Teaching Online During a Pandemic: Pedagogical Skills Transfer From Face To Face Support to Online Synchronous Support Provision

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Abstract: The restrictions placed on face to face working practices in higher education because of the Covid-19 Virus pandemic has resulted in educational activities being moved exclusively online for an extended period of time. While tools such as Blackboard Collaborate, Adobe Connect, and Microsoft Teams environments are readily available to academics, the pedagogical approaches needed to utilize these tools effectively may not be immediately apparent. There are several facets to the delivery of online learning but the rapid transition away from face to face delivery meant that there was a need for creating synchronous activities with groups of students. This requires a refocusing of the skill set the pedagogue already has in the organization of activities such as lectures, tutorials and labs. The sudden need to support students from a distance has required a rapid upskilling of academic staff across a range of disciplines in the use of online delivery platforms. The authors believe that the core approach to delivering online activities is very similar to that required for face to face delivery but the tutor is required to be much better prepared in terms of developing the synchronous activities due to the “invisible” nature of the participants. Each of the staple face to face methods of Lecture, Tutorial and Lab need to be rethought for delivery online. The standard Lecture requires less adjustment than a Tutorial or Lab as the Lecture still contains the same familiar components of “chalk and talk”. Tutorials would, generally, require a higher level of interaction between Lecturer and student(s) involving a greater discursive discourse and small group work but is still achievable via tweaking the existing material to suit the technology tool being used. Labs, depending on subject area, may well prove to be inoperable or require innovative nonorthodox solutions that combine multiple technology tools. The absence of visible and audible cues makes for a more restricted interaction with the Tutor supporting the activity having the additional burden of trying to get the students to speak and interact online. This paper will seek to explore the factors needed to make the transition to supporting students online delivery straightforward.

Keywords: online teaching, e-learning, distance learning, synchronous communication

1. Introduction

This paper explores from the perspective of practitioners the impact of Universities moving from traditional teaching to an entirely online delivery induced by the Coronavirus pandemic. In the United Kingdom when face to face education came to a halt there was a need to replace face to face interactions with online interactions to support students to complete their studies. The focus in this paper is on the role of tools to provide synchronous interaction in the online world and to identify how the skills possessed by an academic in conducting face to face sessions translate into the online world (Richardson et al, 2009), (Ng, 2007).

2. Teaching online

There is more to online learning than electronic material, videos and podcasts (Arbaugh and Hwang, 2006). Supporting students at a distance requires the use of tools to allow real time communication. Synchronous tools such as Skype, Zoom, House Party etc. show that the internet can be used in a variety of ways to establish communication between multiple parties in a synchronous manner. In education products such as Blackboard Collaborate, Adobe Connect and Microsoft Teams provide this connectivity. Often the synchronous communication tool is provided as part of a managed learning environment (Stoneham, 2012). This has the effect of focusing use on a particular tool.

Students need direction and to be led through their studies. This is a contributing factor to why students sign up for prescriptive courses of study where the syllabus is determined by a team of academics working together within a subject area and in some occasions within the confines of a professional body (Junge et al, 2010), (Sebasta et al, 2017).

This paper discusses the skill set gained from years of experience teaching for the Open University in Scotland which is a distance learning institution and how the authors viewed the transition to wholesale online teaching
and support as part of their day job where they would normally teach full time students in a face to face manner (Duties, 2018). The Authors' background is in face to face and online delivery in the discipline area of Computing. As Associate Lecturers with the Open University part of their responsibilities involves providing online Tutorials for students studying a computing and technology course at a distance (Lambie and Law, 2017).

3. Utilising online experience in moving online

The Tutorial or small group teaching activity (Excel and Dennick, 2004) is central to most University courses. The fundamental question is what does a Tutorial or small group activity provide in terms of a teaching activity and what needs to be done in order to conduct the session online.

Tutorial formats will vary from subject to subject but can broadly be summarized as:

- a specific period of tuition generally on a specific subject
- a type of instruction involving exercises and practical activities.
- regular (often weekly)
- involve a smaller number of students than is taking the module (Typically 15 - 20)

Typically in the authors’ experience the Tutor in charge of the face to face Tutorial is active because this person is guiding students through exercises and acting as a helper by answering specific subject related questions. The activeness materialises in several ways, for example:

- helping individuals with specific subject related questions/subject problems
- “demonstrating” an answer to a specific question
- coordinating a class wide discussion on a specific topic/question

Typically a face to face tutorial will utilise a white board providing the Tutor with the opportunity to record and annotate answers as provided by students, draw diagrams and provide specimen solutions to specific questions (Excel and Dennick, 2004).

