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Review of a pivoted fully online flipped learning modality to promote reflection for early career teaching staff development

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Abstract

The professional development of early career teaching staff (academics and researchers) in learning and teaching practices has attracted significant attention internationally over the past two decades. Institutional agendas, national accreditation and international recognition schemes have been established to provide frameworks for the promotion of effective teaching practices through professional development programmes. Recently, though, the Covid-19 pandemic has challenged the flexibility of staff development frameworks based on how they are administered and the impact that they have on the professional needs of early career teaching staff. This study takes a critical stance on a face-to-face teaching programme that is pivoted to a fully online flipped modality to accommodate the rapid transition to remote learning and teaching due to the Covid-19 pandemic. The study is written as a case study from a medical school that became fully immersed in a global crisis and took steps to maintain provision in the development of teaching staff at a time when both clinical and teaching roles took precedence and plans for professional development became secondary. Utilising a combination of asynchronous and synchronous online engagement models, the paper presents a conceptual framework to foster reflective practice and reviews the workflow of promoting flexible engagement and accommodating participant-led development priorities. Analysis of assessment results by comparing pre- and post-pivot participant performances indicate a statistically significant

improvement in the flipped learning version of the programme. Drawing from the theory of situated learning as a tool of investigating professional learning in the context of a developing global crisis, the paper reviews the role of social systems in facilitating flexible learning at a distance through a series of authentic collaborative activities that are designed to support the sharing of practice, promotion of reflection and to inform future approaches to learning and teaching methods.

1. Introduction

The development of early career academic staff, postdoctoral researchers and postgraduate research students who teach in Higher Education (HE) has attracted significant attention in the HE sector in the UK, as well as in other countries, as a result of investment made to professionalise learning and teaching (L&T) practices (Shaw, 2018). Moreover, professional bodies, including the Staff and Educational Development Association (SEDA), Advance-HE and Vitae in the UK, as well as elsewhere, for example the Higher Education Research and Development Society of Australasia (HERDSA) or the Educational Developers Caucus (EDC) in Canada, have promoted the notion of presenting academic development as a career choice, that is scholarly and evidence-based (Simpson et al., 2007) and can contribute to educational change (Clegg, 2009). In response, most higher education institutions in the UK have established accredited professional development programmes for those who are new to L&T practices. The focus of these programmes is to offer a space where participants are able to explore teaching practices, reflect on their role, and demonstrate their learning from the programme through engagement with assessment tasks that aim to verify successful fulfilment of programme learning outcomes and accreditation expectations. Further, relevant research in the evaluation of the impact of these programmes has shown that the development of participants and attendance to this type of programmes is a collaborative and social process, which leads to changes in teaching practices and may also influence individuals' professional identities (Kahn et al., 2006; Sutherland & Taylor, 2011).

In the current paper, which has been presented as a case study of an accredited L&T staff development programme at a medical school in the North of England, the objective is to review how the Covid-19 pandemic has led the programme team to take swift action to maintain the provision of developing early career teaching staff in L&T practices. The pre-Covid-19 provision, which was longstanding and considered as highly successful across the institution was

based on a straightforward face-to-face suite of workshops with the delivery of eight stand-alone sessions, followed by assessment tasks to assess the programme learning outcomes. However, due to the pandemic and the necessary suspension of all face-to-face teachings, the decision was made to pivot this established programme into a fully online flipped provision. In response, the programme team took time to consider how the revised programme would be able to maintain its effectiveness in promoting reflective practice and social learning experiences whilst occurring fully online due to necessity.

Online flipped learning, a variant of a conventional flipped classroom model with a face-to face component (Lage et al., 2000), is a method of learning where participants independently access largely pre-arranged types of content associated with a learning theme, prior to a synchronous online scheduled session with their tutor (Stöhr et al., 2020). The online scheduled session is structured around synchronous and asynchronous activities aiming to promote peer engagement, active participation, problem-solving and to apply learning (Abeysekera & Dawson, 2015; Hew et al., 2020).

Recent literature, driven by the impact of the Covid-19 pandemic, has documented issues associated with pivoted online learning experiences, including challenges associated with maintaining interaction, building communities when teaching online (Smith, 2020), digital equity and accessibility to content (Pittman et al., 2021), as well as maintaining assessment standards through valid and reliable interventions (Correia, 2020; Ray et al., 2018).

The impact of Covid-19 on the professional development of teaching staff remains an area in need for further investigation, in order to ascertain how staff can maintain and expand their continuous professional development, through reflection on their practice, in relation to changing priorities in learning and teaching. This study offers insights on how reflective practice for early career teaching staff was maintained through a set of planned changes that were made to an established face-to-face programme, because of the Covid-19 pandemic. The study's focus is on how to address concerns in relation to developing learning communities and maintaining engagement with accessible content whilst sustaining staff's reflection in developing academic practice in learning and teaching.

The analysis presented in the current paper is based on four cohorts of participants; the demographics of these cohorts comprised PhD students, postdoctoral researchers, and early career academic staff all of whom had limited

prior teaching experiences in HE and were seeking to further develop their teaching practices by engaging with the programme. In order to capture the impact of the intervention made, assessment results from the unchanged end assessment task (essay) were utilised by making a direct comparison of the pre-Covid-19 assessment performance from two cohorts, with the performance of two cohorts who have experienced the fully online revised programme in response to the government-imposed restrictions due to the Covid-19 pandemic (see Table 1).

