Assignment 1

During my Ph.D. and teaching fellowship at the University of Birmingham, I began to develop my approach to teaching. Now – starting out as a member of faculty in the University's School of Computer Science – I feel I have a tight grasp on what beliefs and values make up my teaching philosophy. This is a philosophy which will guide my teaching as I seek contribute as a life-long member of the higher education sector, and which will itself continue to grow and adapt to the changing nature of that academic landscape [LO1].

The values which underpin this philosophy can be summed up in three words: empathy, community and quality [LO1]. Far from 'buzz words', each of these values requires a detailed analysis in order to understand what they are, why they are important, and how they contribute to my identity as a member of higher education. As I perform this analysis, I will build an overall picture of my teaching praxis supported by academic scholarship and further evidenced by examples from my own day-to-day work designing learning activities and assessing/giving feedback to students, as well as by feedback received from students and colleagues [LO1].

These three words independently give an incomplete picture of my philosophy, but together they reveal a fourth core value: a dedication to equality, diversity and inclusivity (EDI) [LO2]. EDI is of paramount importance to higher education, and must be embedded at all stages by all members of our academic community. Through this assignment, I will touch on EDI in each section, but will evidence my own commitment to EDI in the final section [LO2].

Empathy

I believe that empathy is the core value that guides my teaching philosophy [LO1]; though I do not have a strict definition of what empathy *means* when teaching. Meyers et al. (2019) argue that empathy is an important attribute of teachers in higher education, and one which has a positive impact on students' learning outcomes:

> *"[Teacher empathy] is the degree to which instructors work to deeply understand students' personal and social situations, feel caring and concern in response to students' positive and negative emotions, and communicate their understanding and caring to students through their behavior."*
>
> Meyers et al. (ibid., p. 161)

This definition focuses on the importance of considering students' emotions, relationships and social situations. Indeed, teaching or learning is not explicitly mentioned, unlike in the original definition by Rogers and Freiberg (1970):

> *"[Empathy is] when the teacher has the ability to understand the student's reaction from the inside, has the sensitive awareness of the process of how education and learning seems to the student … the likelihood of learning is significantly increased."*
>
> Rogers and Freiberg (ibid., p. 157-158)

This view of teacher empathy is expectedly more traditional; it concerns empathising with how a particular individual *learns*. I do not seek a single unifying definition; instead, I find that both resonate with me: I feel it is important for students' success to have empathy both for their individual learning styles and for their broader emotions and wellbeing [LO1].

Empathy for students' individual learning styles

At its core, teaching is about giving students the fundamental knowledge and skills necessary to – hopefully – inspire their own curiosity, engagement and ability to develop new insight into the subject being taught (Brookfield 2017). That hope arrives only through students successfully learning, and so I see my job as to not only 'teach' in the above sense but to understand *how* different students learn [LO1, K3, V1].

Marton and Saljo (1997, cited in Entwistle 2001) wrote that higher education students can be broadly categorised as either *deep learners* who aim to appreciate and apply the content of the course themselves, or *surface learners* who aim to reproduce information in order to complete the minimum requirements of the course. It is, however, reductive to disparage the latter: in an increasingly technological, ever-more competitive work landscape, a degree in Computer Science (CS) has become a sought-after qualification (UCAS Press Office 2023), and it is no surprise some students are eager to get this qualification as efficiently as possible so that they can get a great job afterwards [V1, V4]. But it is part of my job to illuminate to these students the value of CS as a discipline more broadly – or, more specifically, to guide them to this conclusion themselves [K1]. Therefore, it is a value core to my teaching philosophy that we must *empathise* with each student's learning style individually, in order to help them to *deepen* their own learning [LO1, V1].