Higher educational establishments have invested heavily in information technology for use in teaching situations. Rooms used for face to face Tutorials will utilise a networked computer connected to a projector. The projector may display information on the white board or on to a separate screen. This approach encourages the use of electronic media as part of the learning session with the opportunity to display questions, related diagrams and prepared solutions for the whole class to view with the computer/projector combination being a straight replacement for the “old” overhead projector (Davids, 2014).

The use of a computer and a projector is part of a transition strategy towards delivering classes purely online without students being present (Stoneham, 2012). If the core text that is used for questions and answers is available electronically then this material can be used as part of an “equivalent” online session although this may still require a significant amount of work. So the seeds of preparation for online sessions have already been sown. Students may also elect to access the Tutorial questions electronically using a personal electronic device.

The availability of a computer and a projector along with the ubiquitous nature of the Smartphone have facilitated experimentation with products such as Turning Point™, where students can vote on the answers to questions posed by the Tutor. This approach encourages “reluctant” or shy students to participate in providing answers to questions during a face to face session and can be used as part of a strategy to draw students out of their shell and build their confidence in presenting answers and ideas in front of their peers (Draper and Brown, 2004), (Russel, 2008), (Salewa, 2011). While voting systems are often discussed as ways of engaging with large groups in lecture situations they also have a use in providing reluctant speakers with opportunities to interact in small teaching situations.

Technology is important in Higher Education (Galy et al 2011). There are a number of technology acceptance models that have been brought to play in the use of technology in education (Umrani-Khan et al, 2009), (Galy et al, 2011). Students need a computer to work on assignments set as part of their programme. In the Tutorial students make use of a range of devices including smartphones/tables/laptops and 2 in1 laptop/tablet combinations to access tutorial material and to look for answers as part of questions asked by the Tutor running the sessions. The glue for this is the University WiFi network which allows students direct access to the required...
material. This translates directly to the home situation during the lockdown period. Student access to the internet was a fundamental requirement for the success of online learning. Some students were supplied with USB dongles to facilitate this.

4. The Flipped Classroom as a pedagogical approach

The small teaching group in a Tutorial is a core part of the flipped classroom model (Maher et al, 2015), (Mok, 2014) where students are directed to material on a topic prior to the session with a Tutor.

The flipped classroom is a popular model and has helped to ease the transition to online learning in the current situation. This approach requires students to have engaged in learning activities prior to a scheduled class at which the topic will be discussed or elaborated on (Mok, 2014). In the distance learning world the idea of the flipped classroom is central to the directed study provided by printed and online material. Open University courses are in this genre.

5. Developing a transition strategy to online support of Students

In order to identify the skills needed to run online Tutorials the authors carried out an analysis of the tasks they performed in their role as Tutors supporting students for the Open University in order to apply those skills to the emerging online role caused by COVID19 and the need to avoid face to face teaching (Lambie and Law, 2015),(Lambie and Law, 2016),(Lambie and Law, 2017), (Lowe et al, 2016). The authors’ felt that this was a worthy area of investigation because of their experience in 2 different but related teaching roles. The driving force for this investigation was an attempt to reconcile the skills developed in both the face to face and online roles over a number of years and how this knowledge could be used to support colleagues in the short term as the fallout from the COVID19 situation was dealt with.

How can this transition from having expertise in delivering small teaching situations such as Tutorials to having academic staff delivering Tutorials in an online format? There are two aspects to this:

- identifying the pedagogical activity you want to engage in
- working out how this can best be achieved using the available online environment and deciding what compromises can be made to accommodate the online environment.

(Bloomberg, 2020) identifies a range of factors that the Pedagogue must face up to in order to make a transition to online teaching. (Covington, 2005) discusses that a triangulated approach involving Admin support, Professional Development and Peer Support is needed in order to have some prospect of making this transition successful. Shi et al (2006) discuss time management strategies for online activities and relates them to how the face to face situation would be handled indicating the need to put some thought into the equivalent online activity.