Table 1. Cohorts involved in this study

Cohort	Programme version	Number of participants
Cohort 1	Pre-Covid-19	8
Cohort 2	Pre-Covid-19	12
Cohort 3	Covid-19 revised	12
Cohort 4	Covid-19 revised	13

The four cohorts occurred from March to December 2019 (pre-Covid-19 version) and October to June 2020 (Covid-19 revised version). The March 2020 cohort was suspended as it coincided with the start of the first UK Covid-pandemic lockdown. It was at that time (March 2020 to September 2020) when the programme was redesigned and re-approved by the accrediting body and institutional quality assurance committees, and then pivoted to the fully online flipped learning modality.

This study reviews the pivot to a flipped learning modality through the application of Brookfield's critical reflection lenses framework which is deployed in a structured manner to maintain ongoing reflection for programme participants. A statistically significant outcome is then presented through direct comparison of participants' performance to the assessment component that remained unchanged in the programme.
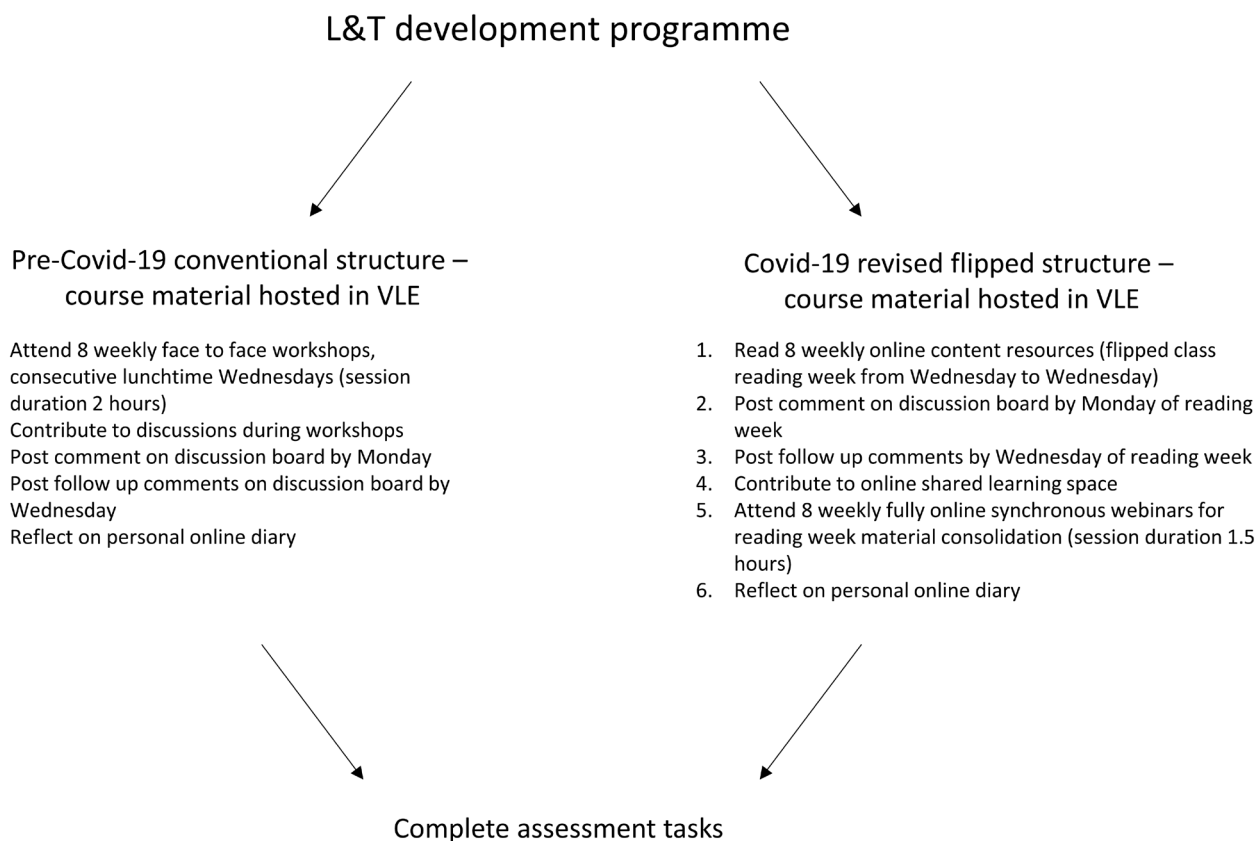
2. Pivot Design

The current study was conducted at a medical institute in the North of England, where an established L&T staff development programme was pivoted from a conventional face-to-face, workshop-based delivery, to a fully online flipped learning modality. The decision was made to maintain the core syllabus, learning outcomes and assessment strategy of the initial programme, as it was an established and well-received staff development activity that attracted positive responses from past participants. The documented benefits of the initial programme, through past participants' evaluation forms, was that it enabled learners to reflect on their learning over the eight-week period of their attendance. Additionally, past participants had reported that they were able to take a pedagogically informed and planned approach to their future professional practice in learning and teaching, based on the material they engaged with during the programme and feedback they received from tutors and fellow participants. As a result of the success of this approach, the decision was made to maintain these core principles and to concentrate changes on the way the programme material was presented by carefully considering the personal contact restrictions imposed by government and health bodies due to the pandemic.

