Virtual and on-line learning throughout the COVID-19 Pandemic: The experience of Community Children's Nursing students.

Abstract

Background: The COVID-19 pandemic has resulted in significant changes in how education is delivered. For many University programmes this has included a move from face-to-face to virtual and on-line learning and teaching.

Aim: This study sought to gain insight into the experiences of students undertaking the Community Children's Nursing (CCN) Specialist Practitioner Programme at 3 English Universities during the academic year 2020-21 when, as a consequence of the pandemic, the majority of learning and teaching was delivered using virtual and on-line methods.

Methods: Data was collected from participants via a survey questionnaire distributed to students by Programme Leaders at the 3 Universities.

Findings: 7 survey questionnaires were returned (25% response rate). Participants experience of on-line and virtual learning was generally positive, with benefits to work-life balance and opportunity to re-visit recorded lectures being particularly well regarded. Loss of opportunity for face-to-face engagement with both fellow students and the lecturing team were identified as disadvantages.

Conclusion: This survey found strong student support for the provision of more flexible approaches to learning and teaching. Universities need to recognise that failure to offer such flexibility could potentially impact on recruitment and the viability of courses in the future.

Background

On 30th January 2020, the first two cases of COVID-19 in the United Kingdom were confirmed – a mother and son, Chinese nationals staying in a hotel in York (BBC News, 2020a). The first UK death from COVID occurred on March 5th (BBC News, 2020b). By March 18th there were just over 100 deaths and the UK government announced that all nurseries, schools and colleges were to be closed to pupils within 2 days (BBC News, 2020c). By the end of that week, most UK Universities had confirmed the suspension of all face-to-face teaching. This article summarises the findings of a survey of students undertaking the Community Children's Nursing Specialist Practice programme during the first full academic year of the COVID-19 Pandemic. Students from three UK Universities offer insights into their experiences of a year when almost all contact with lecturers and fellow students was through a camera lens and a computer screen. Course leaders at the Universities share their experience of how programmes were adapted to deliver learning outcomes originally designed for a very different 'pre-COVID' landscape. The article highlights the continuing need to offer creative and flexible approaches to teaching to meet student learning needs and expectations.

In the United Kingdom (UK), the Community Children's Nursing (CCN) Specialist Practitioner programme is delivered within the overarching 'Standards for specialist education and practice' as set out by the Nursing and Midwifery Council (NMC), (UKCC, 1994; Whiting, 2000). Key requirements for the programme are that it is undertaken in no less than 32 weeks of academic

study, comprising of 50% theory and 50% practice and including both core and CCN specialist content. In 2018, the Queen's Nursing Institute (QNI) published an updated set of standards for the CCN programme (QNI/QNIS, 2018) and although these hold no formal approval from the NMC, the standards have been widely adopted by universities who offer the course. During 2020/21, 11 UK universities held approval with the NMC to offer the CCN programme (8 in England, 2 in Wales and 1 in Northern Ireland), though it is understood that only 6 courses ran.

The COVID-19 pandemic has had a significant impact on student learning from early years education, through primary and secondary schools as well as further and higher education. There have been long periods when children, young people and adults have not been able to engage in face-to-face learning at all. With changing rules and guidance throughout the various stages of the pandemic, as well as COVID related sickness absence and self-isolation of both students and staff, novel and creative approaches to the delivery of education have been a key feature for all sectors. Learning and teaching strategies had to be adapted at pace, with little preparation of staff or students and, whilst there have been considerable challenges (for example, in terms of the adoption of new technology and the creation of an engaging learning environment), it is important to reflect on the processes that were implemented, recognising both strengths and limitations, to enhance future student learning.

At the University of Hertfordshire, face-to-face teaching was suspended from mid-March 2020 in order to ensure the safety of students, staff and the wider community. Nine days later, the university transitioned to on-line learning (Price, 2020). In the weeks that followed, the CCN students who had previously been attending face-to-face lectures on campus, received their remaining teaching on-line via short 30-minute Zoom sessions, pre-recorded narrated PowerPoint recordings or alternative e-learning resources. With the support of local Practice Supervisors, Practice Assessors and NHS employers, alongside the national support of NHS Health Education England (HEE) it was agreed that despite the highly challenging and demanding circumstances, CCN students could continue with their clinical placements and complete their programme on time. It was anticipated that all would return to 'normal' in preparation for the next programme commencing in September 2020. However, in late August the Universities and Colleges Union warned of an "*avalanche*" of COVID cases if students returned to the classrooms and advised this should be delayed until Christmas (BBC News, 2020d). On September 28th the BBC reported that around 40 Universities had confirmed positive COVID cases within days of the start of the academic year (BBC News 2020e).

