Engaging in SciCom from the students’ perspective – more than just engaging the next generation of biomedical scientists?

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Introduction:
Meeting the challenges of contemporary society has resulted in a move within higher education (HE) to ensure that degrees are more applicable to the world of work (Heyler, 2011), providing students with the opportunity to develop essential skills or graduate attributes and create capability. This is seen as essential learning outcome that allows individuals to integrate enquiry and evidence into practice enhancement and professional learning (Garrick and Usher, 2000). The ability of individuals to develop capability in this way is essential for the complex and rapidly changing environments in the healthcare setting. The challenge for academics is to foster this learning environment enabling students to move from the periphery to core membership of the community (Wenger, 1998) and so develop the skills required to be a capable individual. This study evaluates the potential role of science communication (SciCom) through community engagement activities to promote biomedical science to develop a pedagogical approach that supports the development of capability in individuals studying biomedical science grounded within authentic learning experiences.

The Study and Context:
University tutors are tasked with supporting student biomedical scientists (BMS’s) to relate their academic studies to the world of work and gain appropriate skills and knowledge to become an effective and competent member in the workplace. This study employed a case study approach to explore the role of SciCom in supporting students to develop key skills during their academic journey. This methodology allows researchers to explore phenomena in the everyday context in which they occur (Yin, 2009) and allowed us answer the following research question:

What impact does becoming a SciCommer have on undergraduate biomedical science students?

Case study 1:
A group of final year students developed and delivered an informal science event at a local college to students who study post-16 science. The design and delivery of the intervention formed part of their final year research project. The event took the form of an interactive ‘playground’ game based activity that demonstrated a particular discipline within biomedical science. The impact of the informal learning interventions were evaluated using a questionnaires. Students also captured personal perceptions through creation of a personal reflective account of their learning journey through development as a SciCommer for community engagement.

Case study 2:
Case study 2 involved students delivering SciCom activities separately from their formal studies as part of the University of Wolverhampton’s science festival SciFest. Biomedical science students collaborated with academics to design and create interactive activities for the festival goers to take part in. Each activity had a particular theme and were designed to raise public awareness of the roles and skills of BMS’s in the workplace. Focus groups were held with the students after the event. These allowed the deeper perceptions of students to be uncovered. Each focus group was recorded and transcribed before analysis through thematic analysis (Braun and Clarke, 2009) to generate codes for later analysis.

Case study 3:
This is the 2017 Science and Engineering Festival at Wolverhampton University. The festival has a large variety of Science Communication activities and was undertaken by two Biomedical Science students to get an insight into the Public Engagement community. The students presented an activity, ‘Biodiversity Bingo’, which was focused on biodiversity and environmental issues, in order to inform the public about the importance of these topics. The students aimed to engage the public with this activity by providing an interactive game that encouraged active participation and discussion.

Conclusions and Recommendations:
Our initial aim was to investigate if engagement in SciCom activities could have an impact on undergraduate biomedical science students. Our preliminary data has shown that becoming a SciCommer can develop essential employability skills such as confidence, self-efficacy and professional identity delivering on Astin’s (1984) development theory that states that the more a student is involved in their studies, the greater the student learning and their personal development.

Discussion:
At the intersection of emotion, cognition and behaviour we found aspects of belonging and professional identity. That create the personal currency we have called capability capital. Our initial findings from this study suggest that becoming a SciCommer creates a way to develop the personal attributes that characterise an increase in capability capital. It can be seen as an enabler that allows students to feel more involved and develop an identity beyond just student. This then gives greater personal and professional identity delivering on Astin’s (1984) development theory that states that the more a student is involved in their studies, the greater the student learning and their personal development.

References:

