

# The feasibility of teaching and assessing a vocational programme using blended learning in Further Education

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## Abstract:

This paper discusses the feasibility of teaching and assessing a vocational programme using blended learning, Further Education (FE). The blended learning model discussed will be face to face and online sessions. This research is part of a Professional Doctorate in Education (EdD). The project has identified the need to investigate the challenges of teaching and assessing vocational programmes using technology platforms and the move away from the reliance of face to face teaching for all aspects of vocational education. The shift to online education in March 2020, because of the Covid19 pandemic and the UK Government imposed lockdown changed the way learners engaged with their learning and the assessment process. This research aims to assess how vocational education can evolve to ensure students can access their learning programmes using blended learning. New teaching and assessment methods have been designed and implemented as part of this project to ensure assessment meets the needs of students, awarding bodies and employers. This paper discusses the pilot study of the feasibility of students undertaking vocational subjects in FE using blended learning as a teaching tool to prepare for assessment. It explores the relationship between online learning and face to face learning and assessment in vocational subjects.

**Keywords:** Covid 19 pandemic; blended learning; vocational education in FE; technology platforms; face to face teaching; online learning.

## 1 Introduction

The COVID10-Pandemic (March 2020) disrupted education systems worldwide, impacting how vocational qualifications are delivered (REF). Almost overnight, governments worldwide ordered education institutions to cease face to face learning, and switch to emergency remote teaching (ERT) (Watermeyer *et al.*, 2020). An aspect of ERT that the authors have explored was the feasibility of blended learning to support the assessment process for practical vocational courses. Williamson, *et al.*, (2020) inform us that remote teaching and delivery online are not new concepts to pedagogy or curriculum design. Still, the extraordinary circumstances meant vocational subject lessons had to be developed for online teaching (Jung and Rha 2002) with the term 'pandemic pedagogies' used to describe the move to ERT (World Bank 2020; Hodges *et al.*, 2020).

This paper offers a fresh perspective on what, how, and where learning (Zhao 2020) in vocational education can use blended learning to create flexible, resilient students. It aims to contribute to the knowledge of understanding about the effectiveness of online learning and assessment (LT&A) brought about by the Pandemic, making a new and innovative contribution to vocational training and assessment.

## 2 Literature review

The literature review was undertaken to establish the existing published research linked to the research topic. Since March 2020, considerable literature has been published around the theme of education and the Pandemic. Still, very little literature discussed the continued assessment of vocational education during repeated lockdowns, caused by the Pandemic.

### 2.1 The initial disruption to teaching caused by the Pandemic

Nobody can dispute that one of the most significant impacts of the Pandemic on education was 'lost learning' in the FE sector (Association of Colleges 2021) when educators had to come to terms with the impact of the Pandemic on student's learning progress, attainment levels and assessment outcomes.

Traditionally, vocational qualifications rely on the working environment for assessments; therefore, when this was changed due to lock down new pandemic pedagogies (Chase, 2021) and, more specifically, joint productive activity (JPA), instruction and assessment methods needed to be designed to ensure assessment could continue.

## 2.2 The move to emergency remote teaching

Practical vocational learning is training that involves developing knowledge, skills, and attitude to perform work roles (Tyson and York 1996). Qualification assessments in these areas have evolved to test competency-based on direct observation of the student's skill level. The Pandemic meant traditional teaching assessment methods had to change, and educators were forced to use ERT (Chase & Taylor-Guy, 2020), unfamiliar teaching and learning environments for all.

Online learning and ERT have essential differences (Warschauer, 2020). Online learning implies a fully online course of self-study or tutor-led sessions. Singh and Thurman (2019) inform us online learning is when lessons are prepared and designed for asynchronous learning. Online courses are delivered through a purpose-built, technology-led learning environment which allows for synchronous and asynchronous learning. Student engagement and outcomes arise from teaching skills in online pedagogy (Rapanta et al., 2020).

ERT during the start of the Pandemic (March 2020) sessions was designed to replicate face to face lessons mirroring experiences of traditional learning environments (Hodges et al., 2020; Warschauer, 2020). Sigite (2020) discusses reproducing classes designed for a face-to-face lesson as ineffective for a remote student. The World Bank (2020) argues that lecturers must be taught how to merge multiple modes of delivery to effectively facilitate learning within traditional lessons, to improve delivery and make LT&A.