In recent years, universities had been steadily expanding their use of on-line education with increasing numbers of students opting to complete their programmes via this route (Gregg and Shin, 2021). However, the pandemic has required Higher Education Institutions (HEIs) to invest heavily in IT infrastructure at pace in order to facilitate teaching and assessment (Al-Maskari et al 2022). Whilst there is growing pressure in the UK for HEIs to return to face-to-face teaching (Coughlan, 2021), it is counter argued that some students prefer the greater flexibility that synchronous and asynchronous on-line learning provides as this optimises time management, improves work-life balance and reduces both the cost and impact of commuting. For mature students, it has also been identified that on-line learning supports a better balance of the competing demands of studying, working, parenting, and other caring responsibilities. However, to enable students to study effectively from home, they require access to suitable device/s and a reliable internet to allow them to engage fully with the educational activities (Cullinan et al, 2021, Ives, 2021, Graves, et al 2021). HEE has given clear indications of its intention to embrace

the flexibility offered by blended or on-line learning with the commissioning of a growing number of programmes to HEIs prepared to offer this approach (HEE, 2020, HEE, 2021a, HEE 2021b).

Aim of the research

The overall aim of the research was: To ascertain the views of students undertaking the CCN programme, in the context of their experiences of online learning and teaching, during the academic year 2020-2021

Methods

The research involved a survey of students (n = 28) at three UK universities. Course Directors provided additional context, presented as short vignettes (Boxes 1-3). Survey questionnaires, which included both quantitative and qualitative questions, were distributed to participants and returned to the study Chief Investigator (MW) by email. Respondents were assured that all personal or institution identifiable information would be removed from the findings which are reported below. The survey, which consisted both Likert scale and free text questions was completed anonymously in students' own time. (Copy can be made available as additional on-line content). Surveys include a range of pre-determined questions and are normally completed either in-person or on-line; despite some of their disadvantages (such as low response rates and the reliance on accurate self-reporting), they are widely used in health and education contexts as they are cost-effective and can normally be completed in a short space of time (Parahoo, 2014; Phillips, 2017).

Ethical approval for the study was granted through the Health, Science, Engineering and Technology Ethics Committee with Delegated Authority at the University of Hertfordshire (Protocol No: HSK/SF/UH/04671).

Data Analysis

The completed questionnaires were collated; descriptive statistics were used to aggregate and present the findings in an organised and systematic way (Guetterman, 2019). The study Chief Investigator undertook an analysis of free-text response to enable the identification of key themes, this process was then verified by another team member (LSW).

Findings

Seven survey questionnaires were returned (25% response rate). Participants had worked as Registered Nurses for between 2 and 18 years prior to commencing the programme (Figure 1) and for between 1 and 12 years as a CCN (Figure 2).

Respondents reported varied experience in the use of video and on-line technology for personal use prior to commencing the programme. This included applications such as FaceTime, Skype and Zoom, (primarily used to communicate with family and friends), as well as social networking and on-line shopping.   In respect of their use of video technology in their professional context, three respondents confirmed that they had not previously used any video-communication at work at all, two reported the use of MSTeams and Zoom for work meetings.

Respondents were asked how, prior to commencing the programme, they anticipated that the pandemic might impact on their learning experience. They identified concerns, including the ability to maintain concentration and to follow the teaching, recognising that "*face-to-face*

learning experiences would be limited" (CCNS4). Several respondents identified a lack of opportunity for interacting with fellow students, for instance, "*for comparing ideas and findings*" (CCNS6). Concerns were also raised in respect of engagement with teaching staff, for example in following up "*queries*" or "*issues*" arising during classes and possible lack of responsiveness from tutors to emails. One respondent who was completing the second and final year of a part-time programme reported that during the first year (academic year 2018-19) she had "*been able to build up relationships with lecturers and peers*", but in the second year she "*felt more isolated as I didn't get to spend much time with the rest of the cohort.*" (CCNS7).

