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# Student Teachers' In-depth Reflective Learning from Field Experience during the COVID-19 Pandemic

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## Abstract

Teaching practice (Block Practice, BP) is perceived by student teachers as the most challenging yet the most valuable component in their teacher education. They meet various challenges and obtain deep learning through reflection on their BP. Under the COVID-19 pandemic, student teachers have confronted unprecedented challenges at the front line. This paper investigates how different pre-service teachers coped with dynamic school contexts during the special period by analysing their reflection in the post-BP Field Experience (FE) ePortfolios. Following an interpretative phenomenology approach, twenty FE ePortfolios were collected from seven full-time teacher education programs, coded, and analyzed. Numerous outstanding themes were identified. Student teachers demonstrated a comprehensive understanding of the placement school's educational philosophy, goals, policies, and practices; appropriately applied the pedagogical knowledge to cater for diverse needs of their students; constructively reviewed and evaluated the process and outcomes of their own teaching attempts and ethical practices, and provided reasonable solutions to the problems they confronted during their BP. Particularly, students reflected deeply on their contingency teaching plans amid the COVID-19 pandemic and their experience of virtual and authentic teaching. Findings of this exploratory study add to the literature on student learning from FE under exceptionally challenging circumstances.

**Keywords:** ePortfolio; Field experience; Reflective learning; Teacher education; COVID-19

## Introduction

In the first half of 2020, school closures were observed in 188 countries due to outbreaks of the COVID-19 pandemic, lasting from 7 weeks to 19 weeks, and affected 1.7 billion children and their families [1]. In Hong Kong, following a zero-COVID policy, school closures were more frequent and long-lasting. In the academic year of 2020/21, the local outbreak of COVID-19 has led to the

suspension of face-to-face classes of primary and secondary schools irregularly in Hong Kong. Local schools' teaching arrangement was, therefore, changed from face-to-face to virtual teaching. This affected student teachers' teaching practice in their placement schools during the pandemic. Student teachers have confronted unprecedented challenges in their teaching practice in schools. As of July 2022, Hong Kong has experienced 5 waves of the COVID-19



pandemic. Cumulatively, Hong Kong schools have been suspended from face-to-face teaching for over 12 months since January 2020. The abnormal situation triggered the authors to investigate student teachers' FE ePortfolios at a university in Hong Kong to understand their learning difficulties at the front line during COVID-19 pandemic, as well as to examine the effectiveness of a structured ePortfolio in facilitating reflective learning under the exceptional challenging circumstances.

### Field Experience (FE), Block Practice (BP) and FE EPortfolio

At the participant university of this study, Field Experience (FE) is a compulsory course of teacher education programs. It includes Block Practice (BP) and a variety of tasks and activities (e.g., FE ePortfolio) for student teachers to integrate their learning from teacher education and demonstrate their competence in various domains. BP, which accounts for 70% of the FE course, is viewed as central to FE and teacher education programs at the university. It places student teachers in schools two times to work as a practicing teacher for 6-8 weeks each. Since 2012, the university has implemented FE ePortfolio in teacher education programs to enhance student teachers' reflective learning. After each BP, student teachers must complete an FE ePortfolio which accounts for 30% of the FE course. The FE ePortfolio addresses four domains in the Teacher Competencies Framework of the Committee on the Professional Development of Teachers and Principals (COTAP, 2015), namely School Development, Student Development, Teaching and Learning, and Professional Relationships and Development.

From January 2020 to May 2022, face-to-face teaching in Hong Kong schools has been suspended intermittently. As a response to the fluctuating situation, a flexible arrangement on BP was implemented to allow student teachers to conduct 30%-80% virtual teaching plus 20%-70% authentic teaching as the FE requirement in accordance with the latest development of the pandemic. As usual, student teachers were required to submit an FE ePortfolio after their teaching practice. Through reviewing the FE ePortfolios collected, the authors gained meaningful insights into the contingency FE plans, the student teachers' special experiences, and their learning effectiveness in FE.