In order to proceed the authors first analysed the typical interaction pattern in a Tutorial. This is characterised as initiation/response/follow up as identified by (Sinclair and Coulthard, 1975) and (Mehen, 1979). If a flipped classroom approach (Mok, 2014) has been adopted then the students in theory will arrive ready to contribute to a discussion of the tutorial questions that were provided. The Tutor is therefore in a position to initiate the discussion based on this and to follow up on the student responses with some commentary to reinforce the points that the students had made with some follow up questions to help instigate some deeper learning/interest of the subject being covered. In the authors’ experience Tutors have to work hard in a face to face tutorial to get this sequence started and to maintain a good level of discourse between students and Tutor, partly because we do not live in an ideal world and on some occasions students will not have fully engaged with the material as expected of a flipped classroom scenario (Maher et al, 2015).

The hard work that the authors’ experience in the face to face small teaching scenario is therefore exacerbated in the online world primarily because of the lack of visual and audible cues available in the online world (Lambie and Law, 2015). Video is potentially available in these situations but tends not to be used to help reduce bandwidth during the running of the session. Assuming that microphones are available to participants background noise can be a problem in an online teaching session and the expectation is usually that a student has their microphone on mute unless they are speaking. A critical examination of the approach taken to deliver online tutorials using a range of tools has led to the analysis provided in the following sections (Madison et al, 2016). These sections identify the skills needed by the pedagogue to support students in a small group teaching
situation such as a tutorial. (Thornes, 2012) discusses some of the difficulties that were experienced in producing online tutorials for geography students when familiarity with the online medium is not already established.

6. Familiarity with the managed learning environment tool providing the synchronous activity

The first new skill is to be prepared and familiar with the tool that is being used to provide the synchronous session (Umran-Khan et al, 2009). In some respects this is the first stumbling block in making the transition from face to face support into the online world because if this is not mastered then sessions will not flow well and both tutor and students will feel frustrated (Galy et al, 2011). The features that can be used will be covered in the following sections. The bullet points below provide general advice.

- Think through and analyse what you do in the face to face situation. You may be surprised at some of the things you do. Now start to think through what you want to achieve online. This will require having to learn to use specific features of online delivery tools to do this.
- Be prepared to compromise to achieve the possible rather than try to reproduce an exact replica of your face to face session.

In terms of the online tool there are some specific skills that need to be learned and practiced.

- Learn to check that your sound and video are working.
- Find the mute button and make sure that you have this off when speaking.
- Learn to navigate around the tool and find features such as participant lists etc.
- Learn how to upload slides (PDF or Power Point)
- Practice, practice, practice using the online tool. Working with colleagues is a good way to become familiar with the tool features.

Becoming familiar with the features of the tool is important because you will need to carry out tasks dynamically as the session progresses (Minocha, 2012). Contrast this with how you conduct yourself in the face to face situation where you are likely to be physically active. For example walking to the whiteboard, cleaning the whiteboard, standing at the whiteboard ready to record points made by students etc. You therefore need to have a strategy for writing in the online environment (Law and Lambie, 2020). Issues to consider when organising online support activities are:

- You cannot walk over to the whiteboard and start writing.
- The whiteboard is electronic and is small when compared with a classroom-sized whiteboard.
- Text writing tools are poor in most tools.
- Electronic media provides the potential to record the work. (Audio recordings)

7. Writing and annotating online

The ability to write down points during a discussion is easily facilitated on a whiteboard (Ng, 2007). In some cases, the use of a Smartboard in a small group teaching environment supports this further with the ability to save the writing electronically or to print it off as a record of the discussion. In the online world, this is possible as well and can be easily distributed to the participants. The use of a writing tablet by the Tutor can enhance this task and may in some instances make it easier to record some aspects of the discussions. It is worth reflecting on how you record (if at all) discussions in the face to face world and what you want to record online. What will you and the students do with the recorded discussions? Most synchronous online tools allow students to write on an area of the screen in order to record their answers or to annotate diagrams that the tutor has provided as part of the session. You therefore need to think through where you want student participation in terms of writing or annotations.

Online tools assign roles to those involved in the session. A strategy that you may want to adopt is to promote the “status” of a student from participant to presenter. This may allow the student to have access to different writing tools.
8. **Encourage participation but have a clear protocol on taking turns to speak and utilise team teaching of Tutors in an online session**

Participation is vital but how will you arrange for this to be handled? In the face to face situation it is easier to just let someone speak in order to ask a question or to add to the conversation. This is because you can see the people present and you can nod or point to acknowledge that someone has the floor in terms of speaking (Shi et al, 2006). Online you need to be much more structured and to use some sort of queue to allow participants to have their say. Most online tools have a means to indicate that a hand has been raised. This allows the Tutor to invite people to speak in an orderly fashion. It is also important in the online world to establish grounds rules for this to ensure that participants do not talk over each other (Law and Lambie 2020).

