Flipping the Classroom in Teacher Education

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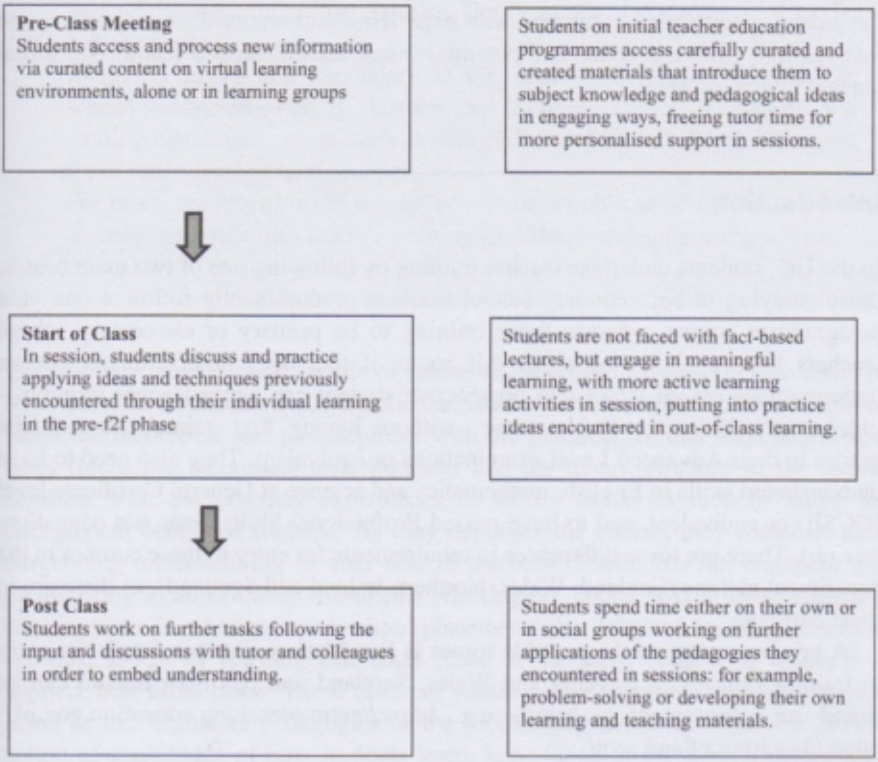

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"Getting them to read something before they come to class? Didn't we use to call that 'homework'?" Despite the attitude of some practitioners, Flipped Learning is beginning to pervade the province of teacher educators. In the United Kingdom, Advance HE (previously the Higher Education Academy [HEA]), citing Hamdan, McKnight, McKnight, & Arfstrom, 2013, notes that "Flipped learning has not been rigorously evaluated as a pedagogy in higher education, but case studies are emerging, in ever greater numbers, which document measurable improvements in student and teacher motivation, increased attendance in class, and better grades, as a result of using the flipped approach" (HEA, 2018, online). Although not as far advanced in its implementation as in the US, the HEA report that the concept has clearly gained traction in the UK, quoting Sharples et al. (2014) who state that flipped learning can be seen as a pedagogy with "the potential for high impact in the HE sector in the medium term (2–5 years)" (HEA, 2018, online).

There is, as yet, not a wealth of literature focusing on the use of flipped learning within initial teacher education or with preservice teachers. This chapter will look at the extant material and, combined with experience and reported results, offer some insights into current practice and potential future uses of flipped learning in initial teacher education (ITE).

Introduction

In the UK, students undertake teacher training by following one of two main routes: those studying to be secondary school teachers predominantly follow a one year postgraduate course, whereas those training to be primary or elementary school teachers have a choice of either this route, if they have a first degree, or an undergraduate award if not. No prospective student can begin teacher training—indeed, any University-level course—without having first gained the requisite grades in their Advanced Level examinations or equivalent. They also need to have demonstrated skills in English, mathematics and science at General Certificate level (GCSE) or equivalent, and to have passed Professional Skills Tests (sta.education.gov.uk). There are some differences in requirements for entry to these courses in the constituent nations (England, Wales, Northern Ireland and Scotland), as there are in their curricula.

A brief summary of the possible routes is listed below. Further details for entry to training courses in England and Wales, Scotland and Northern Ireland can be found on government websites—e.g. https://getintoteaching.education.gov.uk/; https://teachinscotland.scot/.