## Literature Review

### The Evolution of Portfolio

Portfolio has become a popular tool in different learning contexts. Students showcase their skills and abilities by displaying evidence of works and achievements in their portfolio through which others can know more about "where they have been, where they are now, and where they are going in their chosen career" [2]. Progressively, over the past decade, developments in technology allow digital portfolio or ePortfolio to work as online podiums for teaching and learning [3]. The digital nature of ePortfolio allows students to showcase artefacts through additional types of materials, such as text, images, videos, and hyperlinks [3]. EPortfolio was relentlessly promoted in teacher education programs at tertiary institutions worldwide [4] to work as an online evidence-based compilation

tool for professional development [5]. Van Wyk [4] summarized that student teachers develop an ePortfolio for their self-directed learning, assessment, and employability.

### Cultivation of Reflective Abilities

In terms of format, an ePortfolio offers students "a structure to systematically reflect on their learning process over time and to develop their aptitudes, skills, and habits that come from critical reflection" [6]. Pelliccione and Raison [7] explored the difference in effectiveness in applying structured and unstructured ePortfolio framework in an Australian university. They found that an appropriate guided ePortfolio framework could enhance students' reflection [7]. Apart from an appropriate ePortfolio framework, Sultana, Lim, and Liang [8] identified the common facilitating factors (i.e., support from teachers and peers, technology competency, and training from the university), and the common hindering factors (i.e., language challenges, readiness for reflection, technology competency) which affected students' reflection level in the implementation of ePortfolio in higher education.

### Development of Self-learning Strategies

For self-directed learning, ePortfolios encourage students to make sense of unconnected information continuously (Cambridge, 2001), facilitate life-long, deep learning [9], and better understand themselves, their learning, and their motivation to learn [10]. Lin [11] found that students might be stimulated to engage in reflection and develop effective learning strategies through compiling an ePortfolio, and it helped students to connect their learning experiences "in more specific and complex ways" (p.196). Chau and Cheng [12] concurred with the above findings and highlighted that ePortfolio facilitates students' self-regulated learning, self-reflection and self-improvement through planning, monitoring, and reflection.

### A Collection of Learning Evidence

For assessment, ePortfolio is not only an item of assessment-of-learning but also an assessment-for-learning process (Barrett & Carney, 2005). Through compiling specific artefacts in an ePortfolio, student teachers demonstrate evidence of work which includes knowledge, skills, and attitude as professional teachers [4], and receive constructive feedback on submitted work (Boulton & Hramiak 2012; Bolton 2014). In this regard, student teachers' ePortfolios were not only for their own reflective learning but also for their job search process [13].

### EPortfolio in the Era of a New Normal

Under the new normal mode of online teaching, ePortfolio has been further promoted in teacher education programmes in universities worldwide [14-16]. On the other hand, ePortfolio has been adopted in teacher education programmes in some universities for some time and there are other issues of concern. For instance, the participant university of this study has implemented FE ePortfolio in teacher education programmes since 2012. During the pandemic, a contingency plan on FE was adopted and the pertinent ePortfolio guidelines were adjusted to accommodate the fluid

learning to teach conditions in schools. Student teachers followed the structured guidelines to reflect on several prescribed aspects, including school development, student development, teaching and learning, professional relationships and development, and ethical decision-making. The authors questioned the effectiveness of such structured FE ePortfolio as there were many unexpected “new normal practices” in various school contexts. To investigate whether the structured FE ePortfolio functioned to nurture student teachers under the exceptional challenging situation during the COVID-19 pandemic, the authors examined the emerging issues along two main research questions.

## Research Questions

Research studies have explored and evaluated the effectiveness of using ePortfolio in teacher education [5,17] and the enhancement of reflective learning [12,18]. Nonetheless, limited studies explored its effectiveness in nurturing student teachers’ reflective learning under exceptional challenging circumstances, i.e., the COVID-19 pandemic. On the other hand, some universities around the globe have introduced ePortfolio in teacher education programs as an alternative learning experience and/or assessment method in a rush during the COVID-19 pandemic [14-16]. However, no study has been observed to explore the impact of the pandemic on pre-existing FE ePortfolio courses. Moreover, Perryman, Leaton Gray, Hargreaves, & Saville (2022) studied the teachers’ teaching experience during school closures in 2020 in England. They concluded that “some teachers embraced the positive challenge, but many found their mental health suffered” [19]. Further investigation in the Hong Kong context using other types of data is worthwhile in order to understand teaching difficulties in the Asian context during the

pandemic. Based on the above premise, this study addresses the following research questions:

1. What difficulties did student teachers encounter in their teaching practice during the COVID-19 pandemic?
2. To what extent was a structured FE ePortfolio effective for promoting reflective learning under such exceptional challenging circumstances?