Regarding their all-round experience of learning using video and on-line technology, participants commented positively on the convenience and time saving aspects, including not having to travel. The ability to be able to review and replay recorded lectures at home was welcomed. One observed that it was "*better learning at home in my own space*" (CCNS2), however others found their home environment to be "*distracting*" and reported that on-line lectures were *"difficult to follow and focus on, to ask questions and confirm understanding."* (CCNS4).

Participants views on the use of videoconferencing to deliver taught programme content were largely positive, though this varied depending on the software being used. Zoom and MSTeams were the most widely reported platforms. The 'break-out room' feature on Zoom was a clear favourite at one of the universities and students at another gave a positive evaluation of Panopto. Respondents reported that they found the use of interactive and on-line quizzes to be helpful as was the facility to access the university library on-line. Concerns were, however, raised about variability in the confidence, familiarity and ability of lecturers with the use of the different on-line platforms. In addition, participants commented on their own lack of familiarity with the videoconferencing software/functionality as well as technical issues with internet connectivity and 'drop-out' resulting in part or whole lessons being missed.

Respondents were asked to consider the advantages and disadvantages of on-line learning compared to the more traditional 'classroom model' (Table 1). On balance, the feedback from the participants was more positive than negative, though detailed comments were provided across a range of areas.

Advantages	Disadvantages
• No travel or parking stress, or expense of travelling • Extra time allowed for more independent learning before and after lectures • Enabled work-life balance • Being able to continue lectures, even when in a COVID positive house • Enabled those who live a long distance away to access learning • Not feeling overwhelmed in a large lecture room • Able to re-watch and review lectures in own time • Able to transfer learning to workplace • Improved confidence to use video at work meetings, discharge planning meetings and teaching sessions with patients	• Could not build up as good relationship with fellow students, though "*we had a supportive WhatsApp group*" (CCNS1) • Lack of face to face and social interaction with fellow students • Loss of opportunity for group discussion, sharing of ideas, general 'chatting' and debates • Felt less natural • Hard to fully "*understand how other teams all operate*" (CCNS3) • Support not as good from lecturers as not able to build up relationships • Lack of follow up tutorials • Concern re accuracy of monitoring student attendance (if camera and microphone 'off') "*It was obvious that many students were not participating or listening to the lectures at all*" (CCNS4)

Table 1: Advantages and disadvantages of on-line learning.

Respondents from two universities identified specific challenges related to both teaching and assessment within the Objective Structured Clinical Examination (OSCE) component of the programme, with a consistent student view that this required a face-to-face delivery approach. Participants at one university reported positively that this was one of the few elements of course content that had included some face-to-face sessions. The non-medical prescribing element of the programme, including lack of opportunity to practice patient consultations with peers, was also identified as an area where the lack of face-to-face teaching impacted on learning. In addition, students commented on the absence of group tutorials and 'ad-hoc' conversations with teaching staff. One observed:

> "*Just being able to have those quick discussions at the end of class about something mentioned during the lecture is an important part of learning. I appreciate we could still do this on Zoom but typing questions and replies is not quite the same as a proper conversation.*" (CCNS3)

Respondents were asked to offer views on their personal confidence in using video and on-line technology, specifically in respect of how this had changed over the course of the year (Figure 3). Six out of the seven respondents reported that their confidence had improved:

> "*It has given me confidence to use this technology in my job. I have delivered training via MSTeams in my current role.*" (CCNS7)

> "*Overall, I feel as though it has been positive as I have been able to become more confident in programmes I hadn't used much previously.*" (CCNS1)

"I feel more confident in carrying out presentations and training via video-technology." (CCNS6)

Due to the small number of responses, it was not possible to assess whether there was a relationship between prior experience of using video technology and personal confidence in it's use either prior to or on completion of the programme.

Participants were asked about how well they thought the programme had prepared them for their role as a CCN (Figure 4). In spite of the challenges presented by the COVID-19 pandemic itself and the consequent impact on programme delivery, this group of CCN students considered themselves to be well-prepared for their future career in community children's nursing.

Discussion

The COVID-19 pandemic brought many challenges to the provision of courses such as the CCN Specialist Practitioner programme. However, the findings of this small study clearly demonstrate that alongside those challenges there have been significant opportunities for the introduction and development of creative approaches to programme delivery.

