

The 'Flipped Classroom' Approach

Critical Incident

As an honorary lecturer I was assigned to teach Renal Anatomy and Physiology to various cohorts of Critical Care Nurses, the post graduate students came from different units across North West London and studied either at Level 6 or Level 7.

Initially, I followed a traditional lecturing format that aimed to teach the fundamentals of renal anatomy and physiology to students of varying degrees of experience and exposure. Initial student feedback showed students felt lost due to the short amount of time allocated for such a complicated system, I could also see students struggle to engage critically with content and formulate principles from the concepts I had taught them. I felt this was because the traditional lecturing format does not allow students to bring in their own experiences and personal knowledge, which means they cannot engage deeply with content. This was further proved by the student feedback generated which suggested students enjoyed the clinical scenarios as they could use their practical knowledge and critical thinking skills to apply theory to practice.

As such, I decided to investigate other methods that would help students critically engage with the subject materials in this session. I wanted to move away from traditional lecturing and focus more on the student and use active-learning strategies.

Literature Review

The 'Flipped Classroom' (FC) Approach focuses on the student, transforming the traditional lecturing environment into an active learning environment. The approach uses pre-class materials as the main component of disseminating relevant information, leaving more time for the teacher to facilitate in-class structured learning activities that address misconceptions and allow students to critically engage with content (Brame, 2013; Bergmann & Sams, 2014; Abeysekera & Dawson, 2015). There are other types of student-centred teaching methods which incorporate active learning strategies with traditional lectures, but I felt that the use of pre-class materials within FC would allow students of a post-graduate level to find their own sources to corroborate or challenge what they have been taught in order to develop their own critical arguments (Williams & Joyce, 2014).

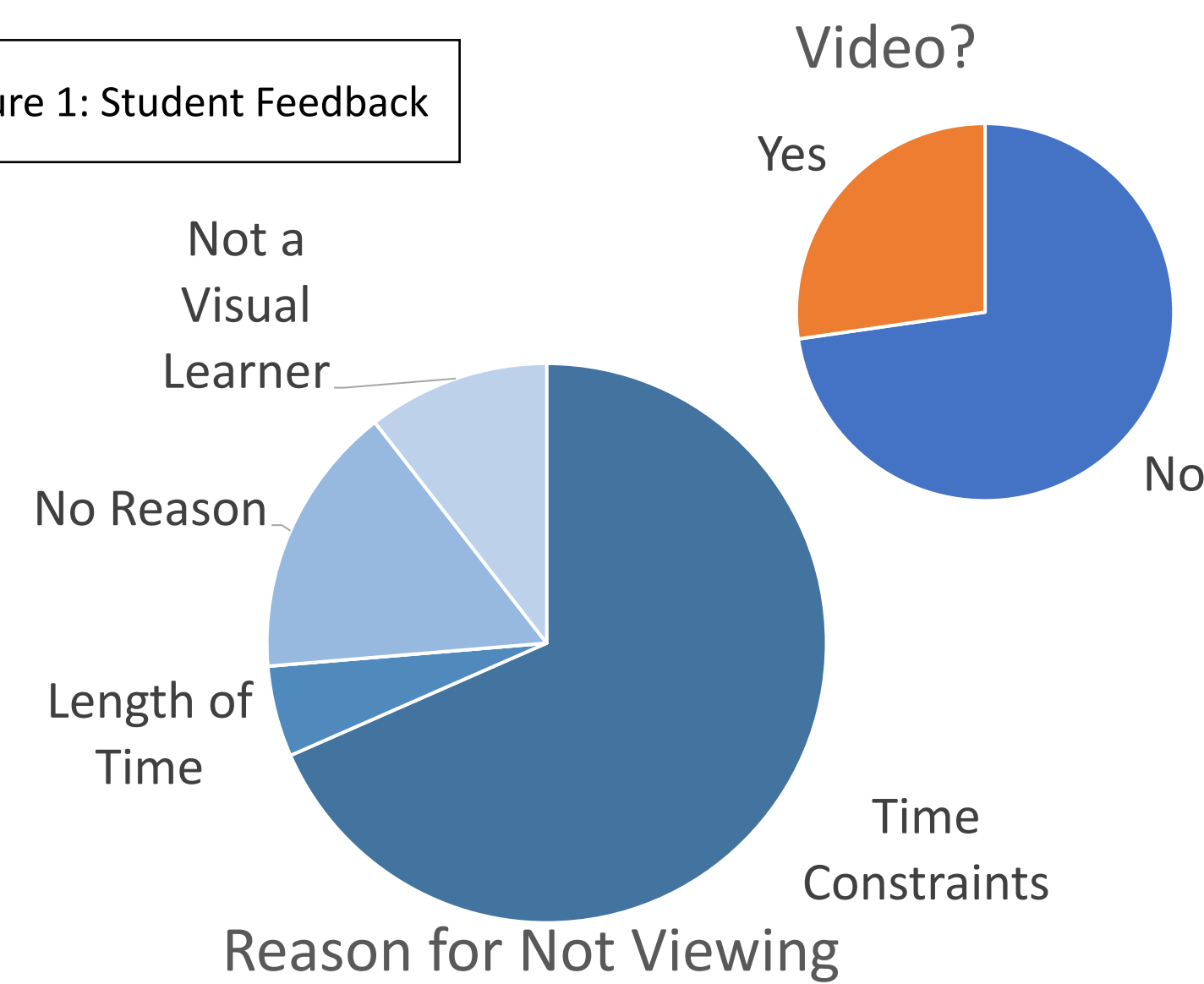
Internationally, there is a wealth of literature surrounding the use of FC within Nursing higher education. Nineteen studies in total have been critically examined within four separate systematic reviews, showing a positive impact on nursing student engagement, satisfaction (Betihavas et al, 2016; Njie-Carr et al, 2016; Presti, 2016; Evans et al, 2019).