## Research Methods

Through an FE ePortfolio Support Scheme, the authors called for samples of FE ePortfolios from seven undergraduate teacher education programs with different major teaching subjects, including Chinese Language (CL), Early Childhood Education (ECE), General Studies (GS), Mathematics (MA), Music (MU), Visual Arts (VA), and Physical Education (PE) in the second BP (FE II) of the graduating cohort in 2020/21. As researchers, the authors were involved in the qualitative analysis of the samples FE ePortfolios with different grades. By data mining from the unstructured texts, key phrases including “difficulties”, “challenges”, “tough”, “hard”, “COVID-19”, and “pandemic” were identified. After the initial text mining process, it was found that those with a Distinction grade (i.e., the best grade) could engage in more in-depth reflections on how COVID-19 had affected their teaching practice than those with credit or pass grades (see Table 1). Thus, the authors believe that those with a distinction grade would be worthier for further investigation. Eventually, twenty FE ePortfolios with distinction grade (N=20) were collected with the student teachers’ consent for using their works for research purposes. Ethical approval was granted by the authors’ university.

**Table 1:** Text mining: Key phrases identified in FE ePortfolio with Distinction grade and Pass grade.

Subject	FE ePortfolio (Samples with Distinction Grade)		Subject	FE ePortfolio (Samples with Pass Grade)	
	phrases			phrases	
	pandemic/ epidemic/ COVID	difficulty/ challenge/ hard/ tough/ painful/ trouble		pandemic/ epidemic/ COVID	difficulty/ challenge/ hard/ tough/ painful/ trouble
CL1	3	0	CL4	2	2
CL2	5	0	CL5	0	1
CL3	3	0	CL6	1	7
ECE1	0	0	ECE4	2	0
ECE2	7	8	ECE5	3	3
ECE3	0	7	ECE6	0	0
GS1	2	2	GS4	6	1
GS2	0	3	GS5	1	4
GS3	7	0	GS6	3	2
MA1	0	5	MA3	0	6
MA2	0	7	MA4	1	1
MU1	1	0	MU4	3	0
MU2	3	2	MU5	0	0
MU3	0	0	MU6	1	1
PE1	5	5	PE4	4	1

PE2	2	1	PE5	3	9
PE3	4	0	PE6	2	3
VA1	5	4	VA4	2	1
VA2	4	8	VA5	2	1
VA3	2	3	VA6	1	1
Total	53	65	Total	37	44

Given the subject varieties of the teacher education programs involved, the authors followed an interpretative phenomenology approach for analysing the ePortfolios collected. The student teachers were considered “experts with regard to their own lived experiences and who themselves could tell a better personal story” [20]. The focus of analysis was on exploring student teachers’ reflections on learning to teach under the exceptional challenging COVID-19 circumstances. Regarding qualitative coding processes, an inductive coding approach was adopted. Therefore, the codes were derived from the data to allow the narrative or theory to emerge. After the first round of coding, the authors discussed and reviewed the codes and categories to uncover bias assumptions, vague descriptions, and errors in the coding processes until a consensus on the coding scheme was reached. A further round of coding was then conducted to confirm the arrangement of codes and categories. Finally, numerous themes were identified.

## Results

In the FE period (i.e., September 2020 – December 2020), Hong Kong underwent the third and the fourth waves of COVID-19 outbreak. Despite the resumption of half-day classes

progressively during the FE period, some schools closed for 14 days when any positive cases were found. Therefore, most student teachers experienced half-day face-to-face teaching (except those who practiced teaching in ECE settings), while some of them experienced school closure. Table 2 shows the categorization of FE school contexts and the themes of reflection identified in the FE ePortfolios.

