EDUCATION & TRAINING FOUNDATION

APPRENTICESHIP WORKFORCE DEVELOPMENT – LITERATURE REVIEW

Flipped Learning in Apprenticeship Delivery

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Literature Review – Flipped Learning

Abstract

Off-the-job training is precious in apprenticeship education, and it is vital that it goes beyond knowledge acquisition and focusses on creating high quality employees for the sector. Fuller and Unwin (2003) suggest that "every individual has, and has had, access to a (unique) range of learning" in which the apprentice can develop their skills, knowledge, and behaviours to make them industry ready. Within their 2014 guide to Creating and Supporting Expansive Apprenticeship Fuller and Unwin clarify how reform agenda can be addressed through their 'Expansive-Restrictive Framework' where creating a learning environment that is inducive to both the industry and standard requirements can have a positive effect on outcomes and creating better industry employees. Flipped learning may be a tool that can be utilised to create these learning environments, or territories as Fuller and Unwin describe them to produce higher quality apprentices.

Flipped learning was developed and tested initially in schools in America (Bergmann and Sams, 2012). It has been adopted in the UK within higher education, largely. The need for agility, creative and critical thinking, problem-solving and communication skills are vital in 21st century employment and learning activities in the apprenticeship curriculum that develop these skills are essential. Cranmer (2006) indicates that whilst we have specific courses and teaching that reinforces knowledge acquisition in classroom-based environments we need to develop and enhance the environment to make sure industry capabilities are also intentional and explicit for the needs of the environment. Creating a culture of apprentices acquiring knowledge in off the job (OTJ) learning, and then applying, analysing, and evaluating afterwards, apprentices could use face to face sessions applying pre-learnt knowledge to the working environment. The approach develops independent learning too with the development of Blooms higher order thinking taxonomy (1971) being applied during contact instead of independently.

Supporting the role of the 'Flipped Classroom' the use of technology can help to navigate both teachers, trainers, and assessors (TTA's) and apprentices to develop essential workplace skills within the digital world. Eurofound (2021) postulates that "the digital revolution will bring about profound changes to work and employment along three vectors of change – automation, digitisation and coordination by platforms – each associated with a set of technologies" so it is vital that as TTA's we are keeping up with this current recognition of development within our teaching and learning practices to mimic the industry standards that out apprentices will be operating within.

What is Flipped Learning?

Flipped learning according to the Flipped Learning Network (cited in Bergmann and Sams, 2014) is, "A pedagogical approach in which direct instruction moves from the group learning space to the individual learning space, and the resulting group space is transformed into a dynamic, interactive learning environment where the educator guides students as they apply concepts and engage creatively in the subject matter."

The above definition showcases that both the Flipped Learning Network as well as the original adaptors of the concept, Bergmann, and Sams, believe that emphasis should be placed on giving students the opportunities to develop own understanding and knowledge surrounding

concepts at lower order thinking ideologies in a topic and then develop higher order thinking through the guidance of the TTA. Within the world of apprenticeships this approach could be a very successful marriage with the time spent together between an apprentice and their TTA being limited as they are involved in the workplace for much of their development. The lower order thinking concepts can be set and applied in tasks at the workplace and OTJ training to develop understanding with the evaluation and analysis (higher order thinking) being developed in reviews and classroom-based activities when full discussions can be had surrounding what has been learnt on the task set by the apprentice in the workplace or as independent study. This kind of activity is put in place with the intention of facilitating the students to be the producer. With this the thinking's of Bovill et all (2011) have been utilised.

What is different between a traditional learning environment and a flipped learning environment?

The flipped classroom method, in contrast to the traditional approach, enables students to acquire knowledge online with the use of technology to develop their capacity for independent thought and problem-solving, and then discuss the problems independently or collaboratively in the learning environment to find solutions (Li et al 2018). Li et al expand on this in Table 1. below in which a comparison between the traditional teaching approach and that involving flipped learning with technological aids.

Table 1. Comparative analysis table of traditional classroom and flipped classroom.

Teaching Elements	Traditional Learning Environment	Flipped Learning Environment
Teaching Intent	Subject Knowledge	Learning Ability
Teaching Form	Classroom information transmission	Information transfer before class
Class Content	Knowledge explanation, infusion teaching	Watch video for questions
Teaching process	Teacher teaching, students learning	Self-directed learning finds problems and leads to solutions which can be discussed in a collaborative manner in learning sessions.
Technology platform	Projection display content	Network teaching platform

Teaching evaluation	Focus on academic performance	Focus on the learning process

Within their research Li et al emphasise the fact that the correct delivery platform must be provided and delivered in a consistent and straight forward approach to allow the best possible attainment to be achieved. This also needs to be reinforced using feedback, both from the apprentice as well as the TTA's. The apprentice must provide feedback, in the form of completed tasks in OTJ training, to the TTA so that they can then understand any problems or misconceptions that the apprentice has had within the focus of the intent. This can then be developed within the discussions and reviews undertaken in class or at the workplace.

