Celebrity scientists: Inspiration or just entertainment?

• Maria Dent • Neil Radford

Abstract

This article explores perceptions of science students about the influence of celebrity science on their aspirations. Does celebrity science inspire? Their views are contrasted with those of five prominent celebrity scientists (including Sir David Attenborough and Baroness Susan Greenfield). Qualitative interviews revealed that whilst a key factor in science aspiration is personal interest, celebrity scientists were perceived as having the potential and responsibility to inspire young people. Authenticity and credibility, alongside entertainment, were seen as potentially optimising this influence. Implications for teacher educators are considered from the perspective of working with science teachers, scientists and celebrity scientists, with the concept of 'message to a name' being introduced as a supportive tool.

Introduction

In 2006, the potential of celebrity influence was recognised by the then Prime minister, Tony Blair: *'We need celebrity scientists to inspire young people'* (Webster, 2006); the context for this statement was significant from a political and economic perspective. Since the 1980s, the number of young people continuing with science post-compulsory age (age 16 or post-GCSE in England) had been decreasing, resulting in the *'Science, Technology, Engineering and Mathematics (STEM) skills-gap'* (European Commission, 2004; HM Treasury, 2006). Headlines began to appear in the media alluding to a causal relationship between celebrity scientists (including fictional ones), and the continued uptake of science, for example, *'The Brian Cox effect is a star turn'* (Highfield, 2011); and *'Big Bang Theory fuels physics boom: Interest in A-level and university course rises as US comedy makes the subject "cool"'* (Townsend, 2011).

There was no doubt that Brian Cox was having an impact on the popularisation of science; the BBC's *Stargazing Live* programmes received record viewing figures of 3.8 million, and there was a 500% increase in telescope sales. Data from examination boards in 2011 also appeared to support this causal relationship, with the number of entries for science at A-level and science courses in universities increasing (HESA, 2011; JCQ, 2011). There was, then, an emerging belief that celebrity was not only important in the popularisation of science, but also in raising science aspirations among young people.

The use of celebrities in marketing and advertising is well established, and the mechanism of influence is related to evoking an emotional response (Marshall, 2014). Furthermore, influence of celebrity over young people is recognised as a normal part of their identity development (Giles & Maltby, 2004), with manufacturers explicitly using celebrities to promote products. This suggests that celebrity scientists could have the potential to raise the science aspirations of young people.

Empirical research was limited. Sjaastad (2012) explored 'significant persons' as role models; the Wellcome Trust report (Butt *et al,* 2010) acknowledged the rise of television scientists; and Rodd, Reiss and Mujtaba (2013) demonstrated the importance of identifying with a key adult, referring to the 'Brian Cox effect'. Together, these insights formed the basis of this study. The working definition of a celebrity scientist was a scientist who was actively involved in public engagement and communication, who had become well known within their field of expertise, and had a presence in the media (Dent, 2019).

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Methodology

A qualitative interview approach was used to gain the subjective feelings and perceptions of participants, rather than a definitive, more objective 'yes/no' answer.
Participants included:

- Eighteen science students: six A-level (AL), six undergraduate (UG), and six postgraduate students (PG); and
- Five celebrity scientists: Sir David Attenborough, Baroness Susan Greenfield, Professor Steve Jones, Professor Mark Miodownik MBE, and Roma Agrawal MBE.

Participants were purposively selected. A-level science students were drawn from those taking two or more science subjects at a large comprehensive school, facilitated by the Head of Sixth Form. Undergraduate and postgraduate students were drawn from the same university, facilitated by Science Programme Leaders. Celebrity scientists were defined as someone actively involved in public engagement and communication, who had become well known within their field of expertise and with a presence in the media (Dent, 2019). Using this definition, celebrity scientists named by student participants, and others drawn from my personal knowledge, were contacted.

Student interviews explored their science memories and influences, before introducing the notion of science celebrity and their perceptions of the role of celebrity science and scientists. The latter was constructed around the following questions, which were also used in semi-structured interviews with the science celebrities:

- What is your definition of 'celebrity'?
- Can scientists be celebrities?
- Can celebrity scientists influence?
- Do they inspire or entertain?

Findings

Scientists as celebrities

Celebrity was generally viewed with suspicion, coming with a notion of needing to deserve it by all participants, with concerns about the *'baggage attached to it'* (Baroness Susan Greenfield). When discussing the nature of celebrity scientists, student participants only named historical, white males, until asked for contemporary scientists (Sir David Attenborough, Stephen Hawking, Brian Cox). No female scientists were named until specifically asked for (Marie Curie and Rosalind Franklin) and, when asked about contemporary females, one undergraduate student referred to Alice Roberts; no others were named by the students. Those named by the celebrity scientist participants were all contemporary. Baroness Susan Greenfield offered an interesting insight, suggesting that celebrity scientists fall into two different types: *'benign'* and *'controversial',* and that the two types have a different role to play in engaging the general public. *'Benign'*, such as Sir David Attenborough and Brian Cox, are *'much loved'* and explain difficult concepts simply, with a purpose to inform, and *'controversial',* like herself, challenged people's perceptions.

The complexity of achieving celebrity status was acknowledged: it is the *'power of the media that really creates a well-known celebrity'* (PG). Referring to Brian Cox, Sir David Attenborough suggested that *'He's a brilliant communicator, and the BBC's responsibility, when I was running things* [as Director of BBC], *was to find those people',* providing them with opportunities to reach a wider audience. Mark Miodownik and Roma Agrawal both recognised that the media had created them; however, Roma went on to describe how she was able to create a name for herself through being proactive and promoting herself, by finding a *'hook'* that caught media attention (The Shard). She advises others to do the same in order to be in a position to influence young people.