As shown in Table 2, most student teachers reflected on issues around online teaching (i.e., during the suspension of face-to-face teaching) and classroom teaching (i.e., after the resumption of half-day face-to-face classes) in their FE ePortfolio. Most student teachers mentioned virtual teaching strategies (n= 16, 80%) under the theme of online teaching and rushed lessons (n=8, 40%) under the theme of classroom teaching. As the context of situation in the ePortfolios was complex, the purpose of coding was not to count the occurrence of the same themes in an ePortfolio. Rather, the authors only consider whether the themes did occur. The results below present highlights of the themes of reflection in the selected FE ePortfolios, and the analysis of the excerpts of some significant themes.

**Table 2:** Co-occurrence of the reflection themes in relation to online teaching and onsite classroom teaching.

FE school context	Themes	Subject (Total)							Total (%)
		CL (3)	MA (2)	GS (3)	MU (3)	ECE (3)	PE (3)	VA (3)	
Suspension of face-to-face classes (Online teaching)	pedagogy and strategies of online teaching	3	2	1	2	3	2	3	16 (80)
	pros and cons of online teaching	1				1	1	2	5 (25)
	home-school cooperation	1			2	2			5 (25)
	lack of opportunity to engage in school activities			1				1	2 (10)
Resumption of half-day face-to-face classes (Onsite teaching)	conventional teaching strategies	1	1	1				1	4 (20)
	psycho-social well-being of students	1		1	1		1		4 (20)
	rushed lessons	2		1	1		2	2	8 (40)
	cross-boundary students	1			1			1	3 (15)
	hybrid teaching		1		1			2	4 (20)
	catering for student diversity and learning needs			1	1				2 (10)
safety concerns						2	2	4 (20)	

### Pros and Cons of Online Teaching (n= 5, 25% of FE ePortfolio mentioned)

Amid the exceptional challenging circumstances, student teachers realised the irreversible trend of online teaching and the importance of professional development in the long run (Excerpt 1). The advantages and disadvantages of online teaching were highlighted in their reflections. Some student teachers expressed that it was difficult to monitor or observe their students' learning progress and provide instant feedback when they taught online (Excerpts 2 & 3). It was worse in the early childhood sector where interpersonal interaction played an important role in facilitating young children's cognitive, social, and emotional development (Excerpt 4).

Excerpt 1: "...Online classes will be the new normal. Therefore, it was a good opportunity for me to try and learn how to conduct online classes... as a professional teacher, I must keep abreast of the times, learn and be familiar with the new teaching environment, and be proficient in online classes is one of them." (GS, FE ePortfolio 6)

Excerpt 2: "In a physical class, teachers can observe the status of the students to adjust the rhythm of the class; it is difficult to know whether the students are paying attention through the screen under the online teaching mode." (VA, FE ePortfolio 20)

Excerpt 3: "The biggest difference between ZOOM teaching and face-to-face teaching is that I can't see the progress of the students at any time, so I can't provide advice and help at any time." (VA, FE ePortfolio 18)

Excerpt 4: "Activities between kindergarten students help build their knowledge and learning skills and affect children's social and emotional development. However, under the pandemic, they have no chance to learn with their peers, and it is challenging to let them interact with peers under the online teaching model." (ECE, FE ePortfolio 4)

On the other hand, some student teachers discovered the potential of online teaching in engaging students in an unconventional manner. Some of them were tempted to familiarize themselves with the functions on ZOOM or other electronic platforms, gamify the teaching and learning process, and optimise the use of online facilities to encourage student participation. In some cases, online teacher-student interaction was found to be more effective than face-to-face interaction in classroom teaching (Excerpts 5 & 6).

Excerpt 5: "...e-learning facilitated the participation of the whole class in the game activities designed by the electronic platforms, such as Kahoot and online jigsaw puzzles. These can increase participation, arouse students' learning motivation, and help improve learning effectiveness." (CH, FE ePortfolio 1)

Excerpt 6: "As long as you are familiar with the functions of ZOOM, you can increase the interactions between students and teachers, such as voting and annotation functions ... Some students who had been usually reluctant to speak face-to-face

were willing to type and express their opinions on ZOOM." (VA, FE ePortfolio 18)

Moreover, as online teaching collected records of learning at different times, some student teachers found it more effective to assess online assignments, provide feedback to students, and adjust their teaching (Excerpts 7 & 8). In practical subjects such as Visual Art, individual student teachers experienced the benefits brought by the rich online resources in the teaching and learning processes (Excerpts 9 & 10).