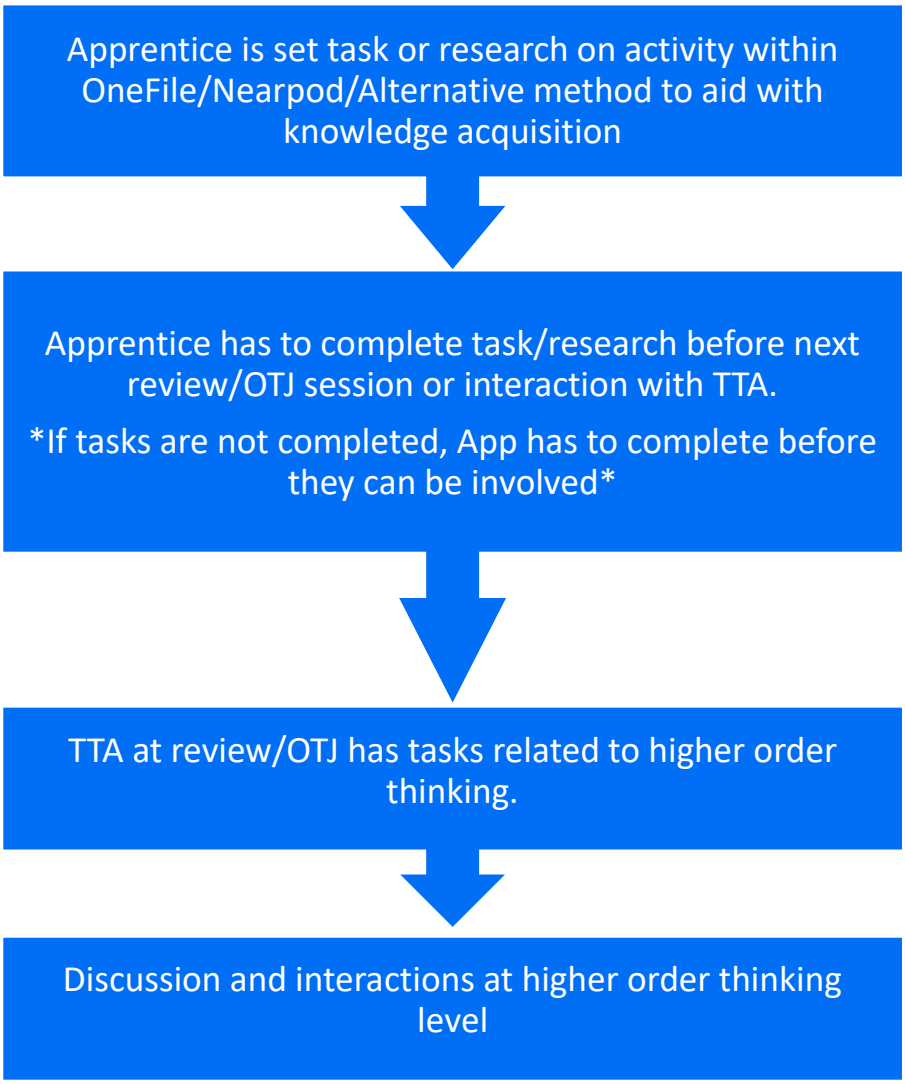
Why use Flipped Learning with apprentices?

Bergmann and Sams (2014) have described the flipped classroom approach as a setting where students take charge of their own learning, and this increases communication and contact time between students and teachers. This is supported by Bishop and Verleger (2013) who have stated that the flipped classroom is a student-centred learning method consisting of two parts with interactive learning activities during lesson and individual teaching bases directly on computer out of lesson. The emphasis of this approach is that there is some form of active/independent learning by the student (apprentice) before being engaged in collaborative discussion and tasks with the teacher (TTA) to develop a critical analysis for the topic in discussion.

According to Halasa et al. (2019), students' familiarity with the material lead to the acquisition and implementation of knowledge and understanding growing, which may have contributed to their improved academic achievement. Even though it has been demonstrated that this helps students learn, van Alten et al. (2021) address the requirement for TTA support and direction. The TTA must prepare and develop from the understanding that has been established during the flipped learning, engaging and advanced learning materials within discussions, to extract the critical analysis of topics or to correct any misconceptions that may have risen from the original tasks being undertaken.