Undergraduate routes:
Primary Teaching: Bachelor of Education or Bachelor of Arts in Education (3 or 4 year-long courses); some Institutions offer specialisms, e.g. Early Years teaching.
Secondary Teaching: A few Institutions offer undergraduate routes into specific secondary subject teaching, such as mathematics, physics, geography, etc. However, this is a much less common route into Secondary education than the PGCE (see below).

Postgraduate routes:
Primary Teaching: Postgraduate Certificate in Education (PGCE—a 1 year-long course); some Institutions offer specialisms in Early Years, Special Educational Needs, etc.
Secondary Teaching: Postgraduate Certificate in Education in specific subject areas.
In both Primary and Secondary PGCE courses there are variations—a school-sponsored PGCE known as School Direct Training and employment-based routes such as School Direct Salaried, Teach First and, more recently, Apprenticeships.
For more, see https://www.gov.uk/government/publications/initial-teacher-training-criteria/initial-teacher-training-itt-criteria-and-supporting-advice

Traditionally taught through a mix of centre-based subject lectures (at University or other providers) and in-school experience, teacher education has always sought to blend the theoretical and philosophical with the practical. In this way, taught sessions (including theoretical underpinnings and the direct influence of the tutors) combine with the practical experiences in school situations to help shape the pedagogical beliefs of students. As they negotiate the course, they construct their burgeoning understanding of their role as teachers (Smith, 2017a), engaging and participating in authentic environments (Herrington, 2006). It is in these authentic environments in practice-based school placements that 'situated learning' (Lave & Wenger, 1991), or learning that takes place in the same context in which it is applied, best takes place. These different values, taken together, have been understood as the 'signature pedagogies of the profession' (Shulman, 2004): a combination of knowledge of how students learn, knowledge of the subject matter they need to learn and knowledge of the pedagogies to teach effectively.

Learning to teach in schools clearly depends on working with children in classrooms. We will henceforth limit our discussion to what may be possible in the teaching and learning in the institutional classrooms in which students are taught rather than those in which they are expected to lead the learning. Drawing on a substantial research base, Husbands and Pearce (2012) make nine "strong claims" about the characteristics of highly successful pedagogies. These include giving consideration to pupil voice, scaffolding pupil learning, a focus on developing higher order thinking and metacognition, and making good use of dialogue and questioning in order to do so, the use of assessment for learning, and being inclusive. Their conclusion is that "outstanding pedagogy is far from straightforward" (op. cit., p. 12). Rather, in the complex and ever-changing realities of classrooms, successful pedagogies need to be sophisticated, reactive and adaptable. They describe the most successful pedagogies as developing when teachers use their understanding of their students in order to plan effectively and then teach based on that, using a wide knowledge base of these effective pedagogies to do so, "supplemented by a personal passion for what is to be taught and for the aspirations of learners" (p. 13).

Current practice in Teacher Education typically includes a diet of whole cohort traditional lectures, covering generic issues such as safeguarding, planning and record keeping—usually known as "Professional Studies" or "Professional Learning"—and smaller group seminars which cover subject-specific knowledge and pedagogy. Lecture sessions which are to groups of a hundred or so students can often be predominantly didactic and more traditional, offering fewer opportunities for discussion or co-operative working. However, seminars, where student numbers can range from the very small to thirty-five or forty, depending on the route and/or subject specialism, provide opportunities for discussion, reflection on pedagogy and effective co-operative meaning-making. It is here that the trainer can model successful pedagogies (Husbands & Pearce, 2012) and encourage the student to begin to develop their sense of teacher identity and values (Dunne, 2011). It is here too that flipped learning works to best advantage.