On balance, the students who participated in this research reported positively on their experience of the use of on-line learning. Importantly, they felt that the course had prepared them well for their roles as CCNs, this is particularly positive as earlier work has suggested that expectations were not always met (MacGregor and Gray, 2002). Almost all students reported a marked improvement in their confidence in the use of video and on-line technology whilst undertaking the programme. Students in this study appreciated the flexibility that on-line learning afforded, (echoing the findings of Barber, 2021), reducing time spent travelling from home to university and the ability to re-view recorded lectures in their own time and at their own pace. However, participants did highlight concerns related to the loss of opportunity for direct engagement with both fellow students and lecturers.

Although this was a small survey, it does offer some insightful perspectives for future education provision. Programmes such as this, require a bespoke approach that is flexible and adaptive to student needs, recognising the need to deliver teaching and learning to match the varied personal biographies within the student cohort. In a systematic review of HEI blended learning approaches, Müller and Mildenberger (2021) concluded that this was as effective as face-to-face classroom teaching and that equivalent learning outcomes are achieved. However, respondents in our survey highlighted the value of face-to-face teaching in relation to those elements of the programme which were focussed on clinical practice such as the OSCEs and practical prescribing. This is consistent with other recent work, such as Chan et al (2021) who reported on the positive value placed by post-Registration students on face-to-face session in developing nursing skills. Respondents also placed value on face-to-face engagement as an important element of relationship building both within the student cohort and also between students and the teaching team.

Participants emphasised several practical challenges relating to the delivery of on-line learning, such as a robust IT infrastructure, internet connectivity and student access to appropriate hardware and software. Barber's definition of digital access (2021) affirms these findings and also identifies the need for both a trained teacher and a suitable place of study.

Limitations

This was a small-scale study which sought the views of students undertaking a specialist post-registration programme in Community Children's Nursing. The low number of survey returns and overall response rate prevents further generalisation of the findings, however valuable insights were provided. The 2020-21 academic year was perhaps unique in being in the 'eye-of-the-storm' of the COVID-19 pandemic, and the student experience was significantly impacted both directly by the pandemic itself and because of the rapid pace at which teaching approaches were required to evolve to deliver robust education programmes.

Conclusion

Whilst many Universities are planning to return to full face-to-face teaching from September 2022; this study has demonstrated significant student enthusiasm for the provision of more flexible approaches to learning and teaching. Continuing to offer a combination of face-to-face, virtual and on-line and hybrid content is particularly important for courses such as the CCN Specialist Practitioner Programme which is offered by only a handful of Universities and attracts small student cohorts from a wide geographical base. HEIs must be responsive to students' needs - failure to do so could potentially impact on recruitment and the viability of courses in the future.

