

**Discuss the importance of a postgraduate degree in the Computer Science field.**

I will be completing the postgraduate certificate (PGCert) in Computer Science during this academic year which will increase my competence in this field of study. In the UK, there is a shortage of computer science professionals. This is a major problem for industry and government. Any effective strategy to bridge the skills gap will have high-quality education as a central pillar. This is exemplified by the PGCert in Computer Science.

High-quality education must lead to employer confidence and deliver a pipeline of skilled professionals who acquire both skills and competencies in line with an approved industry standard (Bowers et al, 2023). University courses are clearly defined, allowing employers to understand the level of both critical thinking and specialist skills they can expect from potential candidates. For example, employers should be able to expect more in terms of technical skills and problem-solving abilities from postgraduates as they will have completed a level 7 qualification, compared to graduates who have completed a level 6 degree. An example of an appropriate industry standard would be the content of the compulsory Object Oriented Programming module which is completed as part of the PGCert.

The computing skills shortage in the UK is not just an issue at postgraduate level. As an education professional with over 20 years' experience, I have observed the challenges of delivering computing education to all young people in schools. The Joint Council for Qualifications (JCQ) report that, in England, 87,405 pupils sat a GCSE in

computing in 2023 and 64.6% of these pupils achieved a level 2 pass. According to The Office of Qualification and Examination Regulation (Ofqual), there were 643,095 secondary aged pupils who sat GCSE qualifications in England in 2023 and that the overall GCSE pass rate was 67.8%. These figures show that only 14% of secondary aged pupils completed a GCSE in computing with only 8.8% of pupils in England achieving a level 2 pass. Despite computing being a compulsory element of the 11-16 national curriculum (Department for Education, 2014), only 1 in 7 complete the GCSE. This evidence suggests that in order to solve the skill gap, there needs to be both a better uptake, and an improved quality of provision for computing qualifications at secondary school level. Unless young people leave school with an appropriate knowledge and interest in computer science, there will continue to be a shortage of graduates and postgraduates, and it will continue to be necessary to market courses at mature students wishing to retrain. While the desired state would be a strong pathway to advanced computer science courses, there is a benefit to society when mature students complete postgraduate degrees. Their newly acquired knowledge and skills can be applied to a wide range of contexts and industries to solve existing problems.

The exponential increase in computing processing power, illustrated by Moore's law (Thompson, Ge, & Manso, 2022), has led to the ability to analyse more data, and, in theory, the ability to make smarter management decisions. However, in order to harness the power of computing, it is necessary to employ the skills of software engineers, data scientists and a range of computing professionals. To return to the previous point, there are very few pupils studying computing and there needs to be a more attractive and coherent educational pathway to enable more pupils to study

advanced computing, degrees, and postgraduate courses. Until the skills gap is closed, some leaders in business and industry may continue to make poor decisions as they are unable to harness the power offered by the latest technology without the help of skilled professionals. One solution is that the mature students with related qualifications, such as mathematics, may retrain through the post graduate route, helping to close the skills gap.

In fact, in my own industry, leaders and managers are typically data rich but analysis poor. As a result, I have recently launched my own company to provide bespoke data informed strategic solutions to schools and multi-academy trusts. By completing the course, I wish to improve my own computing skills, and to use these to design and develop analytics solutions for school leaders. I also provide school improvement services, particularly regarding curriculum provision and raising standards. As discussed earlier, there is a need to improve the computer science provision and completing this course me to actively advise schools in this area.

In summary, there is a well-recognised skills gap in the field of computer science leading to shortage of computing professionals. This, in turn, means that not all industry leaders are able to harness the power of advanced technologies and improved computer processing power. Postgraduate courses can help bridge the gap, but there is a systemic issue with the provision computer science education in schools. After completing this course, my aim will be to provide solutions in my own industry, both in terms of improving data driven strategy, and supporting schools wishing to develop their own computer science curriculum.

## References

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