

**My reflective account of my first half term on
the INSPIRE STEM PGCE PROGRAMME**

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Amin Rahman, Jessica De Souza, Keith Bugler
Canterbury Christ Church University

Abstract

The INSPIRE STEM PGCE programme is a collaboration between Canterbury Christ Church University (QTS&PGCE) and Imperial College Outreach. INSPIRE PGCE differs from other PGCE programmes in that all student teachers (STs) must have a minimum of a Masters degree in a STEM (science, technology, engineering and mathematics) subject. INSPIRE student teachers specialise in Chemistry, Physics, Maths or Physics with Maths.

As part of the INSPIRE STEM PGCE programme all STs engage in the L7 Enhanced Studies (ES) module entitled STEAM Communication. In the first ES session we were asked to explore eight different models for critical reflection. In order to develop our academic writing, we write a mini-essay every session. The four essays which make up this paper are examples of deep reflection from student authors on 'My reflective account of my first half term on the INSPIRE PGCE programme'.

My reflective account of my first half term on the Inspire Programme: Amin Rahman

This is my reflective account of my first half term on the Inspire Mathematics PGCE Programme. It uses a modified Kolb Learning Cycle (McLeod, 2010) as guide. The following modifications have been made to the four constituent parts of the cycle.

Table 1. Modified Kolb Learning Cycle (McLeod, 2010).

Kolb Cycle	Modification
Concrete experience	None
Reflective observation	Consolidation period
Abstract conceptualisation	Changes for future learning experience
Active experimentation	None

'Reflective observation' has been changed to 'consolidation period' because it explicitly acknowledges time. Immediate reflections may be blurred by emotion, adrenaline and anxiety. On the other hand, delayed reflections could result in forgetting important details. Therefore the time between concrete experience and its reflection is unique to each individual and may have a significant impact on the quality of reflection. I have also changed 'abstract conceptualisation' to 'changes for a future learning experience'. Our backgrounds play an important role in the decisions we make. Conclusions we draw for changes in the future do not necessarily have to stem from any single experience.

My first week was horrible. External consultants were inspecting the maths department. Every morning I walked into our tiny maths office, I was struck by a wave of stressful teachers. My mentor handed me a timetable with my name spelt wrong and told me to go and observe lessons focusing on teaching strategies. My previous experience as a Teaching Assistant had lead me to believe that 'mathematics mastery' was the best technique for teaching and learning maths in KS3.

Citation

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I enjoyed observing creative lessons such as Dance and English. I saw how the Dance teacher completely halted her class until the students were behaving before she restarted her entire lesson that ran into lunch. I decided to have my lunch on time. In English Ms X told me she changed her lesson plan or else I would be observing a class where she wasn't teaching. I observed students critically analyse extracts from a poem they had been studying. The students led the conversation with Ms X interjecting when required.

Bizarrely I found the math lessons boring. The style the teachers were using throughout the faculty was identical. 'This is how you use bus stop method', said Ms Y and gave an example on the board. 'Here are some questions...these are the answers...MAKE SURE YOU MARK WITH A GREEN PEN!' No student was able to articulate their solutions correctly, however, they seemed to be getting the answers correct.

I looked forward to Fridays and the week spent back at Imperial. It was an opportunity to consolidate my thoughts. I noticed my thoughts differed over time. I came out of Ms X's English lesson thinking what an amazing teacher she was, but was this really the case? She changed her lesson because she knew I was observing her. Can you teach a lesson without teaching? Initially, I thought Ms Y was poor because of her boring learning techniques. However, the students were getting the answers correct and given how results-focused schools and pupils are perhaps this wasn't such a bad method. The activities at Imperial were a good distraction from all the questions racing through my head. But my most difficult decision was still not answered. Should I teach using Ms Y's minimal marking method or 'mathematics mastery'? Mastery is inspired by schools in Shanghai and Singapore who are first and third respectively in the PISA (Programme for International Student Assessment) tests for mathematics and reading (BBC, 2015). 'Mastery' attempts to embed deep understanding of each topic. It allocates time for thoughts to settle, ideas to flourish and pupils to think instead of rushing through a scheme of work, it probably explains why the UK are 23rd in the PISA tests.

The weeks went on and I needed to make a decision. Interestingly the decision I made was due to my work with KS4, the class I would teach was in KS3. Working with the older students revealed gaps in their knowledge that were fundamental for them to achieve a grade at GCSE let alone the six they were predicted. Fundamentals need to be solidified at a young age. The learning environment was particularly good at my school; students do as they are told. In the end, my decision to implement mastery was obvious.

I start implementing my deeper learning approach from Monday. It will need many cycles of the Kolb model before it has any hope of convincing Ms Y that this is the strategy to adopt for the future.

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My reflective account of my first half term on the Inspire Programme: Jessica De Souza

This Half Term has been a steep learning curve for me. My self-confidence has been increasing slowly. For my reflective account, I am going to use Brookfield's (1995) Model of four lenses. A teacher can excel only if s/he is continuously and critically reflective. As a student teacher, I am always trying to reflect during the task/lesson and again after. It has been a challenge to be teacher

again and I am trying repeatedly to strengthen my positive points and be aware of change. Writing in my Learning Journal is another way by which I reflect.