There are significant constraints on PGCE routes in the UK for both Primary and Secondary Education which mean that the balance between covering the subject content to be taught and priority areas such as assessment, behaviour management and pedagogy have to be carefully considered. Constant reform of the sector, with the introduction of new routes to gaining qualified teacher status (QTS) and changes to the Teachers' Standards (DFE, 2011), can have a negative impact on the willingness of some to embrace new and innovative pedagogies, such as Flipped Learning. However, since the body of curriculum content and the necessary skills such as classroom management and assessment do not fundamentally change, this is not a significant issue in the sector. The major challenge to planners of PGCE courses is the fact that legal requirements stipulate that trainee teachers must spend at least 120 days (24 weeks) in school during their course. This reduces the available time for providers to a mere eight weeks. In some School Direct Salaried and Teach First training courses the input is less still, being between only four to six weeks. These exigencies mean that postgraduate students are taught often from nine to five for five days a week, leading to overload. Flipped learning can be used as a way to ensure there is effective coverage of key issues, subject matter and pedagogy which can otherwise prove difficult in such a short training period. However, in such intensive programmes the reality is that work set out of class is not always covered and students turn up unprepared. For those who have childcare commitments or need to hold down a job to fund their studies, these are very real threats to their ability to study beyond their University sessions. Within undergraduate programmes, however, even for those classed as 'non-traditional' students, this approach more often succeeds, as students spend longer blocks of time in the HEI and have time to engage in out-of-class study. Although not widespread, the use of flipped learning is now gaining ground in ITE. It usually takes the form of students reading, viewing a film clip or responding to a classroom scenario out of class and being prepared to discuss in seminar. For a number of years the Blended Learning approach has also been in widespread use. Defined as blending together "text-based asynchronous Internet technology with face to face learning" (Garrison & Kanuka, 2004, p. 95), Blended Learning has arisen from the effect that digital technology has had on the way we communicate and manage information. Garrison and Kanuka believe that digital learning challenges both our cognitive abilities and the traditional classroom paradigm (op. cit., p. 96). Indeed, some hold the view that online learning will eventually replace the face-to-face traditional classroom scenario entirely (see, e.g., Zhang, Zhao, Zhou, & Nunamaker, 2004).

In teacher education there is a recognition that, whilst this approach can be very powerful, the need for face-to-face learning to develop social skills as well knowledge-building is not likely to disappear in the near future. But Blended Learning is used regularly and beneficially to include such activities as responding to forum posts requiring learners to pose solutions to dilemmas in case studies of classroom practice, for example. There are clearly overlaps here with flipped learning, and the complementarity of the Blended and Flipped approaches in ITE to face-to-face sessions has a specific function which supports the development of a key and necessary attribute of the teacher: the ability to work as part of a community to reflect on practice, participate in shared problem-solving and make adaptations to practice. These opportunities provide what Schön describes as the need for time to "break from the technical rational models of learning" and move towards "concrete problem-solving" (1991, p. 24). The informal support students receive from each other and their tutor model the informal and more formal support that they will receive when in school participating as an apprentice in 'situated learning' (Lave & Wenger, 1991).

Literature Review

The very term "flipped classroom" describes how the locations for learning events are inverted (Wilson, 2013). Abeysekera and Dawson list six characteristics of flipping learning, most of which demonstrate a clear inversion of the more normative, traditional approach to learning activities, which they call "moving tasks in time and space" (Abeysekera & Dawson, 2015, p. 2). They list some examples of this as transferring what would traditionally have happened in class (i.e. the teaching of the subject material) to an out-of-class activity, and conversely doing activities traditionally considered homework (such as working on problems after teacher input) in the classroom. These in-class activities emphasise active learning and peer learning, facilitated through pre- and post-class activities, and the use of technology (Abeysekera & Dawson, 2015; Yough, Merzdorf, Fedesco, & Cho, 2017).

Vaughn notes that with what she describes as "a classroom full of millennial learners" (Vaughn, 2014, p. 25) it is incumbent on teacher educators to meet their students' changing learning needs through adjusting their pedagogical approaches. Flipping learning aims to engage student teachers with subject content in a new way: one that is explicitly designed to move away from the uninspiring and unedifying straight lecture approach (see, e.g. Cobb, 2016) and increase meaningful learning, allowing for more active learning activities in session, putting into practice ideas encountered in out-of-class learning (Bergmann & Sams, 2012; Zappe, Leicht, Messner, Litzinger, & Lee, 2009). Doing this in session allows for a learner-centric, facilitative, socially-constructivist approach as student teachers work together to find solutions using unfamiliar concepts (see, e.g. Prince, 2004; Roehl, Reddy, & Shannon, 2013), rather than merely taking notes. It sounds great… but does it work? Vaughn (2015) states that it can—provided teacher educators both understand and can use "the technology needed to construct the 'outside' portion of the flip and the pedagogical strategies to make what occurs 'inside' the classroom meaningful" (Vaughn, 2015, p. 2622).