Excerpt 7: "Students were required to finish two online assignments and the PE log after watching videos. Compared to asking questions about the rules during the real-time lesson, online learning and assessment are relatively easier to observe the knowledge of the students. The response data showed the strengths and weaknesses of students. I could provide personal feedback or clarify the misunderstanding concepts of most students." (PE, FE ePortfolio 15)

Excerpt 8: "This virtual teaching made me feel that e-learning also has its benefits, including more data-based and systematic statistics on students' learning, so teachers can understand the changes in students' learning and adjust the teaching content, and to enhance the teaching and learning quality." (CH, FE ePortfolio 1)

Excerpt 9: "Virtual teaching enables students to see demonstrations more clearly, and the rich online resources foster students to develop exploratory learning." (VA, FE ePortfolio 20)

Excerpt 10: "Teachers can use online resources for teaching more conveniently." (VA, FE ePortfolio 18)

### Online Pedagogy and Teaching Strategies (n=16, 80% of FE ePortfolio mentioned)

A student teacher recounted in her FE ePortfolio that she had worked hard to build an online learning resource for her students, but her students showed no interest at all. Despite frustration, the student teacher learnt a deep lesson that motivating students is the key to success in the case of online teaching (Excerpt 11).

Excerpt 11: "...the students' attitude towards learning on the online platform was not as positive as expected. Although the teacher worked hard to "spread fertilizer" on the platform, the students were unwilling to "absorb" it. This was also a waste of effort. Therefore, how to motivate students to use the online learning platform became particularly important..." (CH, FE ePortfolio 1)

Understandably, engaging students in online teaching is easier said than done, especially in practical subjects. The student teachers of Music, Physical Education and Visual Art in this study struck hard and tried different ways to attract their students' attention. Some teachers required students to share their homework or assigned tasks in class that students had to complete during the online lesson (Excerpts 12, 13 & 14).

Excerpt 12: "...many students did not turn on their cameras and microphones, it was difficult to tell whether they were studying seriously... I asked them to record their singing with their mobile phones, and then uploaded it to the school's iLearn platform before leaving the zoom classroom... If they did listen carefully, they couldn't complete the classwork. Such method effectively encourages students to answer more questions and enhance their learning enthusiasm." (MU, FE ePortfolio 9)

Excerpt 13: "I have arranged a Padlet sharing platform for students in Form 2 to share a video about Gymnastics... Every student contributes one video on the Padlet. This method enhanced their ability to appreciate others in artistry. Also, it enabled them to learn from their peers, watched various gymnastics events and obtained information about local athletes." (PE, FE ePortfolio 15)

Excerpt 14: "...I regularly asked students to show their work in front of the screen to let me know their progress. I also asked them to draft on the draft paper before starting their painting... I understand that this would increase their workload, but this really allowed me to understand their progress and I could check whether they understood the requirements..." (VA, FE ePortfolio 18)

### **Home-school Cooperation for Online Teaching (n=5, 25% of FE ePortfolio mentioned)**

Taking BP under the pandemic, the student teachers also realized the importance of obtaining support from parents/guardians of their students. To optimize student learning outcomes, home-school cooperation was a main mission for schoolteachers to accomplish. The student teachers learned to provide teaching materials, instructional advice and keep close communication with parents (Excerpts 15 & 16).

Excerpt 15: "Considering that teachers were not able to meet with students during the pandemic, teachers could invite the caretakers to the school to learn about the activities and teaching materials for their children. Teachers provided activity packages, and made more use of everyday materials in children's daily lives, such as counting red beans at home to learn math, using environmentally friendly materials for art activities, etc." (ECE, FE ePortfolio 12)

Excerpt 16: "...teachers and parents had a WhatsApp group to help urge their children to concentrate on the online lesson at home. When exams approached, the teachers also instructed parents on how to use zoom, such as adjusting the angle of the camera, so students could take the exam in a fair environment." (MU, FE ePortfolio 10)

Besides, there were cases in which home-school cooperation cared about not only the children but also their parents/guardians. In Excerpt 17, the guardian was the grandfather of the student who could not adapt to the online teaching mode. As a result, the teachers must provide alternatives for meeting the family conditions. Such experience provoked the student teacher's critical reflection on core value of student learning.