The first part of my empathetic approach to different learning styles is my commitment to give students as much personalised support as possible, in light of the challenges of teaching at larger and larger scales [V2, V4]. For example, I give personalised support and feedback to individual students, and groups of students, by the use of my office hours. Twice a week, I book a meeting room in the CS building and, almost always, at least one or two students come and I answer individual questions, providing dedicated one-to-one support, such as feedback sessions, for those students who need it most (or, just as often, those students who want to learn more) [A3, K3, V1]. However, these office hours are malleable to the needs of students on a given day [K2]. When teaching the *Computer Systems* module, for example, it is not uncommon that these sessions become de-facto small group tutorials, with lots of students sitting around a table, collaborating together and with me on solving that week's exercises [A4, K1]. One student anonymously wrote in the end-of-term module evaluation form, "I liked the support sessions with Todd a lot he was very helpful, good at explaining, approachable"; concluding "I liked Todd" [K5]. These last three words may not seem to say much, but I believe forming positive, empathetic relationships with students is key to developing their own engagement with their studies [LO1].

Another way that I empathise with students' individual learning styles, particularly those of 'surface learners', is by ensuring my teaching materials are accessible and not overwhelming in the amount of information being conveyed at a given time [LO2, V2]. While creating my learning materials, therefore, I aim to think from the audience's perspective and consider how the information is being conveyed [A1]. For example, I always aim for my lecture slides to convey information concisely and in a visually-appealing way (see Figure 1), rather than overly relying on text [K3]. By doing this, I deliver the content in multiple ways that compliment each other [A2].

Indeed, during my teaching fellowship I had to teach on a module at short notice and did not have time to create my own materials for a lecture. I found that these materials were overly verbose, and so made my own, conciser notes that complimented these slides [A1]; I received good feedback from one particular student for my empathy for student's time, who wrote that, in future, "More summary notes for each week like Todd's notes for Week 9 would be great". This feedback led me to redesign these course materials for the following year [K5]. During this redesign, I noticed that I use lots of colour in my lecture slides for colour-coding different concepts, and hence realised these slides may risk being inaccessible to some students (e.g., those with colour blindness) [LO2]. I therefore ensured that I do not *rely* on colour, and further used "safe" colour-blind friendly colours in order to empathise with these students and make my lectures more accessible [LO2, V2].
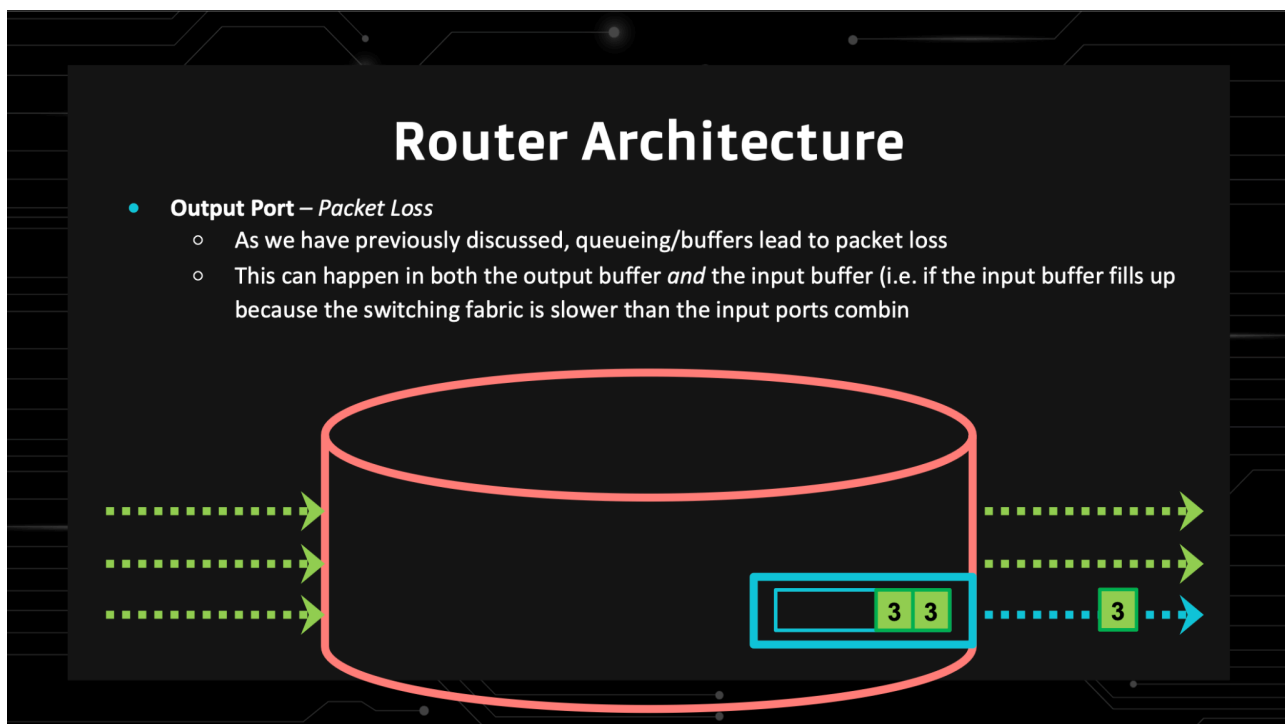