Herreid and Schiller (2013, p. 62) describe what they term "the lure of the flipped classroom," quoting Fulton's (2012) excellent list of further advantages of the flipped classroom:

1. students move at their own pace;
2. doing 'homework' in class gives teachers better insight into student difficulties and learning styles;
3. teachers can more easily customise and update the curriculum and provide it to students 24/7;
4. classroom time can be used more effectively and creatively;
5. teachers using the method report seeing increased levels of student achievement, interest, and engagement;
6. learning theory supports the new approaches; and
7. the use of technology is flexible and appropriate for '21st century learning.'

Herreid and Schiller surveyed the 15,000+ members of the National Center for Case Study Teaching in Science Listserv, asking whether any of them used flipped learning in STEM (Science, Technology and Mathematics) teaching sessions. Some two hundred teachers responded positively, and gave some further advantages to using this approach. These were

8. they were able to spend more time to with students on authentic research;
9. students get more time working with scientific equipment that is only available in the classroom;
10. students who miss class for debate/sports/etc. can watch the lectures while on the road;
11. the method "promotes thinking inside and outside of the classroom";
12. students are more actively involved in the learning process; and
13. they also really like it.

However, there is a cautionary aspect to their research too. The STEM case teachers who responded identified two major problems:

1. Students may not want, or be able, to engage with learning outside the classroom for a variety of reasons, leaving them unprepared for in-class learning activities and unable to join in with their colleagues, which can lead to resentment, further disengagement and alienation, and failure to progress at a similar rate to those who do participate in the flipped aspect.
2. The external aspect of the delivery (usually videos uploaded to virtual learning environments or, more simply, to YouTube) have to be carefully tailored to the student body, and be high quality. Finding these materials is very hard; many teachers are creating their own, which obviously has a time and labour cost attached to it.

Egbert, Herman, and Lee (2015) give some ideas for how to overcome these burdens of preparation: they are confident that flipped instruction can work well on teacher education courses provided the tasks can be designed and built by a large enough team to ensure each individual is not overburdened; where this is not possible, more support needs to be given.

Despite the inherent difficulties, Herreid and Schiller (p. 65) conclude that

> the better a student is prepared, the more learning that can be achieved. The flipped classroom idea is not new. Teachers have forever struggled to get students to study on their own, either ahead of time or as homework; that is when the real learning happens, not when the teacher is lecturing, droning on and on. The flipped classroom, with its use of videos that engage and focus student learning, offers us a new model for case study teaching, combining active, student-centered learning with content mastery that can be applied to solving real-world problems. It's a win-win.

So what about teacher education courses more specifically? As we stated earlier, there is very little literature from anywhere in the world on flipping the learning inside teacher education classrooms—indeed, it has been stated with some certainty as recently as 2017 that "flipped classrooms have received scant attention in teacher education programs" (Yough et al., 2017, p. 4). However, Kurt has written recently about the situation in Turkey, and his own research. He describes what he calls a pretest–posttest quasi-experimental study, in which the effectiveness of a flipped approach to teaching a classroom management course on a preservice English teacher education programme was measured against a class taught more traditionally. The reported findings are "a higher level of self-efficacy beliefs and better learning outcomes for the experimental group in the flipped classroom compared to the control group in the traditional classroom" (Kurt, 2017, p. 211). Participants' own perceptions of the flipped classroom were also positive.

Vaughn (2014) describes a study that engaged preservice teachers through a flipped classroom model. She describes both a higher level of reflection and inquiry displayed by her students, and how more instructional strategies were enabled to be effectively modelled within the course through the use of flipping some of the learning.

Yough et al., drawing heavily on Shulman, state that in teacher education, "it is imperative that course design, method of instruction, and classroom procedures align with the content" (Yough et al., 2017, p. 1). They note that flipping the classroom may be one way to try to achieve this, but warn that this teaching style's effect on the basic psychological needs or learning outcomes of preservice teachers is unstudied and unknown. Their attempt to examine some of these outcomes with a relatively large number of participants on a course (263) revealed that "preservice teachers in the traditional section had significantly higher scores on two of the motivation outcomes (e.g., intrinsic and identified regulation), but that preservice teachers in the flipped sections had significantly higher scores on several indices of objective learning outcomes." The conclusions and implications they reach are interesting in that the students reported some support for the benefits to their learning, but none for the motivational benefits of flipped classrooms. Some potential for flipped classrooms to promote student learning is thus evident, though they caution that by no means will flipping the classroom "serve as a 'silver bullet'" (op. cit., p. 11), nor replace good student-centred teaching and interpersonal relationships in classes.