Excerpt 17: "...The online teaching aids caused difficulties for their family during the pandemic, and the student could not

complete the relevant activities. In view of this, the class teacher provided additional classes and related training for the student to help him keep pace with his study. I think home-school cooperation is not only about the communication between parents and teachers, but the teacher's support and understanding are also very important..." (ECE, FE ePortfolio 14)

### **Onsite Rushed Lessons (n=8, 40% of FE ePortfolio mentioned)**

The student teachers who taught different subjects encountered a variety of teaching and learning issues when the half-day authentic classroom teaching resumed. The problems they encountered were mainly caused by the shortened lesson period. For instance, a student teacher who taught PE had to spend half a lesson talking about the logistics of teaching equipment which severely impacted on the teaching efficacy. The limited lesson time made him explore feasible solutions to practical problems (Excerpt 18). At the same time, the exceptional circumstances also raised his awareness of the possible impact of his solutions on other classes, leading to his deeper thinking for solving similar problems in the future (Excerpt 19).

Excerpt 18: "Under the COVID-19 special arrangements, each lesson was reduced to 25 minutes. The mats and boxes were put on the other side of the school... I had used different solutions... if I had lessons following recess, I could use solution 1, i.e., ask students to get the mats during recess. But, in case another teacher used mats before my class, I would ask the teacher to leave the mats behind. However, if my lessons were the first or the last two periods of the day, I had to use solution 2, i.e., put the mats in a closer place temporarily. I could prepare these beforehand, maybe in the morning or the day before... These methods could increase student learning time..." (PE, FE ePortfolio 17)

Excerpt 19: "Because of the tight schedule, some teachers might use the recess time to finish their teaching content. I could not ask my students to take the mats under this situation because they had to change clothes ... In the future, when I become a full-time teacher, I would reconsider the place for storing equipment, which should be convenient for users." (PE, FE ePortfolio 17)

Another student teacher who taught Mathematics emphasized the importance of teaching quality in his e-portfolio. Facing the reduced lesson time, he focused on only one teaching objective for each section rather than pursuing to achieve all teaching objectives (Excerpt 20).

Excerpt 20: "Since there were only 30 minutes in a face-to-face lesson, there were too many objectives and too little time to teach. My Supporting Teacher suggested me to focus on one teaching objective in each session, and each session must have at least one teaching activity to assess whether students could fully understand the key point. Quality is more important than quantity. The most important thing is that students can understand and consolidate the key points of the lessons..." (MA, FE ePortfolio 4)

A Visual Art student teacher found out that her students were unable to complete their homework on time, but it was

inappropriate to ask students to stay behind after school because of the half-day onsite teaching arrangement. In the end, she decided to wait for her students during recess to complete their work because it would be more important to foster self-discipline in secondary school students and let them understand their responsibilities (Excerpt 21).

Excerpt 21: "The greatest difficulty I encountered in teaching was that students were absent and unable to complete their homework on time. Because of the pandemic, students could not stay behind in school. So, I could only stay in the Visual Art room every day to wait for my students to come and finish their work. Instead of looking for them in their classroom like pupils in primary schools, I let them take the initiative to complete the unfinished work. As the recess time was short, I spent a lot of time every day following up the work progress of my students. I thus deeply understood a teacher's dedication and bitterness under the pandemic." (VA, FE ePortfolio 19)

### Onsite Safety Concerns (n=4, 20% of FE ePortfolio mentioned)

For schoolteachers, students' safety is always a top priority concern. Under the pandemic, student teachers were particularly aware of issues related to the implementation of anti-pandemic measures. For example, a PE student teacher encountered a dilemma of whether his students should wear a mask when doing exercises. He finally decided to respect the rules upheld at his placement school (Excerpt 22).

Excerpt 22: "...It would be dangerous to take part in mid-to-high intensity physical activities with a mask under hot and humid weather. However, the school advised that all students should wear a mask in PE lessons. Although I did not totally agree with the policy, I had to respect it during my BP. After discussing with my Link Teacher at the school, I requested my students to use hand sanitizer to clean their hands before and after my lesson. Also, they must stop exercising and report to me immediately if they feel dizzy or had any breathing problem." (PE, FE ePortfolio 16)

To protect students and staff members from contracting COVID-19, schools employed various disinfection measures to ensure a hygienic school environment. A VA student teacher required students to clean and disinfect facilities with bleach before using the Visual Art room. However, a student had a serious allergic reaction after cleaning the facilities with bleach and was finally sent to the medical room. The student teacher had an impactful experience of the incident and rediscovered a deep meaning of student safety in school (Excerpt 23).

Excerpt 23: "...A student had red hands after cleaning the pandemic prevention boards. When he was in the medical room, he found that he might be sensitive to bleach which he didn't know. Although this was an accident, it strongly reminded me that I should have checked with my students to confirm if anyone were sensitive to the chemicals used... This teaching practice had made me deeply understand what ensuring student safety meant and the responsibilities of teachers." (VA, FE ePortfolio 20)

### Psycho-social Well-being of Students (n=4, 20% of FE ePortfolio mentioned)

For a prolonged period of class suspension, many students were forced to stay home due to the government's implementation of anti-pandemic measures. Upon the resumption of onsite classroom teaching, the psycho-social well-being of students was another prominent concern. Students' learning progress (Excerpts 24, 25) and physical fitness (Excerpt 26) had been severely affected, as observed by the student teachers of different subjects.

Excerpt 24: "Previously, teaching was conducted in an online mode. Some students were unable to adapt to the workload in the physical classroom for a while and were not even in a proper learning state. As a result, the overall assessment results were not as ideal, and many students failed." (CN, FE ePortfolio 2)

Excerpt 25: "During the pandemic, each student was separated and kept a social distance. Students felt alienated, and their activities were mainly based on listening. Students were used to a passive mode. To improve the learning atmosphere in a short time, I needed to organize different activities to ignite their interest in learning." (MU, FE ePortfolio 8)

Excerpt 26: "Due to the suspension of classes earlier, most students' physical fitness levels have declined. It was necessary to pay special attention to the intensity of activities during the PE lessons." (PE, FE ePortfolio 18)

### Discussion and Conclusions

The student teachers in this study encountered unprecedented challenges during their BP virtually as well as in authentic school settings. The excerpts adopted in this paper highlight the views of student teachers in different subjects regarding their teaching practices online (e.g., virtual teaching strategies, pros, and cons of virtual teaching, and home-school cooperation, etc.) and physically in authentic settings (e.g., rushed lessons, safety concerns and psycho-social wellbeing of students, etc.) as a result of class suspension and resumption. The teaching difficulties identified in this study have something similar to the teachers in England [19], such as online teaching logistical and practical difficulties and home-school cooperation. Furthermore, this study could explore the differences among teaching subjects. Table 2 shows the varieties of student teachers' reflection focuses as the difficulties they confronted varied by their teaching subjects. For instance, PE (n=2, 66.67%) and VA (n=2, 66.67%) teachers tended to focus more on safety issues. It was because PE lessons involved doing exercises and VA lessons involved using tools and sharing art materials while the teachers and students were required to conform strictly to the anti-pandemic measures, i.e., wearing masks and keeping a social distance. On the other hand, ECE student teachers were more concerned about home-school cooperation because their students were toddlers and pre-school children who need intensive support from their guardians during their online lessons at home. Therefore, kindergarten teachers had to work more closely with parents/guardians than their counterparts in primary or secondary schools.

According to the subject supervisors, the student teachers in this study have already done very well in their FE ePortfolio to obtain a Distinction grade. They have demonstrated their enhanced aptitudes, skills, and reflective abilities systemically [6]. Their distinctive focus of reflection revealed their subject nature, indicating that reflective learning is situated in contexts. Most of them showed eagerness to further improve virtual teaching strategies based on the virtual teaching experience they gained during BP. Some of them reflected on the pros and cons of virtual teaching and revealed their thoughts on the future vision of education under a new normal. With reduced face-to-face teaching time, some of the student teachers thought about solutions to practical problems and reflected on the solutions adopted. Besides, as stipulated in Table 2, other reflection dimensions addressed by the student teachers included a lack of opportunities for them to engage in school activities, conventional teaching strategies, cross-boundary students, hybrid teaching, and catering for student diversity and learning needs, etc.

