

Teach Physics Internship at Ashton Community Science College (June 18th - July 19th 2018)

Prior Expectations

As you may expect I had many expectations of what the internship would be like and what I would try and gain from it in my five weeks at Ashton School. My biggest worry before I started was that I would struggle hugely with the technical aspects of teaching, behaviour management and lesson structuring, and that because of this I wouldn't ever feel like I was able to communicate effectively. I was therefore keen to closely observe these two aspects of teaching when attending my first week or two of lessons so that as I got more involved I would hopefully have picked up some tips and tricks.

Early Impressions

As soon as I stepped over the doorway on my first day at Ashton I felt significantly more relaxed. I was quickly introduced to all the relevant members of staff, many of whom I had met on my induction day way back in April. The science department staff were incredibly friendly and helpful all throughout my time at the school and this made the world of difference in the amount I was able to get out of the internship.

During the internship I spent a large amount of time observing a range of lessons from different teachers. Seeing lots of different teachers with different classes and different subject matter meant that I was able to pick up on lots of different ways of operating in the classroom. The most noticeable conclusion was how varied the techniques used were and how well they all worked. In the following sections I try to set out everything I picked up from seeing teachers in action.

Class Control/Behaviour

The most important skill for any teacher is how they manage to control a class's or an individual's behaviour. An inability to do so renders a lesson completely pointless because no content will be successfully communicated. Ashton school has, what I would say, is a highly successful and consistent behaviour policy. A student messing around is usually given a warning before being slowly escalated through a ladder of consequences (C1,C2,C3,C4). These consequences result in time spent behind after school (C1,C2), removal from the lesson (C3) or even a more long term isolation period (C4). Having a clear and consistent policy on this seems to massively help the teachers with behaviour issues. Firstly even a seemingly small offence of receiving a C1 leads to time spent behind at the end of the school day. This means that with most students a warning is all that is needed to maintain discipline as they immediately know that the next step is a C1. The consistency of the system also helps because the students know exactly what happens at each stage and that the consequences for misbehaving are the same in all lessons.

Teachers have very varied techniques for keeping a class under control. Some of them use a silent treatment waiting for the class to settle down, this is often combined with an escalation of some form of consequence for each time they have to stop and wait. One particular teacher used this frequently by adding the time they were waiting for to a whole class detention at the end of lessons. Although the idea of the time wasted being equal to the time they would then spend in detention is brilliant from a transparency point of view, I personally felt that it unfairly targeted the majority of the class who settled almost immediately not the small number of students actually causing the disruption. Other teachers tended to use the school wide consequence system more in order to specifically target those students causing the issues in the first place.

A factor which I did not predict in advance was how much of an affect a teacher's 'presence' has on their ability to control behaviour. It's not always explainable but some teachers seem to have a level of respect from the students and are able to build a relationship with a class much easier. This often meant that the students wanted to behave for this teacher.

There were two teachers in particular at Ashton that I felt had a real presence in the classroom and suffered far less from behaviour issues. Interestingly they had a totally different style of delivery but the underlying respect was almost identical. The first of these teachers made it very clear that anyone not wanting to learn would not remain in his lessons. He didn't shout or get angry ever, he would just calmly explain the reasoning for what he was doing at all times and then expected them to stop, which they almost invariably did. Partly due to his seniority in the school and partly due to his evident willingness to escalate punishments quite quickly meant that classes had obviously got the measure of him early on in the year and then decided it was easier to just behave. The other factor was that many students wanted to get some form of compliment from him, as he only gave them when genuinely deserved, so they would clearly up their effort in his lessons to receive one.

The second teacher's technique was very different to that of the first, she had a much more motherly role with the students. They knew she cared about how they were doing and how much they enjoyed her lessons. This isn't to say she didn't reprimand them or get angry with a misbehaving class just that it occurred very rarely and was all the more effective because of it. The common theme running through this is again that the students wanted to impress her.

During my time at Ashton I spent a lot of time with one of her classes, a lower ability year 9 set, who also spent two lessons a week with a different teacher. The other teacher was very loud in his discipline technique. He would shout very freely which I think meant it lost any efficacy with the group. Its very easy to criticise but he wasn't able to be consistent with how he handled misbehaviour. This was the key difference between the two teachers. For example, with the first teacher, there was one lesson where one of the class was refusing to place her bag in the rack at the side of the classroom, she was warned, then asked again, then issued with a C1, then asked again, then issued with a C2 etc. This ended up with the student being removed from the lesson (C3). This may seem like a rather extreme level of punishment for just not placing a bag on the rack but it was important that the punishment was followed through with to make it

consistent. A similar situation occurred in the next lesson but then the following week the same student placed their bag in the rack without any prompting at all. This shows the importance of the consistency of discipline. The student realised that they were going to continue to end up with a C3 every lesson and all the consequences that entails and therefore decided to take the sensible option and start following the pretty basic rule.