Yoshida reiterates the point that students on a teacher education course found the flipped elements they encountered useful because "they can study through the video over and over again, they can study at their pace, they can stop the video whenever they want to, they can study though the video on their own time, and they report it enhances both their understanding and the effectiveness of classroom lessons" (Yoshida, 2016, p. 430). Ibrahim and Watts report that using a flipped teaching strategy had a "positive effect on preservice teachers' test scores, self-efficacy and the majority of students are in favour of its use in technology integration course" (Ibrahim & Watts, 2015, p. 1223), specifically as it "promotes collaboration and hands-on activities during the class time… and that they do not have to sit and listen to an hour long lecture that 'goes in one ear and out the other one'" (op. cit., p. 1223).

Finally, Hao and Lee (2016) note the importance of "maximising student learning so as to promote the practice and development of those complex skills and practices required of them as future practitioners" (p. 260). Creating the optimal amount of class time to "practice and hone those discipline-specific skills" (p. 260) through "moving tasks in time and space" (Abeysekera & Dawson, 2015, p. 2) to outside the classroom is one key way this can be achieved. Doing so, and thus "immersing" preservice teachers in "student-centred and technology-enhanced learning within their teacher training program will prepare them to teach effectively in our 21st century classrooms" (Hao & Lee, 2016, p. 260).

Best Practices

There are clear implications here, then, for teacher educators. The idea of having students arrive with the basic knowledge, ready to begin practising skills with no need for a teacher introduction or didactic monologue has huge appeal for staff who are likely to already subscribe to the principles of Bereiter's (2002) theory of knowledge building, Engeström's (1987) theory of expansive learning, and Nonaka and Takeuchi's (1995) model of knowledge creation. These can be defined as "learning as participation; knowledge and skills being learned/produced that are not stable, not even defined or understood ahead of time; important transformations that are literally learned as they are being created" (Smith, 2017b, pp. 13–4). The idea here is that the approach allows for 'horizontal learning' through peer talk rather than top-down 'delivery' methods, developed through boundary-crossing interactions, e.g. between two interacting activity systems, such as formal and informal learning methods, or theory-based and practical activities (see e.g. Akkerman & Bakker, 2011), in a socially-constructive learning environment. The intellectual skills and cognitive strategies needed for such problem-solving or managing one's own learning are supported by the prior knowledge, guidance and application gained in the pre-session tasks.

Our colleague David Cousens at the University of Northampton conducted some research with his students on the blended approach to learning, and identified the three key phases of any given session, which they term the pre face-to-face, the face-to-face and the post face-to-face engagements. For simplicity, these are shortened to pre-f2f, f2f and post-f2f. One student is quoted as saying "I think the whole thing can be seen as one big learning event, I think this is the word used to describe the three part system; it's almost an encouragement to do each of the three parts. It's one big event, if you like" (Cousens, 2016, p. 34).

We too have noted that at both undergraduate and postgraduate levels, when students are given greater autonomy to engage with materials before the traditional in-class learning activities take place, those that choose to do so are more engaged, more active and more successful in both their endeavours and their outcomes. This comes, however, with two caveats. Firstly, not all students choose to engage in pre-f2f activities, for a variety of reasons, and we need to be alive to this in order to cater for their in-class needs. This will inevitably lead to more teacher time spent teaching the basics that could already have been covered in the pre-f2f materials (and potentially to teacher frustration that they're having to) and less time supporting the facilitation of higher-level learning conversations with those who arrive ready to begin practising. Secondly, teacher educators will need to have time to create high-quality pre-f2f materials and resources. There is lots of evidence that students engage more with high-quality materials than with any old resource just put up on the virtual learning environment, or VLE (see e.g. Herreid & Schiller, 2013; Vaughn, 2015).

It follows, then, that there are a series of characteristics of effective flipped learning that staff teams will need supporting in building their capacity to meet. We offer here a (non-exhaustive) list of these characteristics:

- An effective virtual learning environment
- Engaging and high-class materials—preferably to a professional standard
- A clearly mapped programme of in-class and out-of-class activities that complement and build upon each other
- Staff who are able to motivate students to participate in pre- and post-f2f activities
- Students who engage with pre- and post-f2f activities in order to maximise their opportunities to learn and to gain the most from in-class f2f sessions.