Implications for Practice

- The use of virtual and on-line learning platforms offers real opportunities to improve access to education programmes and increase student enrolment.
- Universities must be responsive to students' needs, offering flexible modes of delivery both in embracing the technology and the developing the necessary skills and knowledge to optimise its use.
- The development of programmes which incorporate a combination of face-to-face and virtual/on-line learning modalities will be necessary to optimise the student learning experience.
- It may be helpful to replicate this study with a larger cohort of students, possibly from different academic programmes to further explore the issues raised in this paper.
- Further work will be required to consider more widely the preparedness/readiness for practice of students across a range of programmes whose learning experience in both University and practice settings has been impacted by the COVID-19 pandemic.
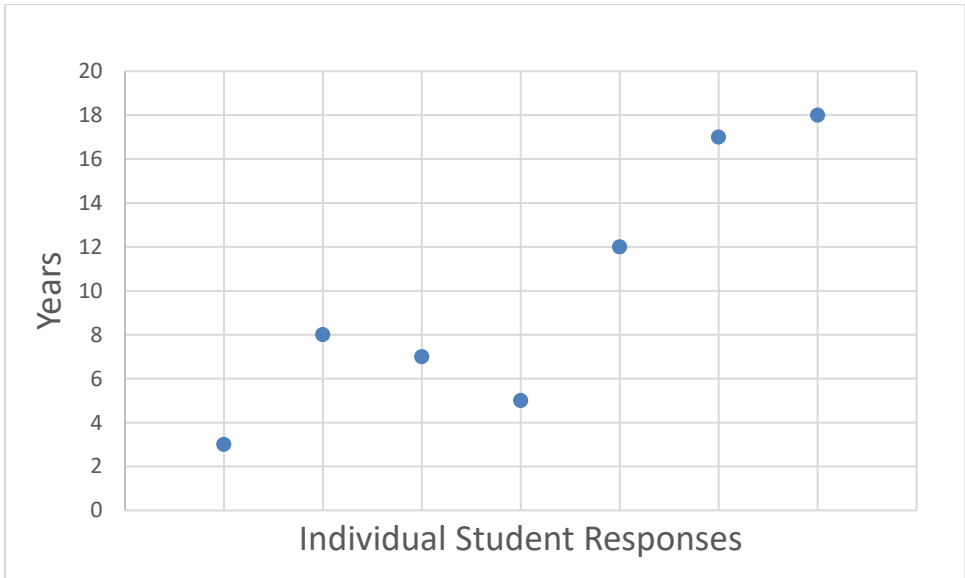
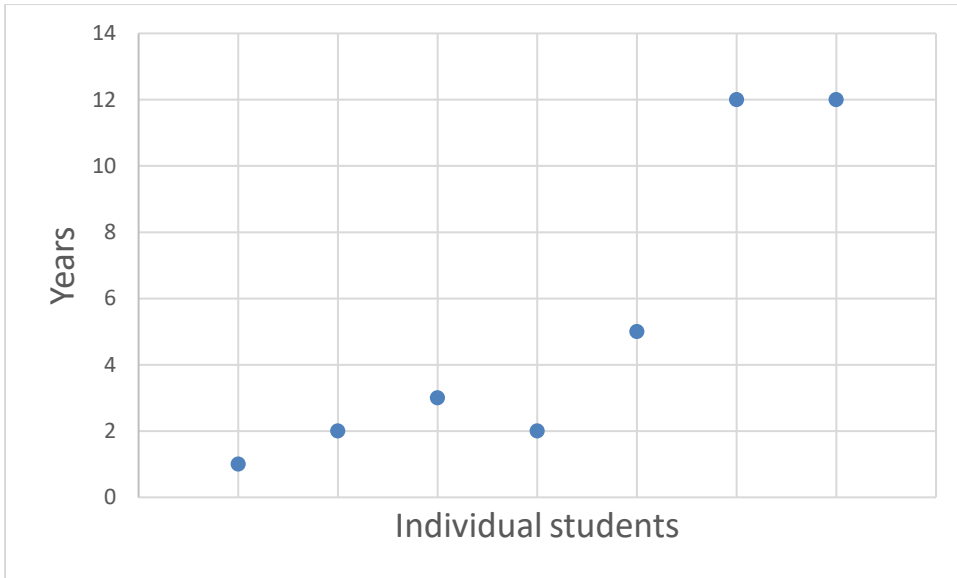**Figure 1: For how many years have you worked as a Registered Nurse?**