Although I found consistency to be crucially important I also noticed from the lessons I watched that the best teachers knew which battles to fight. They know when it's worth confronting a pupil or when it's worth just letting something go in the interest of allowing the lesson to continue without too much disruption. This also comes in to a teacher's knowledge of pupils. In the first few weeks with a class getting to know their names has a big effect on how you can carry out lessons both from a discipline and an academic questioning side of things. The same is true longer term of getting to know the pupils a little more. I found that when a student tried to talk to me about something other than science (be that a school trip, the most recent world cup action or even what they had had for dinner) it was best to quickly entertain the conversation and then move it back to science. By not immediately shutting them down they didn't feel that I was just another boring adult but someone they could properly interact with. This often meant they would actually get on with whatever it was I was trying to make them do much quicker. This is another technique which I picked up predominantly from one particular teacher who showed a genuine interest in getting to know pupils without it affecting the pace of her lessons.

Structure and Transitions

The most important part of the lesson from an academic point of view is the structure of the lesson. Many concepts especially in science require a lot of reinforcement (rote learning), the structure of the lesson must therefore include some form of recap at least once. I spent a lot of time during my internship with different year 7 classes, all of whom were starting their first secondary school circuits topic. They all evidently had varying levels of prior circuits knowledge so one of the most important things to get across to them during the topic was the meaning of circuit symbols and the way to set up circuits (ammeter in series and voltmeter in parallel). This often required a decent length recap at the start of the lesson and some form of testing at the end. In the first few lessons the recap at the start of the lesson involved some form of quiz on circuit symbols. The teachers (including myself) managed to mix up the quiz with whiteboards, girls vs boys or bingo in order to stop the howls of boredom. As much as the pupils might have moaned about repetition by the end of the topic they definitely knew their circuit symbols and for most of them the positioning of the voltmeter and ammeter. These are the most important concepts to take from key stage 3 electronics so the repetitiveness of these sections of the lessons will benefit them hugely later through the school.

The other key part of a lesson's structure are the transitions between the different sections of the lesson be it from theory to practical, from practical to conclusions or from warm-up to activities. It is very difficult to judge the correct moment to bring one activity to an end as you can never wait for all students to be completely finished as then the majority of students will be bored which will inevitably lead to disruption. The other part of a transition is giving a quick summing up of the previous part of the lesson, distilling it to the few facts that are crucial to take

away and then giving the instructions needed to move on to the next task without spending too long at the front talking.

I found that it varied hugely between different ability sets as to how much time you could spend at the front talking away. With a higher ability group it was easier to spend longer chunks of time at the front giving detailed instructions or explaining a concept in more detail. With a lower ability set everything must be done in much smaller segments otherwise what is said at the beginning is forgotten and boredom sets in much quicker.

Use of Practicals in Science

A key part of any science education is practical experimentation or demonstration. I very quickly picked up that it is simultaneously often the most enjoyable part of science for the students and potentially the most difficult part of the lessons for teachers. There is a large opportunity for behaviour to deteriorate, equipment to be damaged or pupils to slip under the radar. Firstly, the teacher must explain the process and safety implications of the practical. This can be a difficult balance especially with longer practicals. You don't want to let them get on with the practical without a proper understanding of what they are meant to be doing because once they have started a practical it is difficult to give the class as a whole any further instructions, they are too excited to get on with it. At the same time if the experiment has a long and complicated process then you cannot give it them all in one go because they will forget the later stages by the time they arrive at them. This is a particularly relevant point as it is an area I struggled with when taking my own lessons. One example springs to mind where a year 9 class were carrying out a lung dissection. They were a difficult class and were excited from the start about the idea of the dissection so the teacher tried not to spend too long explaining everything they were meant to do and let them go off to do the first stage. Unfortunately once they had started going at the lungs with a scalpel many of the parts they were meant to be looking at later were thoroughly mauled before the teacher had a chance to explain what the next few stages were meant to be.