None of this will happen on teacher education courses overnight. Senior leadership at Institutional levels will need to be convinced of the necessity of these approaches and to commit to helping their staff teams to implement them through supporting these enterprises financially, technologically and in terms of staff workload. Creating a screencast or video of the material that is typically worked through laboriously in front of a slideshow will take time and expertise to complete to a high standard, and teacher educators will need to work on what may be new skillsets for some of them in order to do this. The elephant in the room may be staff willingness to accept this approach or to take the time needed to do it well. However, this can be dealt with relatively simply through the maxim "curation not creation" (see, e.g., Ibáñez Moreno & Traxler, 2016) whereby teacher educators point students towards well-created and high-quality content already openly available under free licence on sites such as YouTube, blog posts and podcasts.

Where content is made available, and the students participate in the pre-f2f activities, it allows for practical sessions that otherwise would not be possible. Examples from our own experience in the UK include

- allowing students to do micro-teaching sessions with each other individually and in groups following their learning in pre-f2f activities;
- engaging in high-level debate and discussion on key issues, such as the appropriateness of the systematic synthetic approach to phonetic instruction that is currently the centrepiece of the UK strategy for early reading, without the need for teacher input at the start of the session, thus allowing for more time for the activity itself;
- presentations of student-created non-fiction films for the English aspect of a primary teacher education course that were created in blended learning time out of class;
- the in-class use of materials and practice of strategies introduced in pre-f2f videos that would otherwise have been impossible in the timeframe; and
- the deeper and broader understandings of research phenomenology through engagement in specific tasks before undertaking undergraduate dissertations or Masters level work on the postgraduate programme.

It is important to note, however, that not everything on a teacher education course can be learned in this way—we can't realistically or logistically legislate for practising pedagogical skills with children in all our lectures, so it's not always appropriate to have practical sessions, and there are some elements of teacher subject knowledge that are best transmitted and learned in more a more traditional fashion, with a Vygotskian master-novice dynamic acknowledging the role of the lecturer as a skilled practitioner and, indeed, teacher. This is not to say it can't be done in a facilitative and learner-centric way, using "flexible pedagogies" (HEA, 2013, p. 5; p. 14; cf. also Mazur in Lambert, 2012 who states that "learning interests him far more than teaching, and he encourages a shift from 'teaching' to 'helping students learn'"), which focus on empowering learners through involving them in social co-creation of learning, creating an educational focus towards agency and competence, not just knowledge; and developing cultures and environments for learning outside of the formal curriculum, using collaborative activities and new and emergent pedagogies. However, having the lecturer in the room to turn to is an invaluable tool both for subject knowledge and for the pedagogical knowledge of how to teach it to children, and this must not be forgotten in any rush to move to online and out-of-class models.

A further cautionary note comes from Cousens' research with students. They report a far less enthusiastic response to post-f2f work. They can clearly see the benefits of pre-f2f, and are able to receive both the intrinsic pleasure of having done it, and the extrinsic praise and acknowledgement of their peers and lecturers. However, Cousens reports on student feedback being that it is "just a clarification" or "just going over the stuff we did in lectures" (op. cit., pp. 38–39) and that, moreover, there's no clear motivation to participate (cf. Yough et al., 2017) as it is not referred to again, and they feel that they can "get away with" not engaging with it.

However, overall these same students reported that engaging in these learning events across three phases, especially the first two (the pre-f2f and the f2f) led to greater autonomy and deeper learning. They also raised a series of positives that seem to have hitherto escaped the attention of researchers, leading us to wonder whether some of our readers may want to fill this gap. We explore these, and begin to wrap up, in the next section.

Supporting Data

Referring back to the table on pX, in this section we expand on, and provide evidence for, some genuine experiences of flipped learning in ITE, with some honest feedback from both students and lecturers.