The delivery of the Covid-19 revised programme via a flipped approach was based on two primary reasons. Firstly, participants who engaged with the programme were directly impacted by the pandemic, due to their roles as health professionals. Therefore, it was apparent to the programme team that enhanced flexibility would require prioritisation in the way the pivoted programme had to be designed. Accordingly, the programme served as a work-based learning course by fulfilling dual-health professional and academic roles undertaken by staff employed at the institution. Being able to accommodate a need for flexible learning, which can be conducted at any-time and any-place (Stöhr et al., 2020), and as part of a work-based learning approach (Brennan, 2005), would suit the priorities of prospective programme participants. Secondly, another important reason was to provide programme participants with the opportunity to learn by utilising online tools that were increasingly becoming the basis of teachers' professional undertakings and communication standards. The anticipation was that even in a post-pandemic world, the impact of the virus spreading had already been profound to the way students engage with their learning environments and how teachers would continue to facilitate learning in the future.

Figure 1 outlines the two versions of the programme: pre-Covid-19 and Covid-19 revised modalities. In the new programme format, content was flipped to a fully online, self-directed mode, through the institutional virtual learning environment (VLE) (see step 1 in Covid-19 revised modality), and a synchronous facilitated online session was offered at the end of the reading week as a consolidation session, where participants led discussions and took part in online activities to apply their learning from the previous week's online readings (see step 5 in Covid-19 revised modality). The use of discussion boards, hosted within the institutional VLE, was maintained (steps 2 & 3 in both modalities), and

Figure 1. Modalities of conventional and flipped delivery methods

L&T development programme

Pre-Covid-19 conventional structure – course material hosted in VLE

1. Attend 8 weekly face to face workshops, consecutive lunchtime Wednesdays (session duration 2 hours)
2. Contribute to discussions during workshops
3. Post comment on discussion board by Monday
4. Post follow up comments on discussion board by Wednesday
5. Reflect on personal online diary

Covid-19 revised flipped structure – course material hosted in VLE

1. Read 8 weekly online content resources (flipped class reading week from Wednesday to Wednesday)
2. Post comment on discussion board by Monday of reading week
3. Post follow up comments by Wednesday of reading week
4. Contribute to online shared learning space
5. Attend 8 weekly fully online synchronous webinars for reading week material consolidation (session duration 1.5 hours)
6. Reflect on personal online diary

Complete assessment tasks

was structured chronologically and operationally (for example by providing an indicative word count for individual postings); this enabled the sharing of individual views and peer responses, which aimed to promote an asynchronous social space of peer-led dialogue in relation to vital concepts explored in the weekly readings and provide a social dimension (Ajayi, 2010; Farrell et al., 2013) to the flipped learning experience.

Furthermore, a new online shared learning space (see step 4 in Covid-19 revised modality, Figure 1) was added to promote an additional asynchronous social learning interface, and the purpose of this intervention was to provide participants with the space to document their individual views by reflecting on their existing teaching practices. Drawing from the theory of situated learning (Lave & Wenger, 1991), the aim of introducing the online shared learning space, in the new programme structure, was to provide participants with a view of authentic accounts shared online by peers, in response to a scenario or critical incidents of relevance to the weekly reading material. This online shared learning space was designed to place each

individual participant within the programme's social structure of constructing knowledge individually (by reflecting on personal experiences) and socially (by sharing professional experiences) using methods, technologies and approaches that they have developed in their own practices (Carlile, 2002).

Purposefully, the structure of the online shared learning space was kept simple, by utilising a collaborative online document in the form of a template, and each participant was asked to document their reflection and add their name in a single row on a table. As individual contributions were listed in the collaborative document, participants were able to read their peers' reflections and had the opportunity to revise their initial entry based on new insights received from shared responses. Nevertheless, only a small number of participants revised their original entries, however, a rich selection of accounts, documenting personal and cultural contexts, was shared through this online tool. During the weekly planned synchronous sessions, the programme facilitator used a collection of participants' entries to ascertain important points that related to the topic under review as

part of the flipped weekly reading schedule.

3. Learning environment framework

A key deliverable of the revised programme was to provide a safe space where reflection, both individually and collectively, could occur. The process of reflecting on practice would subsequently feed into an action plan that programme participants could take forward to structure their future teaching practice in their own contexts. By examining prior teaching experiences, and reviewing assumptions made in the way current teaching manifests itself to forms of doing and aspiring towards the creation of an action plan for change to happen, the notion of critical reflection (Cornish & Jenkins, 2012; Ng et al., 2015) turned into a major design factor that the current research would apply in relation to the pivoted version of the programme.

In reconceptualising the delivery of content, due to the programme's transition to a fully online flipped learning modality, it was viewed important to apply a critical reflection model in the design of the new programme structure. Due to the programme team's prior working experiences with early career teaching staff at the institution, during the conventional, face-to-face delivery of the programme, the programme team was familiar with the limited teaching experiences that past participants had had, and it was evident that their exposure to educational theories was limited. Consequently, participants required support to appreciate the scholarly dimensions of their existing practices, develop new ways of promoting evidence-based L&T practices, and to be informed on how assumed future practices could be mapped onto appropriate pedagogic principles. Importantly, their prior experiences as individual practitioners, and the opportunity to be part of a cohort, directed the current study towards Brookfield's model on becoming a critical reflective teacher (Brookfield, 2017).