Figure 1: Example of a *Computer Systems* lecture slide, created by myself, with information presented concisely and in a visually-appealing way.

Empathising with 'deep learners' is also critical to my teaching philosophy – many CS students are incredibly passionate about the subject and want to challenge themselves every day [LO1]. We do these students a disservice if we do not seek to fully engage them and nurture that passion [V1]. For the *Theories of Computation* module in 2022-23, I gave two lectures on the λ-calculus, a model of computation that is of particular interest as a fundamental programming language, but which we felt would be unnecessarily challenging [A1, K1]. These lectures were clearly labelled as containing 'Extended' material, and as such had lower attendance – though those who *did* attend seemed to get a lot out of them [K2]. Indeed, one student came up to me at the end just to tell me that she found the content interesting and was glad we had taught it despite it not being on the exam [K5]. Furthermore, in the *Advanced Functional Programming* module, we (the module team) always ensure that our assessment contains one question aimed at the top 10% of the class that is

very difficult and requires a complete mastery of the skills we have taught [A3]. This question is assessed, but will only separate the very top students from each other, and so is appropriate in terms of assessment design [A3, K2]. These examples from my day-to-day teaching find a balanced approach, which empathise with a variety of learning styles [V1].

Empathy for students' emotions and wellbeing

Starting university is a time of great social change for students, especially for members of diverse communities such as international students (Holton 2018) or neurodivergent students (Syharat et al. 2023) [LO2, V4]. These changes are exciting, but are also challenging and anxiety-inducing for many young people. In turn, this anxiety can impact student learning and wellbeing (Russell and Topham 2012).

Russell and Topham (ibid.) found that students view their institution as helpful in "develop[ing] new social networks" (p. 381), but also express frustration that problems they face are often "unrecognised and seemingly invisible" (p. 382) [V4]. I believe awareness of these issues is crucial in allowing us to support students pastorally. Indeed, academic staff are often the first port-of-call due to our roles as personal academic tutors, and play a vital "sign-posting" role requiring "a complete knowledge of the support services" (Walsh, Larsen, and Parry 2009, p. 305). Thus, as a teacher, my duty to empathy cannot stop when the lecture or tutorial does; it is my responsibility – and that of the department and wider university – to empathise with students' emotional and social experiences, and to support them through these changes in order to look after student wellbeing [LO1, V3].

As a personal academic tutor, I have provided academic pastoral support in a variety of forms to many students. Indeed, one noted that she only comfortable to come and talk to me because a friend of hers who I had previously taught recommended me, suggesting he inferred a connection between the two forms of empathy I have explored in this section. This highlights the importance of forming positive, empathetic relationships with students: if students feel that their teachers care about their emotions and their individual learning, then they are more likely to talk to us when they face an academic or pastoral issue [V1]. In turn, this makes it more likely that that student's issues will be resolved, to the betterment of their attainment and wellbeing.

Going forwards, I will use this experience to help the CS department to revise their personal academic tutoring system as part of a working group, in order to ensure that as a school we can provide that personalised, pastoral support to those students who need it [K6]. One particular aspect I would like to work on is making sure that personal academic tutors can successfully 'sign-post' tutees to the appropriate services, as called for by (Walsh, Larsen, and Parry 2009) [V3].

