

Assignment 01: Praxis: Putting it Together in Relation to a Class

I have been given a class of thirty year 10 students. They are a mixed bunch. Students with disabilities are included as part of Inclusive policy. The ethnicity, religious affiliations and languages spoken in the class are also mixed. I have had one week already with the group and have a basic idea about some of their interests and needs. There are no specific enmities between the students, except that one of the Aboriginal students will not sit with the others. This essay discusses how I would identify and deal with the learning needs of each student, with special emphasis on the three students below:

- Mario Hernandez (ESL, plays violin)
- Adam Mitchell (Kaurna, documented giftedness)
- George Papadimitriou (ADHD, cars/engines)

For the purpose of this exercise we will assume that I am teaching a year 10 Road Science unit. This unit is mostly based around Newton's Laws of motion as they relate to motor travel. There is also a strong emphasis on road safety.

The importance of differentiated teaching

Whilst I recognise the importance of specifically modifying teaching to accommodate students with special requirements I believe that this should be secondary to focussing on teaching in a manner that differentiates for a broad range of learners from the start. I have tried to do this habitually, whether there are students in my class with any obvious special requirements or not. While I will highlight the special requirements of the three students I have selected to focus on they are only a small proportion of the class, which itself is highly diverse and requires a high degree of differentiation.

To this end, when explaining new content I think it is important to be able to explain things in a variety of different ways, which caters to all learning styles and levels of development. For example, I would verbally explain new content while also either showing a PowerPoint with dot-point summaries, or write notes on the board. This caters to both aural and visual learners, as well as assists students with learning disabilities such as auditory processing disorder. This is something I had to deal with while on teaching placement; while the student did not have any problem with the functioning of his ears he did, however, have difficulties comprehending spoken language, especially new or unfamiliar terms. I have also observed similar difficulties for students with English as a second language, such as Mario Hernandez. By having written information / instructions complementing verbal directions these students should be able to perform comparably with students who do not have to deal with a learning difficulty. I will also often reinforce verbal and written information by showing a video, either as an introduction or summary of the lesson for those learners that may have trouble with reading or auditory processing.

Where possible I would also include a hands-on activity that allows for kinaesthetic learners to learn in a way that is optimised for them. In this unit of work doing these types of activities is quite easy. Some examples are: measuring the time it takes cars to travel a set distance in order to calculate velocity; having students ride their bicycle at different speeds and measure the stopping distance to investigate the influence of speed on stopping distance; crashing trollies with plasticine passengers together in order to see the effects of momentum and inertia on passengers in a collision.

Many students, especially those who are kinaesthetic learners, possibly ADHD and are looking to go in to trade based work e.g. George Papadimitriou, will appreciate being given real-world examples, which answers the question of “What am I ever going to need this for?!” and helps to engage them in their learning. Again this is quite easy to do within this unit of work. Most of the students would at this time be learning to drive so it is very easy to make connections between what we are learning in class and what they are learning when they are doing driving lessons. This also helps a lot of other students who may also query the relevance of what they are learning. As such I will always try to incorporate real-world examples in explanations and problems.

So, without necessarily knowing my students very well or what their individual needs may be I have already differentiated my teaching in a way that will have catered to a large majority of the students, including those with special requirements.

Knowing your students

The central tenet of my teaching style is relationship building and the main challenge with this is getting to know your students. There will be those characteristics of students that are relatively consistent over long time frames such as their background, interests, learning strengths and weaknesses, quirks, personality, etc., which you will become familiar with over time. Just as importantly you are also constantly learning about your students each lesson. The basic premise of constructivist teaching is that of building new knowledge on top of what the students already know. In order to do that you need to know at all times what your students know and what they may be having difficulty with. It is important, especially at the start of each lesson, to have good strategies to question students and engage them in a conversation that gives you an indication of their current level of understanding. However, it is my experience that students with special needs, especially those who have difficulty with language e.g. Mario Hernandez, will often be reticent when asked direct questions during a whole-class discussion. It is important to gauge their individual understanding and confidence before asking them a direct question in front of everyone. I have found that even when these students know the answer they are still hesitant to engage in these types of discussions. I will therefore always try to allow time for private conversation with these students during class to gauge their progress. I have found this one-on-one time to be the most productive strategy for ensuring students with learning difficulties are learning effectively. This is probably obvious, and while we would all like to have more one-on-one time with all of our students it is absolutely necessary for students with special needs. While on teaching practicum I was quite amazed how much of a difference having a second teacher in the classroom improved the success of students with learning difficulties. That extra 5-10 minutes of one-on-one time really did make the difference between students struggling, becoming

disengaged and disruptive when getting little personal assistance, and actually learning effectively and successfully when given ample personal assistance. This just demonstrates that structuring your class in a way that allows you more one-on-one time with your students and less time standing in front of the class lecturing has a considerable positive influence on struggling students. Given more time for preparation in the future I can see using a flipped classroom method of teaching as being very useful for these students.