Brookfield presents critical reflection as a continuous process of intended action to review teaching assumptions that one makes in the way one teaches. Through the identification and process of checking these assumptions, action is taken to develop professional practice. Moreover, Brookfield presents assumptions in different types and analyses on how they vary in their levels of difficulty to change them if they are part of teaching methods that are required to take forward in plans for further practice development. To assist teachers in their quest to reflect critically by uncovering teaching assumptions, Brookfield offers a model that consists of four critical lenses (lenses hereafter): (1) Students' views; (2) Peers' experiences; (3) an Autobiography; (4) Literature.

By combining the limited prior teaching experiences of programme participants with the flipped learning model, it was possible to develop and implement a framework that was then applied in the delivery of the Covid-19 revised model of the programme in discussion. It was also made explicit from the start that the new programme is based on the application of Brookfield's model, as it was deemed imperative that all participants recognise the purpose and value of critical reflection on their own professional practice. The quality of their reflections from completing the programme and creating an action plan to inform their future professional practice was one of the assessment tasks (essay) that they had to produce at the end of the programme. Figure 2 below presents the framework that was developed and applied in designing the Covid-19 revised model, which depicts how each lens of Brookfield's critical reflection framework was embedded in the programme.

The conceptual model consists of three levels where key components of the model are integrated for the revised programme to be realised. At Level 1 and 3 (see left hand side of conceptual framework), the journey of the participants is presented through each stage of the programme. At Level 2, there is a construct of how each lens from Brookfield's critical reflection model is positioned through the programme; each lens is applied once, except of the lens of literature, which is utilised twice at key moments during the programme.

Directly at the beginning of the participants' engagement with the programme, prior to the first lens of literature, each learner is identified as a randomly pointing arrow (Learner 1, Learner 2, …, Learner 'n'). These arrows are then extended across the rest of the conceptual framework. This is a key point in the way the conceptual framework has been devised, as it is recognised that each learner joins the programme with varied prior experiences, priorities and expectations. At this point, early in the learning journey through the programme, the aim, as a member of the programme's teaching team, is to work with each participant to support them in finding their way through the programme by managing their represented presence as an arrow in order to make informed decisions during their learning journey.

3.1 Learning stage 1: Flipped learning

Through the perception as newcomers in their teaching practice, programme participants seek to gain legitimacy within a forming community of practice with their fellow programme participants. Linking back to the theory of situated learning (Lave & Wenger, 1991), they become apprentices of this newly formed and aspiring community of practice.

Figure 2. Covid-19 revised conceptual framework
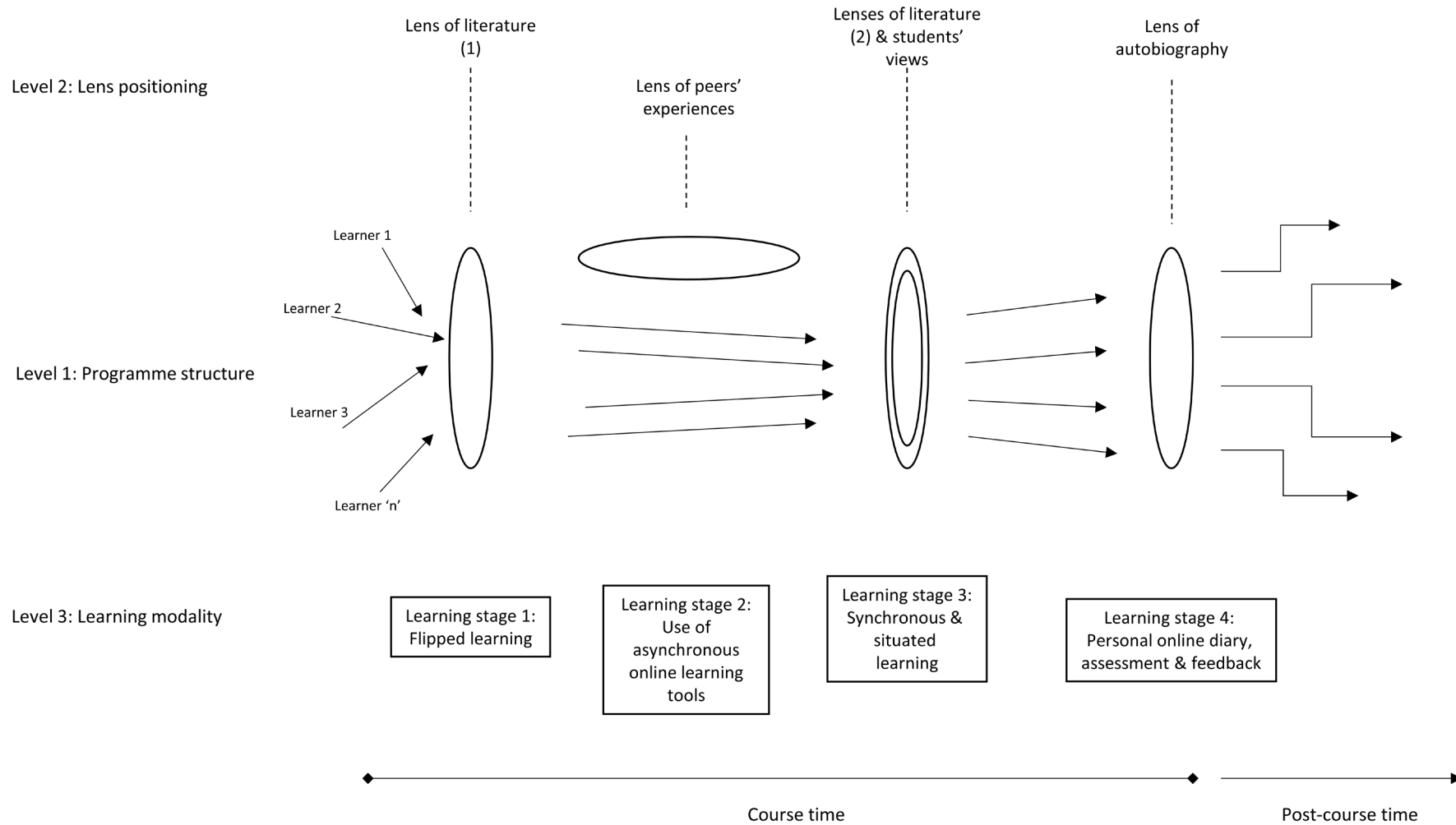
Their aim is to gain experiences through engagement with programme material, their tutors, and their peers, with their learning effort being beneficial by moving from the periphery of the community of practice and towards fuller participation and development of their teaching. The first step in this transition towards fuller participation comes under learning stage 1 in the conceptual framework (see Figure 2), where each participant engages individually with the online content that has been linked to the weekly material of the programme.