Community

The Robbins Report rightly states that "institutions of higher education are not merely places of instruction. They are communities," (Committee on Higher Education 1963, p. 193). I believe that in order to maximise a student's experience and attainment at university, they need to feel they *belong* to a *community of peers* [LO1, V1]. As a teacher, nurturing and promoting this sense of belonging is vitally important, especially during students' transition into higher education (Meehan and Howells 2019) and especially for students who belong to marginalised communities who may

already struggle to 'belong' [LO2, V2, V4]. This builds on the ideas of the previous sub-section, which discussed the importance of developing positive, empathetic student-teacher relationships. This section now extends those discussions to consider how I can use *constructivist* approaches to teaching to encourage student learning as part of a community.

When a student has a positive relationship with their teacher and other students, it boosts their self esteem and, in turn, their academic attainment (Nyadanu, et al. 2015). For example, while I personally answer questions on the Microsoft Teams channels for my modules, I also encourage students to answer each other's questions [A4, K4]. This actually creates opportunities for those students answering the questions to construct their own knowledge in a safe, formative environment, and to further help others construct knowledge while building collegiate relationships [A2, K2, K3]. Indeed, peer learning can be helpful to higher education students because they feel that other students "may in some way be better experts than professors as students know more about students' perspective" (Zhang and Bayley 2019, p. 69) [V3]. Thus, encouraging this constructivist learning technique can help to promote a sense of belonging while *at the same time* being beneficial to both parties in terms of learning [A2].

I promote a sense of community not just through the use of online learning environments such as Teams, but in offline learning spaces such as the computer lab in the *Advanced Functional Programming* (AFP) module. AFP aims to teach students to "formally prove the correctness of programs", and to "be aware of and apply advanced idioms in functional programming". In order to do this, students cannot rely on just listening to the lectures – they need to construct their own knowledge of functional programming by working hands-on in the computer lab [K1, K2, K3]. In the lab, students solve formative exercises based on the content of that week's lecture in an unstructured way: they can discuss these with their peers and ask questions to the TAs and lecturers in a free-form environment [A3, K2]. The lab is a space of learning whose social architecture promotes both individual and collaborative problem solving, where the needs of each student can be addressed more easily than in a lecture [K3, K4]. This mode of delivery – with the lab being where the learning truly happens (Pfeiffer and Uckelmann, 2022) – supports the students to achieve AFP's learning outcomes by giving them the freedom to experiment alone and with peers in order to collaboratively construct knowledge as part of a community (Biggs, 1996) [V3]. The assessments of this module reflect the formative assignments, meaning the knowledge constructed as part of a community is tested individually [A3]. Though these tests can, of course, not be completed collaboratively, they still take place in the lab, in exam conditions, with students usually choosing to sit in the same places they do when not in exam conditions – highlighting the sense of community this module creates [LO1].

Academic communities are immensely diverse, and increasingly so (Hackl & Ermolina, 2019) [V4]. By encouraging communities to develop in our teaching environments, we as teachers can promote equality, diversity and inclusion [LO2]. This is enhanced further by following the aforementioned constructivist approaches to teaching, which expressly promote diversity [V3]. As Fiume (2005) puts it, "the effective co-construction of knowledge in diverse classrooms requires crossing the different social locations, the different social borders, inevitably engendered by diversity" (p. 53).

Quality

I believe forming positive, empathetic relationships – which build a sense of belonging to a community which constructs knowledge together – is important to maximise student attainment and wellbeing [LO1]. But it is also key to my philosophy to teach my students in a confident, reflective, professional manner that – ultimately – gives them the *best-quality* education that I am possible of delivering; and that I must continually strive to improve that possibility [LO1, K6].