However, it is essential to consider as researchers that the issue related to the post Pandemic educational change may be that lecturers work very hard to imitate the syllabus without asking if it still meets the needs of the students, employers and awarding bodies (Scott, 2020).

## 2.3 Technical and personal privation (hardship)

The move to online learning brought issues for educators not considered before, including slow or unreliable internet, the cost of connection, technophobia, information technology poverty and insufficient technological skills (Ferri et al. 2020; World Bank 2020). However, the lack of technology is not the only issue to consider when moving from face-to-face teaching to online teaching. The impact on students' socio-emotional wellbeing and their development of interpersonal skills needed for assessment in practical vocational areas is immense (The World Bank 2020). Some students that thrived in traditional education environments could find it challenging not to have contact with others (New York Times, 2020; Sigite, 2020).

Many researchers (Donaldson, 2015; Welsh Government, 2020) have looked at the possibility of distant and online learning as an excellent method to continue to deliver a course remotely. However, in competence-based areas, educators would have difficulty replacing the quality of the face-to-face lessons to achieve skills (World Bank, 2020).

Due to the reaction of education establishments closing their doors to face-to-face teaching, caused by the Pandemic, the first significant threat to vocational education in Wales took place; therefore, little research on vocational education and online assessment has been conducted beforehand at the grassroots level. The literature review has shown considerable research for online learning, blended learning, and the advantages and disadvantages of LT&A. However, very little was found in the literature on the success of vocational assessment using blended and flipped learning.

## 3 Methodology

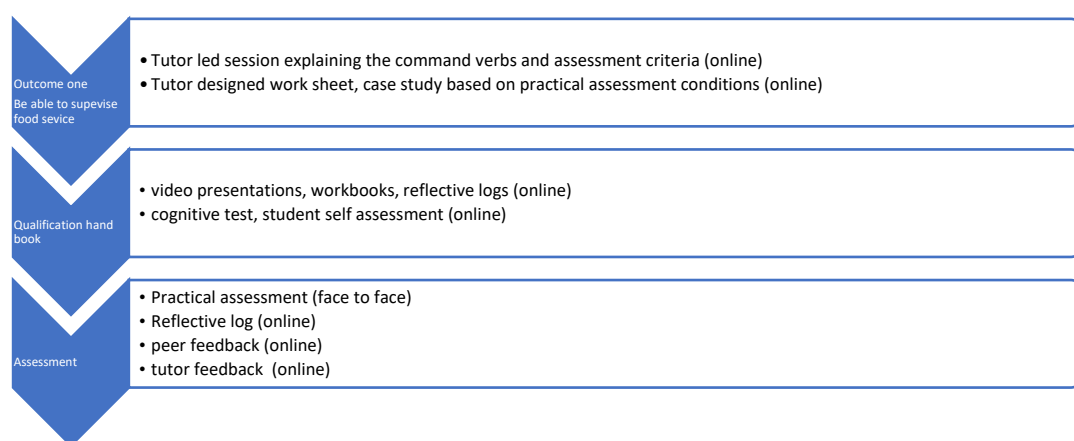
As a researcher the first author who also teaches the subject area being investigated has used an epistemologically qualitative methodology. Naturalistic observations (REF) to collect data have been adopted. Whilst the focus for the project discussed in this paper is hospitality, the authors believe that the findings could inform other vocational subject areas (Stringer, *et al.*, 2020) as all vocational subjects are taught and assessed using the same principles. The methodology used for this pilot study acknowledges research as a personal, social activity (*ibid*) and the author's tutor group in the Hospitality department of the FE college where she is employed (Cardiff and Vale College, Wales, UK) has been the case study where the pilot for the research has been conducted using a level three supervisor qualification in hospitality, restaurant units. The three main objectives of the EdD project are as follows.

1. How to integrate blended learning in vocational subject areas.
2. How to ensure assessment criteria can be met using blended learning.
3. How to measure successful assessment in vocational subjects using blended learning.

### 3.1 How to integrate blended learning in vocational subject areas

Flipped learning is describe here and cite a publication and is the learning model used in the author's EdD project. Figure one demonstrates how one learning outcome from one practical unit in a vocational hospitality qualification can be delivered using a range of online and face-to-face education as a flipped learning style. The author believes this model can be applied to all practical units within any competency qualification, reducing face-to-face learning time. This model allows students to prepare for assessment online, carry out the practical assessments in a face to face environment, and complete the assessment evidence online, reducing the time spent in traditional classroom settings.