Higgitt et al (2022) found during their research of flipped learning to encourage learners to study independently, one of the fundamental elements that stood out in terms of directing students' learning was when they were able to manipulate and engage with the subject matter. The learning tasks, both within the flipped learning environment or learning session, should be interactive and should be able to stretch and challenge the students understanding whilst still holding their attention and piquing an interest within the subject topic. The ability to interact and show understanding will then hopefully lead the student, in this case apprentice, to really apply what has been learnt into the working environment and fully understand the consequences of their actions in the workplace.

To support the TTA within the effective delivery of the flipped learning environment the following flowchart and reasonings has been created to give advice on how this could be incorporated within the delivery of apprenticeship standards.



The role of the Teacher, Trainer, or Assessor (TTA)

Though their research into the concept of flipped learning Ozdamli and Asiksoy (2016) highlighted the following skills that a TTA should undertake:

- Creating learning conditions based on questioning (Bergmann & Sams, 2012)
- Instead of transferring knowledge directly, being a guide to make learning easy (Johnson & Renner, 2012)
- Making effective one to one interaction with students (Cohen & Brugar, 2013)
- Correcting misunderstandings (Bergmann & Sams, 2012)
- Individualising learning for each student (Schmidt & Ralph, 2014)
- Using technological equipment suitable for the learning condition (Fulton, 2012)
- Creating interactive discussion conditions (Millard, 2012)
- Ensure participation of students (Millard, 2012)

- Sharing lecture videos or other suitable platforms as out of class activity (Bishop &Verleger, 2013)
- Providing feedback by using pedagogical strategies (Nolan &Washington, 2013)

All the above roles mentioned by Ozdamli and Asiksoy have their place and must be considered when the concept of flipped learning is approached and implemented into a teaching strategy. All undertaken well and with direction should enable higher attainment and understanding for an apprentice but there can be more to this in terms of enabling effective student learning. Allison (2023) suggests five themes from their research into enabling effective student learning in English Colleges. These attributes are:

- Staff who care.
- Build a positive relationship with students.
- Develop student soft skills.
- Challenge current practice.
- Put emphasis on students.

As cited in Allison (2023) having passionate teachers has been hallmarked as a key aspect of good vocational pedagogy (Lucas *et al*. 2012). Without this the TTA may not be prepared to go that extra mile and prepare the necessary resources for the flipped learning environment and follow this up within their one to ones or discussions.

> "A students' prior knowledge can influence the difficulties they face and the misconceptions they have (Qian and Lehman 2017), and so if there is not an effective relationship where the teacher understands this, then students may continue to have problems."
>
> Allison (2023),

Without the TTA building on the production roles mentioned by Ozdamli and Asiksoy (2016) supported with the interpersonal themes and practices suggested by Allison (2023) the role of the TTA may not be as effective as it can be in the delivery of the flipped learning model for apprentices. The TTA must understand that this flipped learning model does take dedication and alignment with the concept for this to have success. Failure will occur at some point as the TTA, and apprentice understand and develop their understanding of the learning concept, and this should not be a deterrent to developing this skill. Reflecting on practice and then developing from this will be an ongoing aspect and should be a key thought process in the mind of the TTA when undertaking the flipped learning model.

The role of the student (apprentice)

Alongside the role of the TTA Ozdamli and Asiksoy (2016) also suggested the following role of the student or apprentice in this case:

- Taking responsibility for their own learning (Bergmann & Sams, 2012).

- Watching lecture videos before the class and preparing for this by undertaking set learning materials provided (Milman, 2012).
- Learning at their own speed (2012).
- Making necessary interactions with their teacher and friends, taking, and giving feedback (Tucker, 2012).
- Participating in discussions within class/one to ones/reviews (Overmyer, 2012).
- Participating in team working activities when needed within the workplace or classroom environment. (Formica, Easley, & Spraker, 2010).

A key emphasis from the above suggestions is that the student takes responsibility for their own learning and becomes a self-regulated learner working on the concept of the student as a producer as mentioned by Bovill et al (2011). This ability to self-regulate and think about their learning can also be referred to as Metacognition. According to Busch (2022) the Education Endowment Foundation Toolkit highlighted metacognition as one of the most cost-effective ways to help students improve their learning. This ability to think about their thinking, develop understanding and responses independently as well as choose appropriate strategies to complete tasks in hand is a key skill for the student/apprentice to develop during the implementation of the flipped learning classroom. It is also one that the TTA must understand and help the apprentice to develop during this delivery approach.

How does technology support the flipped learning environment?

Since the original conception of flipped learning was introduced by Bergmann and Sams (2014), technology has played a key role within the delivery of this. Videos were the original format that were implemented to undertake the independent learning with teachers introducing the basis of the topics to be watched and students be informed. Bergmann and Sams (2014) emphasise the importance of the use of videos to connect with both content and people, i.e., teachers. (Cited in von Lindeiner-Stráský et al: 2022).