On one of the courses that we run, which is a Level 5 (undergraduate second year) module on Primary English, we have built in a portfolio approach to much of our work. We make resources, tasks and content available online, and then students work in self-selected Learning Groups to engage with these tasks to complete their portfolios. We have adopted this approach to equally embed the principles of flipped learning and to allow students to build towards their module assignment grade. We have found that allowing students to continually add to their portfolios, and to know that they are building up credit towards their overall grade (up to 30% of the module outcome), has engaged them further and we have seen a clear increase in the average grades for the module:

Grades awarded	Pre flipped elements (% of cohort) (%)	After flipped elements introduced (%)
70% or above (1st class)	14	36
60–69% (2.1)	47	41
50–59% (2.2)	34	19
40–49% (3rd class)	2	2
<40% (fail)	2	3

We ensure that there is a variety of tasks, including working towards a micro-teaching session where each group presents what they have done to the whole class, a non-fiction digital presentation (which has taken the form of films, news-casts, stop motion animations, Prezi presentations, etc.), research that leads to discussion, and even creating their own children's book. There are still some students who do not reach a 'pass' grade. This is sometimes to do with a lack of engagement with course materials, but more often due to poor academic writing and a failure to answer the written assignment module task (70% of the module grade) well.

Student feedback on this module included these quotes:

- "These tasks were fantastic! The further engaging nature of them supported the learning! They were a great practice for professionalism too – working with others to meet a goal."
- "Very useful as they have helped with working as a team, knowing my own strengths and spotting others' strengths. At first working as part of a large group was difficult but it got easier as we got to know each other. This module has been different to others more fast-paced with tasks and I've learned a lot."
- "The tasks were interesting and allowed for great group work. The tasks were suitable to the module and have helped compared to last year, it has been far easier to understand and I feel I have learned a fair bit. This may be down to the quality of delivery by the lecturer."
- "I believe the portfolio is a good idea as I like knowing at the beginning of the year what is expected of me. I like having goals to achieve. I have found collaborative tasks both hard and useful. Hard to find extra time to meet other than blended tasks but useful as we need this skill when teaching."
- "Working in groups has at times been difficult, with some group members not attending all sessions and not fully contributing and engaging, this has led to other members having more work to do."
- "The portfolio allows me to refer back to it, helping me with future teaching. I enjoyed the group work, it taught me that I would not always have an ideal situation/group but to adjust or make the best of it. Overall: excellent."

On another module, at postgraduate level this time, we expect students to take time to partake in pre-f2f engagement with resources on the VLE, as well doing tasks in order to participate in high-level debate and discussion in the f2f session on key issues, such as—in the academic year 2017–18—the appropriateness of the systematic synthetic approach to phonetic instruction. Although there is an obvious increase in workload in putting together high-quality resources, especially screencasts or more polished video materials, the key benefits for us as lecturers have been that we haven't needed to give teacher input at the start of the session, which has then allowed for more time for the activity itself, and it has also given the responsibility to students to learn autonomously, and where they have engaged in this self-directed study they have arrived for f2f session with a passion and a zeal for the discussion that we haven't necessarily encountered when they are being 'spoon-fed' in sessions.

These outcomes are corroborated by, e.g. Herreid and Schiller (2013) and Vaughn (2014, 2015), who report that many students both appreciate and enjoy the flipped elements that courses are putting into place, and their levels of engagement (and, in some of their reported outcomes, their scores and grades) improve.

Another advantage of flipped learning has been that—thanks to the greater 'buy-in' and motivation of students to access and engage with pre-f2f videos and other materials—not only has it allowed for more in-class time to use these materials and practice the strategies introduced in them, but students have spent longer studying them—at their own pace, and using their preferred approach, be that individually or in groups. We'll return to this last point in a moment.

A final personal anecdote about the benefits that we have seen from flipping the learning comes from Masters' level study—for those teachers who have come back to study at a higher level on the postgraduate programme, be that for better job opportunities, personal satisfaction or a desire to better understand pedagogy and the philosophy of teaching and learning. Students have been able to reach deeper and broader understandings of research phenomenology and pedagogic change and development through engagement in specific tasks, watching and re-watching video materials we have prepared, and reading before the f2f sessions at the Institution. We have seen similar, although not as marked, outcomes for students who engage in similar pre-f2f tasks on undergraduate dissertation modules.