Each weekly theme draws from relevant literature (lens of literature 1) that aims to support participants to articulate their limited prior teaching experiences through appropriate theories of learning that can support their learning through the programme. From a programme design perspective, this is where significant effort has gone into the pivot of the programme, as the material presented needs to be accessible to a diverse group of participants that have varied experiences of teaching practices. The learning material consists of practice-based principles, which are supplemented by videos, policy documents and carefully selected literature that underpins participants' learning with core pedagogic theories. This is when solid foundations are laid for programme participants to achieve a threshold of competence that will enable them to maintain their engagement with the rest of the programme, reflect on their experiences, identify areas for further development, and participate in forthcoming (see learning stage 2 below) meaningful discussions with their peers and the programme team.

3.2 Learning stage 2: Use of asynchronous online learning tools

The second stage in the participants' learning journey, through the programme and in relation to the conceptual framework (see Figure 2), involves their engagement with their peers as part of applying the practice of the weekly learning material that they engaged with individually. The lens of their peers' experiences is applied in the conceptual framework and involves participants' engagement with discussion boards and the shared learning space that has been highlighted earlier in the paper. These asynchronous online tools are designed to create opportunities for interaction amongst participants by reflecting on what they learnt in the past week and connect them to their responses to discussions that are shared online with their peers. The asynchronous tools are setup with questions posed by the programme team that relate to the core theme of the reading week and require each participant to post an initial post and then offer follow-up text entries to peers' comments. Specifically, the timing of posts is clearly communicated

to participants to manage and pace the flow of the group through the programme. Existing literature considers the value of conventional flipped learning to learn at own pace (Nouri, 2016; O'Flaherty et al., 2015), however for fully online flipped learning, indicators of maintaining a steady pace through the programme can also support learners to optimise their engagement with course material and planned activities (Stöhr et al., 2020).

Meanwhile, the use of asynchronous activities is favoured in the literature of online learning models, as students have more time and space to digest learning materials that they have read and to carefully express and share their responses online (Strayer, 2012). Importantly, at the time of the pandemic, asynchronous engagement offers additional flexibility that alleviates pressures of time, on availability, and the prioritisation of personal and professional issues faced by participants (Correia, 2020; Pittman et al., 2021).

Engaging with the online tools enabled participants to be part of an online community. The tools also promoted online discussions leading to the formation of concrete examples of practice and to the process of sharing of collective reflections that are drawn from individuals' lived experiences. Participation in the online activities was compulsory and formative, which served the purpose of pacing participants' engagement through the programme. Through these online activities there were critical reflections, debates and convergence of views based on the application of learning from the online reading material, the use of literature, and sharing of personal views. This is represented by the converging learner arrows that lead towards the next stage of the conceptual framework (stage 3).

3.3 Learning stage 3: Synchronous and situated learning

The third stage in the Covid-19 revised structure of the programme involved the delivery of a synchronous session via the MS Teams' environment. The weekly synchronous sessions were mandatory, however, they were recorded and linked to the VLE, enabling participants who were not available to attend and to maintain engagement. Further, the recognition that programme participants, due to the pandemic, might be involved in caring responsibilities or engage whilst in clinical settings, they were not required to turn their cameras on during the live online sessions.

A consistent approach to delivery was taken during the synchronous sessions. This included a brief overview of the material that participants had read offline over the past week and a summary of key points appraised from the

asynchronous activities, which included the discussion board and the shared learning activity. Clear links to appropriate and relevant literature were added as part of the conceptual framework (see Figure 2), and the second literature lens helped to maintain a strong link with pertinent pedagogic theories and to inform participants' thinking through an evidence-based approach (Matthews et al., 2014). Additionally, time for questions was included for participants to present their personal views, queries, and comments during the sessions. To facilitate a peer dialogue during the synchronous sessions, questions posed by participants were responded to firstly by peers and if necessary, by the session facilitator. Accordingly, the facilitator's interventions during the synchronous sessions were organised, in order to promote clear links with educational literature and to drive social interaction amongst peers (Tuffnell, 2021).