Although videos can play a key role with this method of delivery it also has to be considered that there are many methods within a digital manner that a TTA could utilise to engage in the flipped learning model and maximise the learning being undertaken by the apprentice. As Ozdamli and Asiksoy (2016) stated, the teacher does not have to be a video producer to ensure that effective practice is being undertaken within flipped learning, they just need to ensure that the correct digital platform is being utilised to gain the maximum effect as well as prepare the apprentice for the modern-day world of work. von Lindeiner-Stráský et al. (2022) highlight the fact that a variety of digital materials can be utilised to support independent learning but must be chosen effectively to have the maximum impact. Digital resources such as NearPod, Padlet, Moodle and the range available within the Microsoft suite of software can all play a role within the delivery, but they must not confuse or over complicate the delivery. This applies to both the TTA and the apprentice. This will then be reinforced with the task that are being evidenced within the apprentices e-portfolio within OneFile to confirm knowledge is being acquired and shown for their relevant apprentice standard being undertaken.

It does have to be noted though as by the research conducted by Little (2015) that “real strength of this pedagogical approach is not the instructional videos but the in-class time that

is left to be redesigned and evaluated." The in-class time, reviews or discussions at the workplace having evaluation as the educational approach's main strength, not the instructional films. This period offers far more chances for active, experience learning to assess higher-order cognitive abilities. To scaffold students' progress towards Bloom's taxonomy's higher stages, teachers must move the instructional material outside of the classroom where technological support can be a contributing factor but is not the main emphasis of the delivery.

Conclusion

Ultimately the concept of flipped learning can have a very powerful effect to the attainment and advances in knowledge for an apprentice, but it does have to be a conjoined effort in applying the concept from both the TTA's as well as the apprentice. There is a need for a TTA to consider the flipped learning approach due to the limiting time constraints that they spend with an apprentice during their apprenticeship programme. The flipped learning approach can provide a maximal impact with the limited time spent with an apprentice but for this to occur, the approach must be implemented with dedication and thought with a very consistent method used throughout. The methodology of flipped learning needs to be taught to the apprentices and understood to make sure that the concept is followed and applied correctly. If this is not undertaken, then the lines can be blurred and full understanding from the apprentice may not be achieved in terms of the higher order thinking ideologies. It is an approach worthy of consideration and if maximised, has the potential for significant gains in the learning and development of the apprentice involved.

References

Allison, A (2023): Factors for enabling effective student learning within English colleges: the case of computing, PRACTICE, DOI: 10.1080/25783858.2023.2198143

Bergmann, J, & Sams, A (2014) Flipped Learning: Gateway to Student Engagement, International Society for Tech in Ed., Eugene.

Bishop, J.L. & Verleger, Matthew (2013). The flipped classroom: A survey of the research. ASEE Annual Conference and Exposition, Conference Proceedings.

Bovill, C., Coke-Sather, A. and Felten, P (2011) Students as co-creators of teaching approaches, course design, and curricula: Implications for academic developers. International Journal for academic developers. 16(2), 133–145

Busch B (2022) What is Metacognition?. [online]. Available at: https://blog.innerdrive.co.uk/what-is-metacognition.

Cranmer, S (2006) Enhancing graduate employability: best intentions and mixed outcomes, Studies in Higher Education, 31:2

Eurofound (2021), *Digitisation in the workplace*, Publications Office of the European Union, Luxembourg

Flipped Learning Network (FLN) (2014) The Four Pillars of F-L-I-P™ [Online] Accessed 28.04.23

Halasa, S., et al (2020) Comparing student achievement in traditional learning with a combination of blended and flipped learning in *Nursing Open*, *7*(4), pp.1129-1138.

Higgitt, G., Chatterjee-Woolman, J., Gill, N. and Paye, K (2022) How can teachers develop effective strategies that help students learn independently?

Karina von Lindeiner-Stráský, Ursula Stickler & Susanne Winchester (2022) Flipping the flipped. The concept of flipped learning in an online teaching environment, Open Learning: The Journal of Open, Distance and e-Learning, 37:3, 288-304, DOI: 10.1080/02680513.2020.1769584.

Li, J., Zhang, X. and Hu, Z (2018) The Design and Application of Flip Classroom Teaching Based on Computer Technology. *International Journal of Emerging Technologies in Learning.* Vol. 13, No. 10, 2018.

Little, C. (2015) The flipped classroom in further education: literature review and case study, Research in Post-Compulsory Education, 20:3, 265-279, DOI:10.1080/13596748.2015.1063260

Ozdamli, F. & Asiksoy, G. (2016). Flipped classroom approach. *World Journal on Educational Technology: Current Issues. 8*(2), 98-105.

van Alten, David CD, et al, (2021), Secondary students' online self-regulated learning during flipped learning: A latent profile analysis, in *Computers in Human Behavior* 118.

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