**Figure 1:** Harvey (2022) flipped classroom for vocational learning model



### 3.2 How to ensure assessment criteria can be met using blended learning

Harvey's flipped classroom was also designed to support students develop the knowledge to have transferable skills that could be utilised in practical sessions. This was done with a variety of technology platforms being used to demonstrate skills and offer video and live streaming of Master classes. Worksheets suitable for online participation were also designed. These synchronous online sessions helped the assessment process required by the awarding body City and Guilds, where students need to reflect and recorded their practical experience meeting the command verbs used to measure assessment. These command verbs are explained, discussed, demonstrated, provided, and monitored

### 3.3 How to measure successful assessment in vocational subjects using blended learning

Practical command verbs cover the assessment criteria for competency-based qualifications, and these command verbs must be met by students providing evidence for assessment criteria. The author designed diary pages (reflective logs) to help support students meet the assessment criteria when recording their assessment sessions and provide a valuable source of research data. These diary pages were collated over six weeks from 08/11/2022 to 13/12/2022 and coded to map against the assessment criteria for the generic units in the National Vocational Qualification NVQ Diploma in Hospitality Supervision Leadership (City and Guilds, 2020). The data contained in these diary pages was mapped to the assessment process and was suitable to be used as evidence for the qualification by learners (Fink 2020). This was the least intrusive method to gather evidence as students must reflect on their performance as part of the evidence-gathering process.

### 3.4 Research participants

The research participants for the pilot project were 100% of the researcher's tutor group, all of whom are completing a level three qualification. The degree of variability (Israel, 1992) is based on the homogeneity of the participants who are completing the same qualification, at the same level, taught by the same lecturer and in the same FE college. The data produced by participants will be measured against a set assessment criterion for the qualification that cannot be changed. The participants will be completing the same diary page to collect evidence, which should allow for a small degree of variability.

The confidence level of the sample was based on the Central Limit Theorem (Israel, 1992) as the research participants were being repeatedly sampled with their weekly assessment, and these samples were expected to fluctuate, with some samples providing more data than others. A confidence level of 95% was selected as there is a chance the sample of data collected did not represent the actual value of the participants.

The level of precision or sampling error (ibid) was 90% of the sample  $\pm 5\%$  percent; therefore, the author can conclude that between 85% and 95% of the research participants had successfully used the diary page to support their assessment.

## 4 Results of the pilot research

The outcomes of this study are limited as the research is still at the pilot stage, but these results support the model of flipped learning designed by the author. The data suggest that assessment for vocational qualifications can be achieved through this education model. The results from the pilot study give support to a more detailed research study taking place.

### 4.1 Method of analysing the data

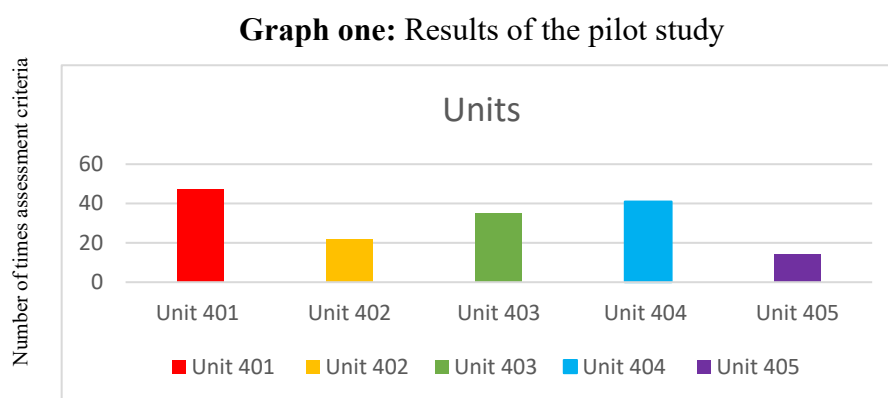
Student diary pages were used in this study as a primary data source, to establish if students had met the assessment criteria. The ten students that make up the author's tutor group completed a diary page once a week for six weeks (from when to when, and why six weeks). These diary pages (appendix 1) were designed to support students to prepare for, undertake, and reflect on practical face to face assessments. This written sample provided by students was used as supporting evidence for their assessments and will be mapped to the assessment criteria. The diary pages were analysed using the Constant Comparative Method (CCM) of Constructivist Grounded Theory (Charmaz, 2000).

