUC adapting their behaviors and expectations accordingly.

In summary, the findings from our investigation into the macro-systemic effects on education during the pandemic reveal a complex tapestry of influences. The societal narrative, public policies, and cultural shifts collectively impinged upon the micro and meso-systems within NPUC. Participants' voices, framed by Bronfenbrenner's bio-ecological systems theory, elucidate how macro pressures instigated profound transformations in educational practices, driving innovation, collaboration, and a re-imagining of the pedagogical landscape. The macro-system is not merely a distant backdrop but an active force that shapes and is shaped by the lived experiences of educators and students alike.

Conclusion

The COVID-19 pandemic has served as a powerful catalyst for a comprehensive reassessment of teaching quality as a practice, as shown through the lens of Bronfenbrenner's bio-ecological systems theory (Bronfenbrenner, 1986; Bronfenbrenner & Morris, 2007). As explored throughout this article, the disruptions brought about by the pandemic have had profound implications on the context perspective, stretching from the intimate microsystems of personal relationships to the macrosystems encompassing societal norms and cultural constructs. The resilience and adaptability demonstrated by police educators in maintaining the integrity of these systems, despite physical distancing, have been both necessary and commendable.

Our findings indicate that the enforced separation did not erode the microsystems but rather transformed them, with technology serving as a conduit for preserving and even strengthening interpersonal connections and professional collaborations. This evolution, while challenging, has also revealed the capacity for innovation that exists within the education sector. The mesosystems, too, have undergone a recalibration as the interplay between home and educational environments took on new forms, elucidating the adaptability of these interconnected systems.

At the exosystem level, the indirect influences on teaching quality, such as organizational changes and policy shifts, have prompted educators to navigate new landscapes of practice without direct precedent. Meanwhile, the overarching macrosystem has been marked by a collective experience of the pandemic, influencing cultural and societal attitudes toward education.

The application of Bronfenbrenner's theory to the context of the pandemic has provided a valuable lens through which to examine and understand the multiplicity of factors influencing teaching quality. It has underscored the interconnectedness of individual, relational, and systemic elements, and the importance of considering these layers when aiming to enhance educational practices.

As we move forward, the lessons learned during this period must inform our ongoing efforts to refine the concept of teaching quality. The adaptability, creativity,

and resilience shown by our police educators are qualities that should be integrated into future pedagogical strategies. By embracing the contextual layers of Bronfenbrenner's bio-ecological systems theory (Bronfenbrenner, 1979; Bronfenbrenner & Morris, 2007), we can strive for a holistic approach to teaching that is responsive to both the immediate and extended environments in which learning occurs. This article thus contributes not just a reflection on a moment of crisis, but a strategic direction for future educational endeavors, emphasizing the enduring relevance of context in shaping teaching quality and learning experiences.

Building on these insights, it is clear that the contextual attributes of adaptability, innovation, and resilience are not only essential for navigating the immediate challenges posed by crises like the COVID-19 pandemic but are also critical for the future of teaching quality. As educational environments continue to evolve, integrating these qualities into pedagogical strategies will be key to enhancing resilience and flexibility in education. The lessons learned during this period can inform the development of more robust educational frameworks, better equipped to handle future disruptions and to maintain high standards of teaching quality regardless of external circumstances. Furthermore, our findings, particularly those related to adaptability and innovation, are likely generalizable to educators and institutions beyond the field of police education, offering valuable insights for broader educational contexts.

We believe that the changes identified in this paper are long lasting as they have created innovation and new possibilities, still, given the evolving nature of educational environments and the challenges highlighted by the pandemic, it is essential that future research explores the long term and deeper consequences of these changes. Such research will contribute to the ongoing development of strategies that not only address current challenges but also anticipate and prepare for future educational needs.

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