We return now to an element of flipped learning that we noted two paragraphs earlier has seemingly not yet caught the attention of many researchers, and particularly not within teacher education. This is that the expectations and reported experiences of lecturers and commentators on flipped learning (see, for example, Yoshida, 2016) are that individuals will engage in independent, autonomous self-study at a pace that suits them. They are able to pause when they wish, to rewind and rewatch sections, and leave and return at will. However, Cousens (2016) notes the key importance of shared events even outside the classroom, and the development of a genuine learning community (cf. Lave & Wenger, 1991; Wenger, McDermott, & Snyder, 2002). In his research, somewhat borne out by our experience, the students all reported that they preferred to get together—in social learning spaces, in institutional libraries, even in each other's dorms and homes—to work on pre-f2f (and, to a lesser extent, post-f2f) tasks.

Where this was not feasible—for whatever reasons—students have also reported, both in Cousens' research and our own "Rate Your Module" evaluations, that the use of community boards on, for example, Google+ or the University VLE has been a big plus for students, the social learning aspect offering them a buy-in: additional motivation to participate, a way of feeling part of a community of learners, a satisfaction from being part of a team, and gaining the benefits from the social construction of learning. One of Cousens' students noted that that the community board was "…where you can share ideas with other people. I liked that because again you can see what everyone else's views are and what they are thinking of putting in their blog and it just helps each other really, it's not, like competition, of 'you can't see what I've put.' It is a lot of sharing" (op. cit., p. 41). The social nature of this camaraderie and the passion that it can engender for learning can only be a positive for students who are aiming to become teachers, and we would hope that they in turn will create spaces in their classrooms—and outside them—for the facilitation of learning rather than the mere transmission of knowledge.

Discussion and Conclusions

We have shared evidence that some of the ideas inherent within flipped learning have the potential to add much to the processes and outcomes of initial teacher education courses. However, we agree with Yough et al. (2017) that, in and of themselves, these techniques cannot and will not replace the power of the relationships and rapports built between student teachers and their lecturers, nor will everything work for everyone. There are also some downsides to flipping the learning, principally that it requires a lot of staff buy-in and support and that, initially at least, it requires time and effort to create or source high-quality materials and resources: time that is in short supply on teacher education courses and lecturer workloads. Hopefully this book will inspire some of its readers to begin to try experiment with some of these ideas to judge for themselves whether they will work for the students on their teacher education courses.

We have already seen, too, that the post-f2f phase is much less engaging for students. Reasons given for this by students include that it's not going to be brought up in session, it's repetitive, and their participation won't be acknowledged or recognised in class. However, we would argue that the use of portfolio tasks here, especially those that go towards a module grade outcome, may help persuade the more reluctant students to engage in the disparate elements of pre-f2f, in-class f2f and post-f2f learning events so as to draw their learning full circle and help truly illuminate and embed some of the key knowledge, skills and understanding needed to teach in the twenty-first century.

Provided that lecturers are aware that their acknowledgement and adaptation of students' prior learning in pre-f2f tasks is crucial to their ongoing motivation to participate (Cousens, 2016; Yough et al., 2017), we believe there is clear potential for flipped learning to add to and deepen the experience of preservice, or student, teachers through the provision of structured out-of-class learning opportunities that they can access as their own lives allow, be that straight before classes, or late in the evening after the children are down. It can also shift the normal order of learning events (Abeysekera & Dawson, 2015), freeing up in-class space for more in-depth discussion and debate as well as skills-honing that may otherwise be lost.

For many educationalists, high on the list of desirable attributes of flipped learning may be the element that has paradoxically had the least academic attention: the potential for the social construction of learning in pre- and post-f2f tasks via student-led meet-ups and discussions on community boards on course VLEs or other social media applications such as WhatsApp or Google+, all three of which have been used successfully by students on our own courses. Allowing students to be co-creators of knowledge without being tied into traditional power relationships with lecturers, and facilitating the construction of this knowledge without didactically transmitting core subject content will delight teacher educators, as will the greater range of learning conversations to be had in class after the prior learning has taken place. All this may lead to better-equipped, more knowledgeable teachers with more polished skillsets. As noted in the introduction, the development of reflective and collegial practices enabled by the flipped approach is also excellent preparation for school workplace.

Despite the difficulties and pitfalls described in this chapter, and throughout the book, hopefully it is also evident that flipped learning has much to commend it to teacher education courses. Done well, with resources and materials that have been mapped to course content and outcomes, it can enable the learners to "gain a foothold" (Cousens, op. cit., p. 35) in their learning, prepare them for session content, and free up in-class time for subject and skills enhancement rather than more prosaic content delivery. As Herreid and Schiller (2013) put it, it has the clear potential to be a win-win situation.

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