The data was collated weekly and anonymised by the author. It was then coded to highlight the most pertinent content that could be mapped to the assessment criteria within the student qualification. The data analysed thematically, placed in a table and split into naturally occurring sentences with no change made to the text. Once collated the text was coded, and coloured according to the assessment criteria and unit they could be mapped to and counted for the number of times they covered the assessment criteria in a unit. Table two is an excerpt from the thematic analysis used to code the data for week four.

**Table1:** Excerpt from the thematic analysis

Student statements from diary pages	Unit	
Develop a time plan	401	
Provide support and help those who need support. Provide advice	401 x2	
Ensure health and safety is followed.	404	
Source ingredients	403	
Monitor food production	401	
Determine quality of produce and products	403	
Ensure correct uniform is worn	404	
Ensure uniform is clean	404	
Monitor drink production	403	
Provide a hospitable service	405	
Make a time plan	403	
Make sure everyone is in correct uniform Ensure uniform is clean	404	
Decide who is where in the restaurant and kitchen	401	402

Closed coding (REF) was used to limit the coding to the core variable of the assessment criteria for the mandatory units in the qualification. After the data was coded it was coded and converted to a graph shown below in graph one. This demonstrates the number of times students met the assessment criteria within their work by completing the diary pages and preparing for assessment online. Graph one shows the mandatory units used for the pilot study and the number of times it met part of the assessment criteria for that unit over six weeks.



These results confirm the association between online learning and face to face learning by students. The data used to form graph one was written in the students' diary pages that were completed during online sessions. These statements made by learners have been mapped to the assessment criteria allowing them to be used as evidence that can be mapped to vocational assessment criteria.

## 4.2 Limitations

The generalisability of these results is subject to limitations within this study. The findings in this paper are subject to at least three limitations. First, only ten students took part in the research, and with a small sample size, caution must be applied as the findings might not be reliable and might not apply to other groups (Israel, 1992). Second, the research only took part over the one-half term of six weeks and third, the students only worked with the researcher during the flipped learning sessions and might be biased, given the self-reported nature of the research. These results, therefore, need to be interpreted with caution.

Notwithstanding these limitations, the results in this section indicate that the pilot study was a success in demonstrating the feasibility of the three main objectives as discussed in section 3 Methodology and written below.

1. How to integrate blended learning in vocational subject areas.
2. How to ensure assessment criteria can be met using blended learning.
3. How to measure successful assessment in vocational subjects using blended learning.

## 5 Discussion

The research study undertaken documented in this paper was a pilot investigation into the feasibility of blended learning being used to support the assessment process for practical vocational courses. The pilot study results have shown that it may be possible to use this model of teaching and learning for vocational programmes, such as hospitality in an FE College.

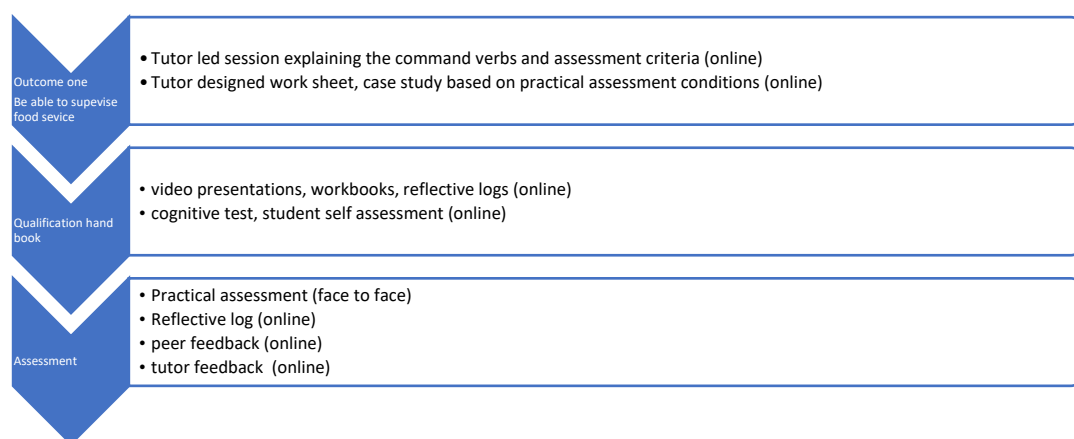
Blended learning as a model of education delivery has been known since 2000 with Cooney et.al. (2000) documenting one of the first studies that used the term blended learning. Still, it is not possible to assess vocational programmes online as seen during the Pandemic with assessment in vocational subjects being put on hold due to