During the last iteration of the programme, the use of the newly developed MS Teams' breakout rooms was made available and was utilised to break the class into small groups in order to discuss specific topics linked to the reading material. Each group fed back to the rest of the class's key outcomes from their discussion in response to explored topics. Moreover, to increase interaction and promote active participation through the application of acquired knowledge, reflection and synthesis (Nouri, 2016), a selection of online tools available during synchronous sessions, for example polling tools, virtual whiteboards (Microsoft & Jamboard) and Padlets, was embedded in the synchronous learning environment. Furthermore, due to the nature of the programme to promote effective teaching principles to inform participants' future practice, the use of online tools became a point for discussion in the way that they promote student engagement and learning. This was a planned discussion in terms of introducing Brookfield's lens for the consideration of students' views in the way the programme was developed.

The lens of students' views was further explored through the inclusion of carefully selected videos in the flipped reading materials, where filmed students documented their experiences of learning in HE. Additionally, participants who were able to draw from their own prior teaching practice of engaging their own students in learning environments were actively encouraged to share their experiences, as this would promote authentic discussions amongst programme participants. Research has shown that the use of authentic examples from participants' practices advocates a learner-centred experience (Chiou, 2020), promoting the introduction of prior experiences and knowledge that would complement the syllabus and allow for misunderstandings, attitudes, and assumptions to be explored and discussed amongst peers (Simkins & Maier, 2010).

Discussions held during the synchronous online sessions were designed to consolidate learning from the flipped learning that occurred during the previous week of independent study. The purpose of the synchronous sessions was to promote an informed divergence of views based on individual priorities of participants, by carefully considering their professional contexts and planning their own future professional practice. The learner arrows in the conceptual framework, at learning stage 3, aim to represent the individual routes taken by each participant, which have been informed by the discussions held during the synchronous sessions with the programme team and their peers.

3.4 Learning stage 4: Personal online diary, assessment and feedback

Engagement with the programme over a period of eight weeks, led participants to stage 4, which is directly linked to the lens of participants' autobiographies, as each individual participant prepares to document their learning through the programme by completing the essay assessment. The essay requires participants to reflect on their learning through the programme and present an action plan that will inform their future professional development in HE teaching. Extracts from a personal online diary held by participants for the duration of the programme could then be referenced in the essay to signal to the programme team what participants were considering, as they made progress through the programme. Additionally, the participants had to structure their essay by applying a reflection model of their choice and document their learning through the programme by making sense of their personal priorities, prior experiences and what they learnt from the programme content and interactions with their peers. The assessment aspect of the programme is used in the next section as a metric of impact for the pivoted version of the programme.

4. Measuring impact of pivoted structure

The pivot of an established L&T programme from a conventional face-to-face delivery to a fully online flipped learning modality took place in response to the restrictions that were adopted with the prevalence of the Covid-19 pandemic. The decision to design the revised programme by applying Brookfield's model on becoming a critical reflective teacher was made in order to promote an ongoing reflective approach on behalf of the participants engaging with the programme and to introduce them experientially to each lens of the framework. In attempting to analyse the effectiveness of the pivot programme, the participants' performance at the essay task was used as a metric of impact,

which occurred at the end of the programme. The grades achieved were then compared before the pivot and after it happened. The assessment strategy remained unchanged between the two versions of the programme, and it was felt that it made an appropriate metric of the comparison to explore whether any signs of differences between the two programme versions could be identified. In total, the essay assessment task consisted of five assessment criteria, and the participants' essays were marked against these criteria with a pass mark from 50% to 100%; the assessment criteria are listed below:

1. Quality of critical reflection;

2. Knowledge, understanding and use of literature;

3. Continuous reflection on practice to develop ourselves, others and processes;

4. Identification of learning from the programme, including identifying issues or questions and areas for change, including proposed actions and strategies suggested;

5. Quality of academic writing, referencing and essay structure.

As indicated earlier in the current study, it was necessary to process the grades collected from four cohorts (see Table 1). Cohorts 1 and 2 completed the conventional face-to-face version of the programme, with cohorts 3 and 4 completing the fully online flipped programme. The participants' performance in the two versions of the programme were compared by running three independent-samples t-tests using SPSS. The results are summarised below.

Table 2 compares the performance of cohorts 1 and 2 (both cohorts completing the pre-Covid-19 programme). In accordance, running an independent samples t-test between these two cohorts, which returned a p value of $p=0.524$, shows no statistically significant difference between the two cohorts. This comparison was useful for observation, and it did not present a statistically significant difference between the two pre-Covid-19 cohorts, which meant that it was possible to confirm that the two cohorts performed similarly based on their attendance of the conventional face-to-face version of the programme. The second independent samples t-test (see Table 3), that compared cohorts 3 and 4, returned a p value of $p=0.369$, which also showed no statistically significant difference between the two pivoted cohorts. This subsequently provided confirmation that the two cohorts that experienced the fully online flipped version of the programme, performed similarly in the essay assessment task.