Figure 2: Prior to commencing the programme for how many years had you worked in a community children's nursing team?
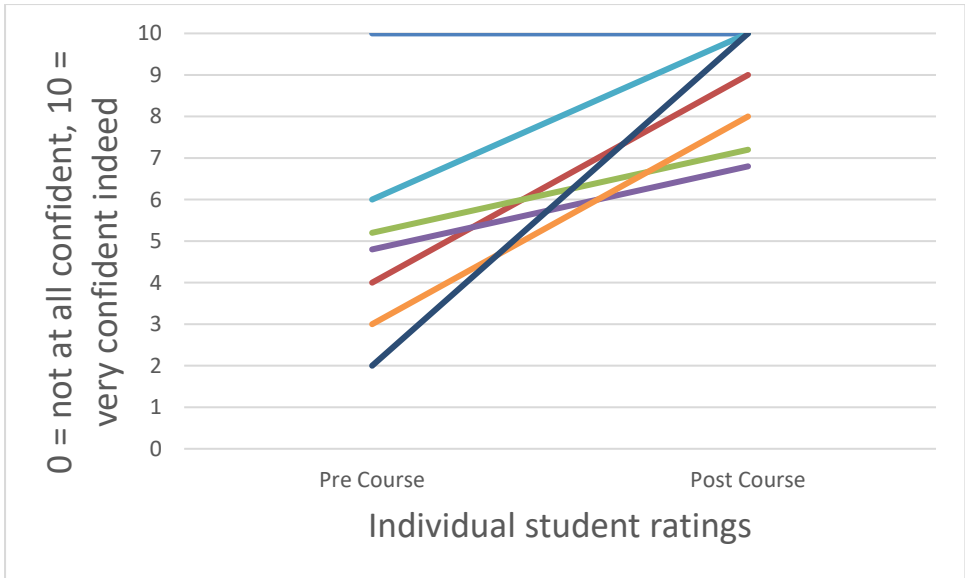
Figure 3: Student self-rating of confidence in using video and on-line technology (pre and post course).
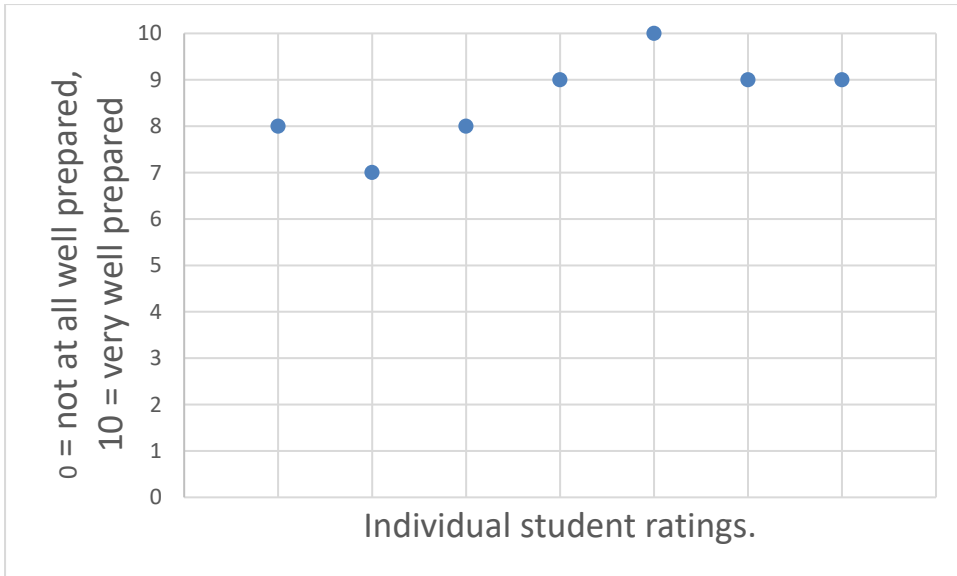
Figure 4: Student self rating: "How well has the course prepared you for your role as a CCN?"

Vignette 1:

Liverpool John Moores University (LJMU) has successfully delivered the CCN specialist practitioner programme for the past nine years with an average of four students from across Northwest England enrolled on the programme each year.

As with all other UK Universities students undertaking the programme at LJMU were unable to access face-to-face teaching from March 2020, by which point, except for independent and supplementary non-medical prescribing (V300), most taught sessions within the programme had been completed. Unfortunately, at this time LJMU systems did not support the delivery of 'live' on-line teaching. Outstanding sessions were therefore pre-recorded via Panopto before being uploaded to an on-line learning platform, Canvas, which students were able to access at a time of their own choosing. Informal feedback at the end of the V300 module indicated that although students found pre-recorded Panopto sessions to be useful, especially being able to re-watch sessions, this was outweighed by the negative impact which included a lack of opportunity for live discussion and debate and an inability to analyse, question or further clarify the points being made.

It was clear that a more creative and interactive approach to on-line learning was required for the students commencing the CCN programme in September 2021. LJMU identified Zoom, via Canvas, as the on-line learning platform of choice. With limited opportunity prior to commencement of the programme to 'get to grips' with Zoom this was initially a challenge for academics and students alike. All teaching, except for some face-to-face sessions (required for the paediatric clinical examination and minor illness module) and a small number of pre-recorded Panopto sessions, was delivered live, on-line, via Zoom. Initial teething problems included delays to student registration which hindered access, poor internet connection and sound/video issues and interruptions from family members (most often the students' children!). Two full-time students and two part-time (2nd and final year) students were enrolled onto the CCN programme in September 2021. For the first time this included a student based in North Wales. Students who applied for a place on the CCN programme in 2021 had given no indication, in advance, that their decision to apply had been influenced by the planned on-line delivery, however, subsequent comments from students indicated that the flexibility and reduction in travelling times was of substantive benefit to them. This has raised the potential for future on-line delivery of the programme, a move that would significantly improve access to CCN programmes across the UK especially given the small number of HEIs currently offering/running the programme.

Caroline Boyle, Programme Lead, CCN Specialist Practitioner Programme, Liverpool John Moore's University.