Nationally, there is very little literature related to the use of FC within UK higher education and the current international research is not strong enough to suggest a significant difference between FC and the traditional lecturing method in developing the critical thinking ability (Dehghanzadeh & Jafaraghaee, 2018; Park & Park, 2018) and improving the academic achievement of a nursing student (Betihavas et al, 2016; Njie-Carr et al, 2016; Presti, 2016; Park & Park, 2018). One reason for the mixed results is that the studies presented have varying degrees of comparability as there is no standardised implementation of these techniques making research results difficult to replicate and compare (Njie-Carr et al, 2016; Evans et al, 2019).

However, my purpose in conducting this literature review was to review my current practice and adopt techniques from literature that would help me engage my students and improve student satisfaction. Therefore, I decided to incorporate the pre-class materials and the structured active learning environment from the FC approach into my practice

Did students view the Pre-Class

Figure 1: Student Feedback



Intervention

Based on the results of the literature review, I decided to split the teaching into two. The pre-class materials would focus on information and allow students to engage with basic concepts in their own time and at their own pace. The in-class session would then build on these concepts and allow students to form principles with the teacher being a facilitator of learning rather than a fount of information.

The literature that was critiqued in the literature review suggested visual materials would be easier for students to digest if they were shortened to less than 15 minutes, as such I created a 13 minute video on the basic concepts of renal anatomy and physiology using diagrams and touched on more complex principles at regular intervals (Hoover et al, 2018). The video was reviewed by my Mentor and colleagues, who said it was simple to follow and easy to understand. The reception of this pre-class work was assessed quantitatively using student feedback forms, the results are presented in Figures 1 & 2.

The in-class activities revolved around group work and linking theory to practice through patient scenarios. These were assessed by my Mentor in class and by student-feedback forms, the results are presented in Table 1.

Table 1: Student Feedback

Q6	What did you enjoy?	
	Discussion and Group Work	8
	Diagrams	3
	Pathophysiology	1
	The Fish Analogy (Analogies)	1
	Scenarios	8
	Nothing	1
	Everything	4
Q7	Improvements?	
	Managing people who shout and talk over each other	2
	More examples from practice	2
	Slower, content is quite heavy	3
	More Written Notes	2
	Reduce amount of group work	1
	Add Short Animated Videos in Class	5
	Delivery of information, too informal	3
	First Group Work activity relied too heavily on people viewing the pre-class materials	7
	Nothing	3

Q8	Group Work Activities?	
	Helpful	9
	Too much authority placed on students to interact and perform, increased stress.	2
	Non-Hostile Discussion	
	Great, helped learn from others	5
	Encourages you to think and learn more on your own	8
	Discussion was very useful, lots to discuss	3
Q9	Enough time to understand the fundamentals of the Renal System?	
	Yes	12
	No	9
	Requires more personal enquiry	9
Q10	Anything else that should have been covered?	
	No	17
	Pharmacology- Usual drugs in AKI/Diuretics	2
	KDIGO Guidelines	1
Q11	Did the session prepare you to analyse, evaluate and plan treatment for a patient with AKI?	
	Yes	18
	Small Amount	2

Conclusion

As a final review of the Flipped Classroom approach, I feel that the students appreciated the use of active learning activities and I could personally see that they were engaged (Table 1). Additionally, the mentor feedback suggested that these activities were appropriately designed to engage a deeper, more critical, level of understanding because a majority of the basic concepts were covered pre-class it resulted in having more time in the classroom to address misconceptions and involve students in discussions.

However, I personally agreed with the students in that the subject matter is very deep and complex, so finding a more appropriate method of conveying or consolidating the factual information provided would be key to making this technique work in the future. The data from the student feedback suggested that future use of this technique could benefit from using animated videos and possibly re-recording the pre-class video to include further multiple-choice questions or activities that engage the student at home (Table 1).

Overall, this was a positive experience for both me and my students. The literature review results seem to correlate with my own experiences of both the positive aspects of improved student engagement and the negative aspect of students being unable to complete the pre-class workload due to personal commitments (Figure 1 & 2).

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