The last independent samples t-test conducted compared all the cohorts that comprised the two versions of the programme (see Table 4). This was conducted by combining cohorts 1 and 2 (conventional delivery; pre-Covid-19), and by comparing their essay grades with the combined cohorts 3 and 4 (online flipped learning delivery; Covid-19 revised). The results from the independent samples t-test of all combined cohorts returned a p value of $p=0.026$ ($p<0.05$), which shows a statistically significant difference in assessment performance between the two modes of delivery.

Further information relating to the analysis of the assessment performance of the two modes of delivery showed that cohorts 1 & 2 achieved an average grade of 63 ($SD \pm 8$) against a higher average grade of 68 ($SD \pm 6$) for cohorts 3 & 4. These results, together with data shown in Tables 2, 3 and 4, demonstrate that overall participants completing the pivoted, fully online flipped-classroom programme performed better in the essay assessment task.

Table 2. Comparison of conventional delivery for cohorts 1 and 2 (pre-Covid-19 cohorts)

Pre-Covid-19	Cohort 1	Cohort 2	p value
Number of participants	8	12	
Ind t-test			0.524

Table 3. Comparison of flipped delivery for cohorts 3 and 4 (Covid-19 revised cohorts)

Covid-19 revised	Cohort 3	Cohort 4	p value
Number of participants	12	13	
Ind t-test			0.369

Table 4. Comparison of conventional and online flipped-learning cohorts (pre-Covid-19 vs Covid-19 revised cohorts)

Pre-Covid-19 vs Covid-19 revised	Cohort 1 & 2	Cohort 3 & 4	p value
Number of participants	20	25	
Ind t-test			0.026

5. Conclusion

Due to the 2020/2021 Covid-19 pandemic and the government-imposed restrictions on close contact in the population, the decision was made to pivot an established conventional version of a L&T programme, which was offered as part of a face-to-face delivery, to a fully online flipped learning version. Early career teaching staff have expressed concerns of the lack of engagement with educational literature to take an evidence-based approach to their teaching practices. The conceptual framework used for the delivery of the pivoted version of the programme provided an ongoing underpinning of teaching practices through the application of the literature lens, which was depicted on two separate instances in the conceptual framework of this paper. However, the use of educational literature occurred throughout the duration of the programme to model an evidence-based approach in order to plan teaching and promote effective learning as part of the participants' development (Matthews et al., 2014).

This current study explored whether the pivoted online flipped classroom version differed, in terms of participants' assessment performance, from the established pre-Covid-19 conventional version of the programme. Findings from the study showed a statistically significant improvement of the overall essay grade, due to the delivery of the pivoted flipped classroom version of the programme. Moreover, participants in the flipped classroom version of the programme were provided with access to fully online content and were supported with asynchronous learning activities to reflect on the reading material prior to engaging with peers through structured activities that applied their learning. Consolidation synchronous sessions, facilitated by a member of the delivery team, provided space for discussion and social interactions, drawn from authentic participants' views and prior experiences. The pivoted programme was developed by applying Brookfield's model on becoming a critical reflective teacher, and participants were guided through the application of the model's four lenses of critical reflection. An additional intended product of the learning from the pivoted programme was the first-hand experience for participants of usage of online tools to facilitate learning. This was significant as it matched teaching staff development priorities set by the institution and it exposed participants to the ways that online tools can be utilised in their own teaching practice and in the delivery of teaching their own modules and programmes.

The outcomes of this study point towards a successful implementation of a fully online flipped learning experience in the professional development of teaching staff in HE. The application of a conceptual framework, deploying Brookfield's lenses on critical reflection, offers a workflow towards structuring the learning journey of participants by promoting the use of synchronous and asynchronous methods to facilitate peer-led interactions and continuous reflection on practice. Evidence of an improved performance of participants in the pivoted, due to the Covid-19 pandemic, version of the programme, provides a degree of assurance that development activities can be maintained whilst achieving flexible and technology immersed learning activities.

References

Abeysekera, L., & Dawson, P. (2015). Motivation and cognitive load in the flipped classroom: Definition, rationale and a call for research. *Higher Education Research and Development, 34*(1), 1–14. https://doi.org/10.1080/0729 4360.2014.934336

Ajayi, L. (2010). How asynchronous discussion boards mediate learning literacy methods courses to enrich alternative-licensed teachers' learning experiences. *Journal of Research on Technology in Education, 43*(1), 1–28. https://doi.org/10.1080/15391523.2010.10782559

Brennan, L. (2005). Integrating work based learning into higher education: A guide to good practice. *University Vocational Awards Council*. http://www.voced.edu.au/node/20126

Brookfield, S. (2017). *Becoming a critically reflective teacher* (2nd ed.). Jossey-Bass.

Carlile, P. (2002). A pragmatic view of knowledge and boundaries. *Organization Science, 13*(4), 442–455.

Chiou, H. H. (2020). The impact of situated learning activities on technology university students' learning outcome. *Education and Training, 63*(3), 440–452. https://doi.org/10.1108/ET-04-2018-0092

Clegg, S. (2009). Forms of knowing and academic development practice. *Studies in Higher Education, 34*(4), 403–416. https://doi.org/10.1080/03075070902771937

Cornish, L., & Jenkins, K. A. (2012). Encouraging teacher development through embedding reflective practice in assessment. *Asia-Pacific Journal of Teacher Education,40*(2), 159–170. https://doi.org/10.1080/135986 6X.2012.669825

Correia, A.-P. (2020). Healing the digital divide during the COVID-19 Pandemic. *The Quarterly Review of Distance Education, 21*(1), 13–21.