Confidence is an attribute that I have struggled with in my early years as a teacher: although I am fine with public speaking, I often inadvertently come across in an unconfident way, such as by hesitating a lot before giving answers. I know that I have to improve on this, as teachers' confidence correlates strongly with their perception of how well students are engaged (Martin, 2006) [A4, K3]. I believe I have made good progress on this issue, with my lecture observer this year reflecting that my delivery was "generally … strong and with confidence". I reflected that this improvement in confidence was correlated to the continued development of my own teaching materials; my observer agreed that my course material was of "excellent quality" and that my lectures were "structured very well" [A5, K5, K6].

As seen above, a core aspect of being a high-quality educator is a commitment to life-long professional development [LO1, A5]. I am seeking to instil a passion for learning in my students, but I also have such a passion myself. A lecture is an opportunity for my students to construct knowledge, but it is also the same for me. I aim to continually enhance my teaching by developing my own research portfolio both in terms of my subject area and in terms of pedagogy, so that my teaching can stay current and relevant, and use best-practice teaching methods such as formative assessments and constructive alignment [A1, A3, K1, K6]. As an example of this ongoing development, one interesting approach to teaching that I am interested in adopting is that of *authentic assessments* [V3]. Because a CS degree is increasingly seen as an attractive way to get a good, well-paying job, with the computing job market becoming ever more competitive, skills that lend themselves to industrial success are in increasingly high demand. As an educator of CS, therefore, it is important to design aspects of our course that prepare our students to succeed in that competitive environment [A1]. Authentic assessments are assessments which "[aim] to integrate what happens in the classroom with employment, replicating the tasks and performance standards typically faced by professionals in the world of work" (Wiggins 1990, cited in Villarroel et al. 2018, p. 841). In my modules thus far, the assessments have admittedly been minimally authentic: I sometimes position questions from an industrial perspective, but this is often rather forced. This is something I would seek to improve in order to provide higher-quality teaching, especially because recent research has shown that CS students "require some scaffolding to more fully understand the link between authenticity, the form of the assessment and the professional context in which the question is set, in order to derive the associated educational benefits" (McDermott et al., 2020) [K5, V3].

Inclusivity

I have thus far shown that it is my philosophy as a teacher to empathise with students – both academically and pastorally – in order to build a community of peers that are learning together in a high-quality, professional education environment [LO1]. However, all of this fails if we marginalise, however inadvertently, members of our community who have been historically excluded from CS or higher education more widely [LO2]. Indeed, the inclusivity of teaching is of greater and greater concern to the higher education sector (Hackl & Ermolina, 2019), and rightly so

[V2]. The final core tenet of my teaching philosophy is a commitment to inclusivity. Many of my students, who are already challenged by the academic rigour of university life, are members of protected groups that still today face discrimination at university and in society-at-large (Ellis 2008, Wilson and Liss 2023) [V4]. I always seek to let such students know that they are welcome in the space we are creating together – that their contributions are informed by their experiences and that those experiences matter [V1].

I have already touched on how considerations of EDI are embedded in my teaching praxis: for example, I make my teaching materials accessible, and I use constructive approaches to learning which promote EDI [LO1, LO2, A1, V1]. My commitment to EDI goes beyond just my own teaching, however, and I have already enacted EDI change at a departmental level by leading the development of an Inclusivity Statement for the School (see Figure 2) [LO2]. This required critical engagement with what the department already does in terms of EDI, what it does not do, what it does well and what it does poorly [LO2, A5]. Furthermore, as part of writing the statement, I engaged with feedback from focus groups of students and staff in order to be able to best represent our objectives of inclusivity within a diverse cohort [LO2, K6]. This statement and its associated structures (the details of which I am still working out with the rest of the EDI Committee) will not only provide a lens for the long-term development of my own teaching practice with regards to EDI, but for everyone in the department [LO2, A5]. As such, it is an achievement that I am very proud of, and one which highlights my philosophy of being an empathetic, inclusive educator in a high-quality academic community [LO1, LO2].

Figure 2: The School of Computer Science Inclusivity Statement, first presented at the EDI Celebration on 16th April 2024. The painted thumb-prints signify individual students' and staff members' agreement with the statement.

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