Critical feedback from my students represents the second lens by which I would learn, and this can be achieved by asking them after a lesson. Assessments, exit post-its, short survey: these could be some methods of learning from pupils about the lesson. During my Yr10 lesson, through asking the pupils I knew that they wanted me to explain Ions in Chemistry again, which I did by role-play and did some more examples.

According to Brookfield's (1995) third lens it is Peers, Mentors and Tutors who would give feedback to highlight some hidden habits and also give some more innovative or different ideas or solutions. For me it has been a great boost of confidence, when one of my peers said, that though I knew was shaking inside, I was reflecting confidence. Team teaching with my Mentor helped me understand my pupils better and to appreciate that when planning my lessons, I need to differentiate the cause of their abilities.

In the fourth lens, Brookfield is talking about teachers being more proactive and learning outside the classrooms, this is through exploring the literature and engaging in workshops. I have enjoyed the Practical training at Imperial College, the trip to Kew Gardens and the sessions held there. For me the lectures too have been an insight into increasing my vocabulary and guidance in lesson planning.

I feel that to be an excellent teacher, according to Brookfield's model, is very idealistic as to be one who has to use all the four lenses and continuously reflecting critically. As a student teacher, I have the opportunity to use all four lenses, but it is not easy as I have to co-relate all four and not use them in isolation. I have to make time to try different teaching methods and tailor them to the needs of my pupils.

Another simpler reflective model is Kolb's (1984) experiential learning. In the Yr10 class, that has several pupils with learning difficulties, I helped to teach four pupils who had missed class. After doing so I realised that not all of them were slow learners, but each one was different and I would have to bear that in mind, differentiating the lesson when I teach the class. To summarise Kolb's model, you experience, generalise, apply and then experience again. To be a good teacher you have to be in this cycle, as this is a continuous critical reflection.

Teaching to me is a learning curve and reflection is as important as planning.

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My reflective account of my first half term on the Inspire Programme: Keith Bugler

There are several areas that are worthy of reflection in my first half-term on the INSPIRE programme. This essay will focus on my first two weeks of the course and the first lesson taken at the placement school.

The reflective model published by Rolfe (Freshwater and Rolfe, 2001) will be used as a scaffold for this work, as it is the model that most closely follows my own internalisation and thought process. Sequentially sorting previous experiences via a Declarative-Procedural-Reflective mechanism can be viewed as a grounded theory. The Rolfe reflective model consists of three simple consecutive

questions; 'what?' 'so what?' and 'what now?'. The first question is used to recall events, the second to unearth the underlying reasons behind the event, and the third to lead reflection.

My andragogic experiences relating to the programme have been very positive. The course started with an intensive two-week period, which allowed a large volume of information to be presented to me (declarative). A result of this was that I received the information needed to start the programme quickly and effectively (procedural). On reflection, the high volume of lessons and face-to-face time also allowed me to ask a lot of questions, which aided my understanding at the beginning of the course (reflective).

The placement school is a partially selective former grammar school. A consequence of the partial selection policy is a greater percentage of pupils are classified as high ability when compared to non-selective schools. This high-ability range of the boys is reflected in the OFSTED report on the school.

Several weeks after I began initial school observation, I taught my first full lesson at X. It was a chemistry practical on halogen displacement given to a year 9 class. I gave a brief introduction to the lesson, re-capped the theory from the previous lesson, gave a talk on safety and then started the practical (Bugler, 2016).

Using Rolfe's open-ended question of 'what?' several observations could be quickly made. Primarily, the pupils did not possess the practical skill level as I had assumed. Several exhibited a laissez-faire attitude to using the protective goggles provided as personal protective equipment (PPE). Cross contamination of the reagents likely occurred. However, the pupils did finish in good time, and cleared away their equipment in an orderly fashion.

Rolfe's second question of 'so what?' can be used to elucidate why this happened. Most importantly, I did not scaffold the activity as much as I could have. This was the most likely cause of early confusion in the practical. The disregard for the goggles may have been caused by their unfashionable appearance and the pupils not fully comprehending the full importance of PPE. My prior concerns about timing and allocating resources effectively did not reflect my experience in the classroom.

Using Rolfe's final question, 'now what?' gave me areas on which to reflect. More scaffolding with an extra five-minute explanation at the start of the lesson could have mitigated some of the confusion early in the practical activity. Upon further reflection, I was nervous about timing and so rushed the early part of the lesson. Miscalculating timing for one area of the lesson directly impacted an area I thought was routine. More emphasis on PPE needs to be done prior to future practical work. My lack of familiarity with the pupils' practical skill-level was to some extent unavoidable, due to a lack of previous experience with both pedagogy and the class in question.

Unlike other lessons, I received a medium to low-level of feedback ('what?'). This is important as Rolfe (Rolfe and Gardner, 2006), in a response to critiques of his methodology, and a draft paper by Lange (2011), stress the importance of critical self-reflection without external regulation. It has been argued it can be emancipatory (Rolfe and Gardner, 2006) and develop a higher cognitive skill for self-coping ('so what?'). It has helped me from an ontological well-being perspective ('what now?') and has hopefully put me in good stead for the second half-term.

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