How accessible is the STEM post 16 education provision, the pipeline to computing and engineering programmes?

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What is our supply chain to HE STEM?

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Blog Post

Roz, Jacky and myself have taken the UK schools data returns Gov.UK (2015) and GOV.UK (2018) of 2017 STEM A'level results and placed it under the microscope to understand the reality of STEM engagement between the North and South Counties. As this STEM engagement is critical to both institutes Canterbury Christ Church University and Sheffield Hallam University are key placeholders and local providers in their region. Also, both these regions reflect experimental educational systems that have been applied in the UK. Kent and Medway selective grammar system. South Yorkshire bulk comprehensive system. Also South Yorkshire experimented with closing all the 6th forms in schools from 1988 to mid 2000s (except 6 schools in the west side of Sheffield. The Office for National Statistics (2018) highlight that South Yorkshire consists of four major cities ranging from city population of 1/2M to 1/4M. Whereas Kent is made of rural provisional towns range in population of 110K to 20K.

Why should we the HE STEM educators be worried about STEM A'level uptake and engagement, as quite frankly it directly impacts our supply chain to our STEM subjects, but in the long term the volume of graduates in STEM subjects, which has an impact on the volume of Allied Health, Medics, Engineers, Computer Professionals, Scientists and Science teachers entering into the workforce. The implications of the lack of science teachers means less schools providing STEM A'levels in schools in a county which means less students entering into STEM subjects at HE. In the case of engineering, EngineeringUK (2018) estimates that the UK has an engineering graduate-level shortfall of at least 22,000 per year. The House Commons (2016) Science and Technology Committee highlighted the UK Digital Skills Gap is costing UK economy £63Bn GDP.

So what does the supply chain look like for the two institutions (Canterbury Christ Church University and Sheffield Hallam University) and, in South Yorkshire, Kent and Medway? As you can see for yourself STEM A'level analysis, Nortcliffe et al (2018), in the counties majority of schools offer some form of Key stage 4 STEM provision, however actual student uptake or school operation of the STEM provision is currently challenging and disparate. Typically the high uptake and good provision of a STEM subject is concentrated in towns/cities, *iBid,* and challenging for geographically reasons for pairing good STEM A'level subjects, for example provision of Physics A'level is strong in Maidstone and Chemistry A'level is strong in Canterbury. Therefore there is strong argument for consistent and supportive STEM outreach to occur in schools in both counties, to increase STEM confidence in key stage 3 students and uptake post 16. There is also clear evidence and justification for each institution's decision to provide extended computing and engineering degrees (Foundation year) to support widening access to engineering and computing degrees to provide second chances, where access to post 16 education has been challenging for students today or from yesteryear.

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