Nevertheless, these student teachers showed relatively restrictive perspectives due to their limited teaching experiences. The provision of the structured FE ePortfolio curriculum and guidelines seemed to offer a “safety net” for building a reflective and critical FE ePortfolio that would meet the basic requirements of the pertinent teacher education programs. Previous studies suggested that student teachers tended to prefer more guidance from the university because it would make the ePortfolio work more meaningful [18]. The guided FE ePortfolio facilitated the student teachers to look back and reflect on their BP learning systemically. More importantly, the “safety net” functioned to guide the student teachers to reflect on the key issues within the education sectors and ensure that they would not deviate from the main theme of the learning task. Under the structured ePortfolio guidelines, the student teachers could demonstrate their reflective abilities following the actual teaching conditions (i.e., suspension and resumption of class). Yet the most eye-catching highlights (valuable lessons learned) in the FE ePortfolios always out-liered beyond the scope of the set structure.

Practicing in the school settings, the student teachers understood the importance of conforming to the school regulations and policies as a whole, though they might have their own preferences in handling student cases (Excerpt 22). Despite adhering strictly to the school policy, there could be unexpected incidents (Excerpt 23). While online teaching was used as an indispensable alternative to authentic classroom teaching and sometimes even yield unexpected, better effects (Excerpts 5 to 10), digital tools may not work for all families and at the most critical situation it was human teachers who were indispensable for ensuring quality student learning (Excerpt 17). How to strike a good balance and make sensible decisions became the essence of professional growth in student teachers, and how to equip student teachers for unprecedented challenging circumstances posted new challenges to teacher educators. An unanswered question remains to be “how ready is readiness for reflection (Sultana, Lim & Liang, 2020) for student teachers in their teaching practice?”

The student teachers’ reactions to the critical incidents they confronted during the pandemic suggested a need for developing better sensitivity to the teaching circumstances in which they situated. To become a professional teacher, they were not only to follow the standard practices in schools mechanically, but also to make instant responses and wise decisions, especially in case of emergency. In order to respond in time, the student teachers must attend to details on the spot and further reflect on the causes, process and consequences of the whole incident for forward looking plans afterward (Excerpts 22, 23). These procedures suggested a kind of inertial thinking that could be trained and familiarized by practices. The more student teachers adopt the suggested inertial thinking, the more solid their reflective practice would be. The implications for teacher educators are perhaps to craft carefully delicate scaffolding for student teachers to meet unprecedented challenges in educational settings. A possible step further is to draw the lesson from the pandemic experience and revamp the educational programmers’ curriculum and even the expected learning outcomes for teaching practice to train pre-service teachers to be better prepared for any contingencies in the future.

The FE ePortfolios analyzed in this study provided sound evidence of student teachers’ deep learning from their teaching practices under the prolonged pandemic. COVID-19 has complicated their journey of learning to become schoolteachers but at the same time enriched their learning journey with exceptional opportunities. Their distinctive reflections documented in the FE ePortfolios can be exemplary precedents for future student teachers, i.e., to be references, not only for organizing their reflection, but more importantly as exemplars of how they develop their reflective practices. In view of these potentials, the participant university in this study established a subject-based ePortfolio repository for student teachers to review FE ePortfolio with Distinction grade [21]. Student teachers are encouraged to read through the good examples of their respective subjects on the online repository. These examples are helpful resources for novice student teachers to learn from the valuable experiences of their senior course mates.

To control the spread of COVID-19, schools in Hong Kong have resumed a half-day face-to-face teaching mode since fall 2022 and almost back to normal from 2023. Undoubtedly, it has been a painful experience for all stakeholders of FE. But when looking backwards, the old saying “no pain, no gain” applies, it has been an exceptionally valuable learning bonus for all, and the rapid development of online teaching has made it an irreversible trend in most education sectors. The pandemic has boosted the growth of e-learning and facilitated the on-going development of educational technology. The student teachers in this study have experienced a special BP during the pandemic and that will be the most invaluable learning experience which enables them to teach effectively under unforeseeable challenges in the future. This study has testified that structured FE ePortfolio guidelines worked under exceptional challenging circumstances in guiding student teachers’ reflection and suggests them to foster a reflective habit through attending to details on the spot and practicing inertial thinking of reflecting



on the causes, process, and consequences of the whole incident afterwards. The difficulties encountered by the student teachers and school personnel offer useful references for related educational practices and research [22-24].

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