The workload in this type of situation can be high where the Tutor is trying to handle the main learning theme with questions also coming in from the chat box facility that synchronous communication tools provide. It is worth allocating an additional person as a resource to a synchronous online session and having that second person handle interaction that comes in via the chat box facility.

Some systems utilise video and use it as an essential part of the system. Some setups as exemplified by (Jelsbak et al, 2017) ensure that each participant is visible to the teacher in control of the session. This setup is intended to ensure that students feel part of the session rather than being isolated in a remote part of Denmark. In a lockdown situation this kind of setup was not possible and forgoing large scale use of video as part of the session was a compromise that had to be made. The use of a computer with 2 or 3 screens is a useful resource and was a setup that was available to some members of staff as they decanted from their office environment to start working at home for an extended period of time. One screen for the online tool providing the session while another screen displays the “script” (which is used as a prompt or aide memoire) for the tutor running the session helps to keep track of the session as it unfolds.

9. **Organising slides to provide opportunities for participation**

Having a point of focus as an online session progressed is a feature that the authors have found indispensable in their synchronous online delivery sessions prior to the COVID-19 crisis and was one that was central to their online activities as face to face classes suddenly became online. Having a series of slides that indicate the topic, pose a question or problem or outline an action to be completed was important to keep the session focused. Having material available electronically from the face to face setup utilising the tutorial room computer/projector combination provided a useful starting point. Other approaches such as having technical “paragraphs” with key words or phrases omitted provide a means for students to focus on a specific topic and apply knowledge from earlier learning in a flipped classroom approach. This approach can be used as an ice-breaker to start discussion on a topic off in order to encourage deeper learning and interest in a topic.

10. **Using class polling to engage interest and assess understanding**

In the face to face tutorial voting systems allowed students to vote in a multi-choice manner on a question or series of questions posed by the Tutor. On completion of the voting the answers could be examined and the reason for wrong answers investigated in order to provide feedback on where the students decision making process went wrong (Salewa, 2011), (Russel, 2008). This approach is supported by many synchronous online tools and can be utilised to keep students engaged during an online session.

11. **Think through your activities and consider using a Problem based learning approach to provide students a way of engaging with a question**

This may require you to break the problem down into smaller tasks and to record each task as a way of building an answer to a specific problem.

A problem based learning approach (PBL) may help you to provide an appropriate approach to get students to apply specific knowledge to a domain related problem. The tutor would need to guide the students through solving the problem and to make use of appropriate slides to help with this activity. This may be an approach that is already used in the face to face classroom aided by the projector and computer combination available. A PBL approach may fit in well with a flipped classroom approach (Maher et al, 2015), (Mok, 2014) to learning where students are required to investigate a particular problem area as a directed activity using specific directed material which may be printed or online prior to a formal class on the subject.
12. Utilise breakout rooms to allow discussion between students

As part of a problem based learning approach (PBL) you may wish to consider using breakout rooms. Breakout rooms are virtual rooms that can be created within the main synchronous activity and provide students with the capability to meet as a small group electronically and to share tools such as a whiteboard to record and detail ideas regarding a specific topic or question. The ability to use breakout rooms makes it possible to mimic small group working that may take place in a Tutorial or other small learning situation.

Some synchronous tools permit the contents of the virtual whiteboard to be brought back into the main room as part of a plenary discussion on a topic. This allows the breakout room discussion to be “narrated” and presented to the larger group.

13. Programming lab sessions as small teaching situations

In an online lab you would want students to “log on” in some way and to be seen to be working through particular activities over a specific period of time. There is scope for the lab supervisor being able to take over the application that is running on a students machine and helping the student in some way. This thinking is coming from the Computing and Engineering world where students have to code something or to use a tool to design something. There also needs to be opportunities for the lab supervisor to demonstrate an approach or technique to the entire class.

In the current setup the lab supervisor can share the desktop of the machine being used to deliver the session. Products such as Blackboard Collaborate and Adobe Connect allow this. There is also the opportunity for an individual student to share their screen to allow the Tutor to interact with a specific programming tool in order to solve a particular problem. This is likely to require the student to be given a moderator role to allow this activity.