Vignette 2:
The University of Hertfordshire introduced the CCN programme in 1995, successfully enrolling small cohorts of between 1 and 6 students each year between 1995 and 2019.   At the start of the 2020 academic year, because of the COVID-19 pandemic, it was not possible to offer face-to-face teaching. Following consultation with NHS provider Trusts within the East of England and London Regions, the content and structure of the programme was reviewed and developed for delivery as on-line and virtual learning. In September 2020, a total of eleven students commenced the programme and in 2021, there was a further increase to fourteen students, drawn from a much wider geographical area than had been the University's experience prior to the pandemic (QNI, 2021). This included students from Queen Elizabeth Hospital Kings Lynn NHS Trust and Norfolk Community Health and Care NHS Trust, neither of whom had previously sponsored students to undertake the programme.

The need to deliver on-line lectures using platforms such as MS Teams and Zoom, presented a steep learning curve for the programme Team, many of whom had little or no prior experience of on-line teaching, and needed to build their IT skills and confidence in both the materials and methods required (Arunasalam, 2016; Department of Health and Social Care, 2021).

As the programme progressed, student evaluation of on-line lectures was generally positive, particularly in terms of convenience and flexibility with family commitments. The availability of video recordings of lectures and the ability to re-play, as required, was seen as enhancing student learning. There were several challenges for both students and lecturers - some students did not initially have the necessary hardware or software to support on-line learning; internet access proved challenging at times; if there were too many students with cameras on whilst a lecture was in progress both MSTeams and Zoom had a tendency to "crash". However, as the year progressed many of these initial 'teething troubles' were resolved with significant support from the University Educational Technology Team (Lidolf and Pasco, 2020) who played a key role in the introduction of interactive software, such as Mentimeter (https://www.mentimeter.com) to support student learning.
Karen Roberts-Edema, Senior Lecturer, CCN Specialist Practitioner Programme, University of Hertfordshire.

Vignette 3:
The University of Surrey has been delivering the CCN specialist practice programme since the early 2000s. Cohort size has increased steadily and in September 2019, the largest cohort to date of 13 students enrolled on the full and part time CCN pathways.

By March 23rd 2020, when the National Lockdown was announced the students had completed most of the taught elements of the programme, including the OSCEs. SurreyLearn, the University's core on-line platform for student learning and assessment, was already well-established, alogside the use of Panopto. However, video consultation including the provision of both pre-recorded and 'live' teaching (using both Zoom and MSTeams) was a new experience for both teaching staff and students. Overall, on-line teaching worked well, although students reported that it was 'not the same' as face-to-face sessions, which enabled a more natural and personalised approach to the facilitation of learning. The students missed the opportunities to meet with their peers though they welcomed the benefits of saving both fuel and time, especially for students whose travel time from home to University was up to two hours each way.

The NMC requires that the learning outcomes for the CCN programme are achieved both in theory and in practice. Clinical placement during lockdown posed a range of problems: students were working in more isolated conditions, less time was spent in the team office and students were not able to travel in the same car as their practice assessor/practice supervisor, reducing opportunities for clinical supervision, observation/assessment of practice and reflection. Key elements of the programme, such as multi-disciplinary working, were reduced and alternative practice placements could not be undertaken at all.

As COVID-19 restrictions continued, the start of the programme for the next student cohort was delayed from September 2020 to January 2021. The first six months of the taught element of the programme was delivered entirely on-line. The students, who did not meet with each other face-to-face until halfway through the programme, adapted rapidly to the on-line learning. One CCN module was facilitated entirely on-line with guest speakers via live Zoom sessions and self-directed asynchronous and Panopto sessions. The module was more labour intensive to prepare and facilitate but was very well evaluated by students in respect of reduced travel distance/time and greater convenience with regards to family commitments. Clinical placement visits between student, academic assessor and practice assessor/supervisor were undertaken via MSTeams. This enabled greater flexibility reducing travel time for all parties and minimising service disruption for clinical staff. When COVID-19 restrictions began to ease, some students expressed a reluctance to return to-face-to-face learning, preferring to continue with the on-line approach. For the programme that commenced in September 2021, a 'hybrid' model was employed incorporating asynchronous learning blended with face-to-face sessions at the university. COVID-19 was totally unexpected, it required a change in approach to teaching and learning at an unprecedented pace but has demonstrated the ability to manage change and adapt rapidly in the face of adversity.
Heather Lane, Pathway Lead for Community Children's Nursing (CCN) Specialist Practitioner Qualification Programme, University of Surrey.

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