Altered learning goals and personalised programs

As well as adjusting my teaching strategies to accommodate for a diverse group of learners it is also important to revise what the specific learning goals are for each student, especially those with learning difficulties and gifted students. It is unreasonable to expect all students to learn at the same rate and it is therefore unfair to assess students on achieving the same level. Based on knowledge of the capabilities of individual students it is necessary at the beginning of any new unit of work that I have clear expectations of what the learning outcomes are for each student; they will not necessarily be the same for all students.

The general learning goals for this unit may be:

Students should understand the following relationships and explain how these can be applied to road science, including calculations:

- mass, acceleration and force
- speed, distance and time
- momentum and inertia
- reaction time and stopping distance

Students should also have a general understanding of road safety including the implications of distractions while driving, drink driving, speeding, and the role of common car safety features.

When planning a unit of work I will usually make adjustments right from the start. For students that have difficulties with numeracy e.g. Karen Fletcher (Dyscalculia) I will prepare a version of the unit that has minimal mathematical content but aims to communicate the broader concepts. So, in this Road Science unit I would base Karen's learning goals around being able to explain theories conceptually, rather than her ability to solve mathematical problems. So, whereas I would be expecting most students to be able to look at a problem that gave them the mass and acceleration of a vehicle and asked them to calculate the force acting on the vehicle, I would be content that Karen understood that when you increase either the acceleration or mass of an object it has more force, and that she could explain the concept in simple, concise terms. Also, for those students that may have difficulties with reading comprehension i.e. Lydia Haese (Dyslexia), Mario Hernandez & Verdi Immanuel (ESL), I would also have a version that is very light on for reading comprehension and contains more diagrams explaining concepts / problems, as well as more mathematical representations. For example, for the above problem rather than stating in words "A car that weighs x kg is accelerating at y metres per second per second. What is the force acting on the car?" I would provide a diagram of a car travelling along a road

with the values for mass and acceleration clearly and simply stated. Below the diagram I would just have something along the lines of “if $F = ma$, what is the force acting on the car?” In this way all students are essentially learning the same content but the way in which they learn it is catered to their needs. I would also develop an extended program for gifted students such as Adam Mitchell. I would assume that he would master most of the general content very quickly and may become bored and disengaged. Whereas the majority of the class would be expected to complete simple mathematical calculations I would provide a series of problems for Adam to complete that included using algebra to reorganise equations, convert units of measurement, and possibly include some individual research time into a relevant field of enquiry. I would also use ICT activities as extension work and a reward for those students who have successfully completed other set tasks.

Assessment

I will always allow as much choice as possible when setting assessments for any class. Again, rather than making specific exceptions for particular students, it makes much more sense to me to allow as much general differentiation as possible. Assessments should be such that they allow students to demonstrate their mastery of new knowledge or skills in the way that best displays their aptitude. Allowing students to choose between various mediums of presentation e.g. essay, video, podcast, PowerPoint presentation, etc., allows all students, including those with special needs to succeed and better enjoy their education, ultimately encouraging them to be more engaged and enjoy ongoing success. In this unit one of the assessment tasks would be to work as a group to investigate one type of safety feature in a car and to then educate the rest of the class on how that safety feature works based on Newton’s Laws of Motion. The students then have a choice as to what safety feature they want to investigate (which one they find most interesting) and how they will present their learning to the class. I would assume someone like George would probably choose something quite technical and build a scale model or simulation. While it is convenient that this unit of work caters to his interests anyways, having the choice to do something hands-on and technical will provide him with a better means of learning. He will be able to demonstrate his understanding to its highest level, which will engage him in his learning and build his self-esteem; all of which should enhance his long-term success. Other students with some technical / computing / photography / videography skills may choose to make a video that shows some footage of their chosen subject in action, while others may choose to simply produce a flyer of pertinent information to distribute to the class.

Even with this general differentiation and choice it will be most likely that the level of assessments may need to be adjusted for students with special needs. The assessable material will be directly related to students’ individual learning goals. While we will most likely cover material that is outside of the scope of these goals for students who are really struggling they would have a clear statement of what they were expected to know and be assessed on. I would have the students with severe learning difficulties focus on the most practical and simple general understandings that will assist them with independent living and assess them only on that component. There may be a spectrum of levels of assessment between there and what would be considered the “normal” level.