14. Student attitude to online support

The swift move to online learning was as much a shock for students as it was for staff. There is in some respect the assumption that the modern student is a consumer of social media and a regular user of social media tools. However does this mean that students will take instantly to online delivery because they are familiar with asynchronous and synchronous social media tools? There is scope for following this up for specific groups who were suddenly thrust into the online world. Lambie and Law (2017) suggested that the student use of social media and attendance at online Tutorials were not directly linked. In terms of distance learning courses students are aware what it is they are signing up for. This is not the case for full time students who were forced out of necessity to utilise online support and learning because of the current pandemic. Anecdotal evidence suggests that the uptake of online sessions as an alternative to online teaching was not high and that other approaches such as watching pre-recorded sessions in their own time on a specific topic is more attractive (Wells et al, 2012). This attitude has implications for resource planning as Higher Education establishments assess their approach to teaching as the lockdown relaxes but the need for social distancing continues.

15. Moving forward

The access to Broadband and WiFi in the community at large is influencing how we live and carry out our everyday activities, not just how we deliver higher education. There are however still problems within some sectors of society in some countries and even in parts of developed countries having access to this resource. While many governments are investing heavily in Broadband infrastructure the current pandemic has illustrated the importance of broadband and WiFi connectivity outside of the workplace and educational hubs. For a successful online session more than just a basic computing device such as a tablet or laptop is needed to ensure a quality experience for the student group and the pedagog running the session. The Digital Divide is very much a current topic and the current pandemic has emphasised the importance of providing consistent access to this resource to disadvantaged groups within society.

16. Conclusion

Most institutions already had an online capability which could be brought to bare on solving the need for social distancing (Mwanza and Egestrom, 2005), (Stoneham, 2012). The use of managed learning environments such as Blackboard or Moodle are now common in the Higher Education sector (HE) in the United Kingdom and institutions have a minimum use policy that staff are encouraged to adhere to. There is still a need to evaluate
the role that Information and Computing Technology provides in higher education and to keep reviewing the benefits as technology changes OECD/JRC (2010). As (Covington et al, 2015) identified, for a transition to online delivery and support to be successful cooperation between academics, support staff and course administrators is necessary. In the authors’ experience the transition to online support was in one role seamless because online support was the main means of supporting students (the ethos and support were already there) and in their other role involved a minimal transition to using online approaches to support students in small learning classes because experience could be brought to bear on addressing individual online learning requirements. The relatively painless transition was because the authors had already considered how to refocus face to face teaching skills to suit online delivery (Lambie and Law, 2015), (Lambie and Law, 2016), (Lambie and Law, 2017). For some staff the current pandemic tipped the balance and provided the incentive to get involved in online delivery and apply the skills they already had, although this required quite a lot of thought as to how to provide direct synchronous support in the online world. This was basically a needs must attitude but even for the authors it required them to work with groups of students who were unfamiliar with the core idea of receiving support through online tools. Subject experiences are different and some more practical subjects cannot carry out all educational activities as easily as others (Porter et al, 2020). This is where pragmatic decisions have to be made in for example replacing a live demonstration with a short video.

The authors’ believe that the experience of moving online is a positive experience that will also influence future face to face delivery (Porter et al, 2020) The techniques outlined here to help interaction and organise small learning classes in an online environment indicate that synchronous online support for students is possible but that there is a need for a much more focused approach to carrying out the activity. The approaches outlined can also be used to help reluctant students to participate in face to face sessions by providing a specific focus on the topics being covered. Activities such as filling in the “blanks”, linking key words with phrases can help ease students into participating and help to make them feel less conscious about giving “verbal” answers in front of the class (Law and Lambie, 2020). The experienced Tutor has much to offer students in both the face to face and online world.

Perhaps for some disciplines there is no going back to the volume of face to face support provided before lock down occurred. Perhaps the prevalence of managed learning environments and access to the internet are major factors in this journey but the move from chalk and talk to electronic “chalk” and video talk in the virtual world is continuing and the student of today will not be able to avoid exposure to these media (Stoneham, 2020). There are still barriers that need to be dealt with to ensure fair access to education in the online world. Accessibility for students with disability is a continuing challenge for educators to address as is access to the internet for disadvantaged groups both in the industrial and emerging worlds.

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