Farrell, B., Jennings, B., Ward, N., Marks, P. Z., Kennie, N., Dolovich, L., Jorgenson, D., Jones, C., & Gubbels, A. (2013). Evaluation of a pilot e-learning primary health care skills training program for pharmacists. *Currents in Pharmacy Teaching and Learning, 5*(6), 580–592. https://doi.org/10.1016/j.cptl.2013.07.005

Hew, K. F., Jia, C., Gonda, D. E., & Bai, S. (2020). Transitioning to the "new normal" of learning in unpredictable times: Pedagogical practices and learning performance in fully online flipped classrooms. *International Journal of Educational Technology in Higher Education, 17*(1). https://doi.org/10.1186/s41239-020-00234-x

Kahn, P., Young, R., Grace, S., Pilkington, R., Rush, L., Tomkinson, B., & Willis, I. (2006). The role and effectiveness of reflective practices in programmes for new academic staff: A grounded practitioner review of the research literature. In *The Higher Education Academy*. https://www.advance-he.ac.uk/knowledge-hub/role-and-effectiveness-reflective-practices-programmes-new-academic-staff

Lage, M. J., Platt, G. J., & Treglia, M. (2000). Inverting the classroom: A gateway to creating an inclusive learning environment. Source: *The Journal of Economic Education, 31*(1), 22. https://doi.org/https://doi.org/10.2307/1183338

Lave, J., & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation*. Cambridge: Cambridge University Press.

Matthews, K. E., Lodge, J. M., & Bosanquet, A. (2014). Early career academic perceptions, attitudes and professional development activities: Questioning the teaching and research gap to further academic development. *International Journal for Academic Development, 19*(2), 112–124. https://doi.org/10.1080/1360144X.2012.724421

Ng, S. L., Kinsella, E. A., Friesen, F., & Hodges, B. (2015). Reclaiming a theoretical orientation to reflection in medical education research: A critical narrative review. *Medical Education, 49*(5), 461–475. https://doi.org/10.1111/medu.12680

Nouri, J. (2016). The flipped classroom: For active, effective and increased learning – especially for low achievers.

International Journal of Educational Technology in Higher Education, 13(1). https://doi.org/10.1186/s41239-016-0032-z

O'Flaherty, J., Phillips, C., Karanicolas, S., Snelling, C., & Winning, T. (2015). Erratum: The use of flipped classrooms in higher education: A scoping review (The Internet and Higher Education (2015) 25 (85-95)). *Internet and Higher Education, 27*, 90. https://doi.org/10.1016/j.iheduc.2015.05.001

Pittman, J., Severino, L., Decarlo-Tecce, M. J., & Kiosoglous, C. (2021). An action research case study: Digital equity and educational inclusion during an emergent COVID-19 divide. *Journal for Multicultural Education, 15*(1), 68–84. https://doi.org/10.1108/JME-09-2020-0099

Ray, M. E., Daugherty, K. K., Lebovitz, L., Rudolph, M. J., Shuford, V. P., & DiVall, M. V. (2018). Best practices on examination construction, administration, and feedback. *American Journal of Pharmaceutical Education, 82*(10), 1127–1132. https://doi.org/10.5688/AJPE7066

Shaw, R. (2018). Professionalising teaching in HE: The impact of an institutional fellowship scheme in the UK. *Higher Education Research and Development, 37*(1), 145–157. https://doi.org/10.1080/07294360.2017.1336750

Simkins, S., & Maier, M. (2010). *Just-in-time teaching: Across the disciplines, across the academy*. Stylus Publishing, LLC.

Simpson, D., Fincher, R. M. E., Hafler, J. P., Irby, D. M., Richards, B. F., Rosenfeld, G. C., & Viggiano, T. R. (2007). Advancing educators and education by defining the components and evidence associated with educational scholarship. *Medical Education, 41*(10), 1002–1009. https://doi.org/10.1111/j.1365-2923.2007.02844.x

Smith, D. (2020). The Covid-19 crisis and academic development: Reflections on running a staff development webinar series for Politics/IR academics. International *Journal of Multidisciplinary Perspectives in Higher Education, 5*(1), 130–135.

Stöhr, C., Demazière, C., & Adawi, T. (2020). The polarizing effect of the online flipped classroom. *Computers and Education, 147*, 103789. https://doi.org/10.1016/J.COMPEDU.2019.103789

Strayer, J. F. (2012). How learning in an inverted classroom influences cooperation, innovation and task orientation. *Learning Environments Research, 15*, 171–193. https://doi.org/10.1007/s10984-012-9108-4

Sutherland, K., & Taylor, L. (2011). The development of identity, agency and community in the early stages of the academic career. *International Journal for Academic Development, 16*(3), 183–186. https://doi.org/10.1080/1360144X.2011.596698

Tuffnell, C. (2021). Faculty learning communities: Supporting the development of online educators. *Studies in Technology Enhanced Learning, 1*(2). https://doi.org/10.21428/8C225F6E.2191C396

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