business closer and traditional assessment of competency not taking place. Vocational qualification design dictates that practical skills and interaction with people or equipment must be demonstrated. Observation of performance is carried out by assessors and needs to be seen in person. Therefore, the study is of a hybrid model of teaching and learning that combines online and face-to-face teaching into one cohesive learning experience, to ensure assessment is attainable using blended learning. It is the intention that this model of education should encourage students to take control of their learning, building resilience and independent skills as they will have to choose how and when they engage with the learning materials needed for the assessment as some of the online learning will take place in student's own time with a mix of asynchronous and synchronous teaching being used (McEldoon and Schneider, 2022). Therefore, students must take ownership of their learning when this model is applied which is challenging for FE learners due to their entry behavior and the level of qualification they are studying.

## 5.1 Implementing the research

The research model used in the pilot is demonstrated below in figure two using one learning outcome in one unit of a vocational subject being taught and assessed through flipped learning.

**Figure Two: Figure 1: Harvey (2022) flipped classroom for vocational learning model**



The author's flipped learning model has been dissected into steps, as discussed below.



**Step 1 Online:** Define the learning outcome, describe the process of assessment, setting realistic but challenging goals for the assessment allowing the students time to plan. Design teaching material and use technology platforms to enable students to engage and take control of their learning by allowing them to choose how they engage with some aspects of the materials.



**Step 2 Online:** Assess the student's knowledge and support the understanding of the practical assessment using appropriate strategies and online learning platforms. Allow students to choose their learning objectives to build independence. Make links with this academic learning to practical sessions.



**Step 3 Face to face:** Observe students' practical assessment when they demonstrate knowledge and skills. Encourage students to link these practical sessions and academic learning to encourage motivation and ownership.



**Step 4 Online:** Clarify student feedback, support students to reflect on performance and compete supporting evidence before returning to step one to undertake the same or different assessment. Allow students to decide what skills they need to practice to ensure students can use the technology provided.

## 5.2 Next steps in the research

After the pilot project and the resulting positive results, the next steps are to undertake wider data collection and use three areas of vocational teaching in hospitality: food service, bar and reception and kitchen production.

Three tutor groups with approximately eight students each will be the sample, and in addition to the first author two of her other lecturing colleagues will be engaged in an action research process (managed by the first author) to deliver the flipped learning sessions. This should allow for more randomised controlled data to provide more definitive evidence. The data will also be analysed weekly to demonstrate ongoing assessment, for twelve weeks. When presented in this format, the data is expected to increase the number of times students cover the assessment criteria as they become more involved with their learning and take more control.

## 6 Acknowledgements

The research has been supported by Cardiff and Vale College, Cardiff, Wales, and Dr John R Littlewood and Dr Susan Davis, who provided the help, guidance, and support with their academic supervision on this learning journey.

## 7 Conclusion

This research aimed to present the pilot study undertaken to investigate the feasibility of blended learning to support the assessment process for practical vocational courses and whether it was possible. The pilot findings have given a better understanding of this possibility and explored the need for more detailed research. Before this study, it was difficult to predict the probability of flipped learning when applied to vocational subject areas being a suitable tool to aid assessment as very little research has been conducted on this topic.

Further research is required to better understand the possibility of teaching and assessing vocational programmes online and face-to-face using a flipped learning model and to critically examine the methods in which vocational subjects are taught and assessed in FE.

### Abbreviations

CPD	Continuous professional development
EdD	Professional Doctorate in Education
ERT	Emergency remote teaching
FE	Further education college
ILPs	Individual learning plans
JPA	Joint productive activity
LT&A	Online learning and assessment
NVQ	National Vocational Qualification

## Appendices

appendix 1

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## Pilot diary page

Name:	Assessment Date:	Area of assessment:
<b>Online sessions</b>  What are your assessment objectives?	1.  2.  3.  4.  5.	
What do you need to plan before the assessment?		
How well do you feel the assessment went?		
General comments from you about today's session as a supervisor		
What improvements will you make for the next assessment?		