This links into the other key point from practicals which is what the students take from it. From my point of view there are two things to take. Number one is what the practical shows us about the science, how it links to theory and what it proves. Number two is a more general understanding of the scientific process. The general scientific process the students will pick up over the course of doing different experiments and doesn't need to be spelt out in an abstract way until much later if the practicals are going well they will be picking up the key stages in the process anyway. I found that the real difficulty with a practical is how you sum up and conclude the lesson so that the students take away an understanding of what they discovered beyond just writing down a series of numbers or plotting a graph. The wrapping up of the lesson is key in explaining and reinforcing what the numbers or graph actually tell us and how this links to the relevant theory and even a wider applied context if possible. This is something I tried to bear in mind when involved with practicals in lessons to not just focus on the technicality of it but to try and help them draw conclusions themselves about what was actually happening.

My Own Delivery

The previous sections focused on what I felt I learned from seeing the science teachers in action. During my internship I had plenty of opportunities to try and use some of this myself whether in the 'TA' role I took in most lessons or during the sessions I took myself. I was able to lead quite a few of the standard scheme lessons as well as giving a careers and university life workshop to groups of year 9s and 10s.

I spent quite a long time preparing for the first lesson I taught as I was quite nervous about what I would do with challenging behaviour and how I would manage the pace of the lesson so that everything was covered but equally I didn't run out of content to deliver. I knew that the lesson had quite a small amount of content, especially considering I was delivering it to set two. With this in mind I started with some quiz activities to test what they had remembered about circuit symbols. By making it a competitive start to the lesson I managed to get them excited despite it being a recap of previous content. The class were fairly well behaved so I didn't have to issue any individual consequences although I did have to try a few techniques to get general quiet within the class. Certainly for this set (quite high ability) I found just waiting at the front for silence worked well because they are quite keen to please, however, with other groups I found that you can't always wait until they're quiet because you will be waiting until the cows come home. Sometimes a slightly raised voice is needed at first just to grab their attention.

The main issue I found with this lesson was the transition into the practical. I first explained how to set the circuit up. It involved both a voltmeter and an ammeter so wasn't the simplest of circuits for year 7. Then I told them to go off and set it up before trying to regain the whole class's attention to explain the process of the practical and how I wanted the data recorded etc. In hindsight it would have been better to have explained it all in one go before setting them off. This is for two reasons. A lot of groups required a fair bit of help/correction to get the circuit set up correctly therefore lots of students were waiting for more instructions for a little while. Secondly once they had set up and they had all the exciting equipment in front of them, getting back the whole class's attention to explain the next stages proved very difficult. In future lessons I was far more careful about the order of what I said and what I allowed them to do. For example in one lesson on aerodynamics they were producing air pump rockets. I made sure I had delivered all the theory and instructions that I wanted to get across before even thinking about handing out the paper and sellotape for them to get on with it. This was far more successful as I was able to move around and help with little tips and pointers but didn't need to bring the whole group back together until the very end.

In both of my careers talks I found discipline was very good as both classes were top sets. When I first ran it I was unsure about how well it would fit in the hour so I was inconsistent with my pace; trying to speed up and slow down to fit. In the second session I knew better how quick to take each section. I was quicker through the 'exciting physics' and 'famous scientists' sections as they can be short and snappy without losing any of their effect. This meant I had far more time for the research task as the most important part of the lesson. It was in this section that they asked me a lot of questions and got really interested in the whole thing. The whole session ran a lot smoother the second time. I felt I grabbed their attention better at the start by making it a bit more dynamic and asking them lots of questions. This set the tone for the whole

thing and they then kept asking me questions all the way through and remaining focused and attentive.

Wider School Life

I had plenty of opportunities to get involved in wider school life at Ashton. I regularly spent part of the lunch break with pupils in the HIVE facility where a lot of special needs and vulnerable children spent their lunch away from the hustle and bustle of the school hall or playing field. This, I felt, was a great initiative, you could see immediately what an important part of the day it was for them. I attended a few trips: two to UCLAN for science events and one with the geography department for a field trip. It was great to see how much the students enjoy the opportunity to escape the school for a day and the effect that has on the behaviour not only on the day but during the rest of the week. I also spent a day shadowing a year 9 pupil, following her timetable. I learned a lot from seeing how different departments and teachers worked. Finally I also helped out with some of the primary school events hosted by the science department. These involved year 5 or 6 pupils coming in for the day and as part of it they received an exciting secondary school science lesson. I really enjoyed getting involved with these as I got to practice explaining concepts but with some slightly easier ideas.

Conclusions

Overall I thoroughly enjoyed my time at Ashton. I was made hugely welcome and given so much helpful advice by the staff. I take away a stronger desire to be a teacher than before and a hugely valuable amount of experience which has taught me lots of useful techniques and ideas. The most important being consistency in discipline, the importance of getting to know pupils properly and the importance of a thorough planning of the structure and flow of a lesson in advance. The last few weeks have also taught me the importance of practice in the classroom something I am keen to get more of soon!

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