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Celebrity scientist influence

Celebrity scientist participants believed that it was part of their role to influence young people, a *'responsibility'* to portray what they do in a way that's inspiring and interesting, and to *'portray the passion'* (Roma Agrawal). This engagement was about *'informing'* (Steve Jones); removing stereotypes (Baroness Susan Greenfield); and providing role models for those careers rarely represented on television, for example, engineering (Mark Miodownik). Science student participants, however, consistently asserted that celebrity scientists did not influence their decision to continue with science: their personal interest in science came first. However, they were aware that specific television programmes, such as *Casualty*, and scientists on television, had played a part in sustaining personal ambition and interest, and informing decisions to follow specific career pathways within their already chosen field: they *'opened your options'* (UG). Participants also recognised celebrity influence on their own specific behaviours, such as reading their work, and following them on social media.

Even though they themselves were not directly influenced, participants agreed that celebrity scientists do have the potential to influence young people, providing they could relate to the science and scientist and find them trustworthy and credible. Being able to relate to the science was considered more important than relating to the scientist. For example, Sir David Attenborough was aware that his name was embedded in people's minds with natural history, suggesting that *'it's easier to put a label on a face than an idea'.* He also believed that both aspects are *'intermingled, difficult to separate',* and that if a subject becomes popular, so will the name associated with it. Trustworthiness is important, as scientists are considered intelligent, and people can be influenced by them and take their advice; negative outcomes can arise if the science or its presenter are not credible, with participants referring to the damage caused to public confidence by the MMR vaccination/autism controversy, for example. Credibility of science television programmes that over-rely on explosions to engage the audience was also raised, with Baroness Susan Greenfield concerned that science programmes should engage young people *'in a deeper way...showing them the relevance of science to their lives'.*

Student participants believed that celebrity scientists had the potential to influence all year groups, including primary, to get *'their mind ticking over'* (PG), but that they should specifically target young people in Years 9 and 10 (ages 13-14). One suggestion was to afford the same level of publicity to the achievement of celebrity scientists as is given to celebrities in general, such as in magazines, and by televising science awards such as the Nobel Prize; they hoped that science would be seen in a different light, and that children might say *'I wanna be like Brian Cox'* rather than *'Kim Kardashian'* (PG).

Inspiration or entertainment?

Participants considered science *per se* to be a *'kind of entertainment in itself'* (AL), but that it stayed at that level if someone was not interested in pursuing science. They recognised the potential to inspire if someone were entertained by the programme. Sir David Attenborough's programmes were viewed as both entertaining and informative, and he himself recognised the need to both inspire and entertain, giving an example of showing the public how wonderful elephants are as a precursor to issues surrounding their potential extinction: *'Nobody will care about the survival of the elephant if they didn't know something about it. So the two things in my mind are inextricably linked. You needn't show them rotting corpses'.*

Mark Miodownik co-hosted Dara Ó Briain's *Science Club,* describing it as an example of a programme

seeking to both entertain and educate. Referring to Dara Ó Briain's role, he suggested that he helped because he was a well-known comedian, making it *'cool'*.

Discussion

Within the limitations of this small-scale study, celebrity scientists were perceived to have the potential to raise science aspirations. In this section, the implications for teacher educators are considered from the perspective of working with science teachers, scientists and celebrity scientists.

Science teachers

Findings highlighted the limited knowledge of pupils regarding contemporary celebrity scientists. To address this, teacher educators have a role to play in providing teachers with links to a range of current scientists working across science disciplines. The passion portrayed by celebrity scientists is an important aspect of their influence and, as well as focusing on their research *per se*, it is important to direct teachers to social media sites, TED talks, books, specific festivals, and so on. Celebrity scientists chosen should also include the two types highlighted by Baroness Susan Greenfield: *'benign'* for general engagement, and the more *'controversial'* to challenge thinking. Together, they offer a balance between inspiration and entertainment, both of which were seen as key.

It is also important that teacher educators model this process of 'finding' credible celebrity scientists to teachers, through their own field of expertise. For me, this is bacteriology and, through engaging with current research projects, I know who the key scientists/celebrity scientists are. This knowledge is actively shared with teachers/student teachers, not only to inspire their love of science, but also to model the process and demonstrate the impact of advanced subject knowledge. This encourages broader science horizons beyond the curriculum, for both teachers and their pupils.

Scientists

The celebrity scientists interviewed were clear that the media is looking for scientists to work with, and that scientists should be encouraged to proactively self-promote. Teacher educators already engage with science organisations, facilitating relationships between individual scientists and teachers/student teachers.

An additional role, then, is to add 'celebrity' value to the scientist, by helping to promote their work through the media, including specific media with which young people engage. In this way, teacher educators will be supporting the creation of celebrity scientists within their local context, important in terms of being able to relate to the scientists.

Celebrity scientists

Teacher educators are well placed to work directly with celebrity scientists to organise science events for schools. Specific involvement would be to link content presented by celebrity scientists to the school curriculum, as a bridge between the event and school. In addition, teacher educators are in a position to facilitate relationships between celebrity scientists and 'local' scientists, with the intention that celebrity scientists become their advocates, promoting their work, and encouraging and facilitating access to the media; events that include celebrity scientists will inevitably bring media attention.

By observing their 'local' scientists working with celebrity scientists, pupils may see that a career in science is an achievable goal.

Teacher educators, then, are in the unique position of being able to bridge the gap between science teachers, scientists, celebrity scientists and the media.

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Conclusion

Implications for policy and practice rely upon scientists, celebrity scientists and the media seeing themselves as 'science educators'. Recognising the need for more celebrity scientists, a new concept is presented to strategically support this mindset in practice: 'message to a name' (Dent, 2019).

The media is not a philanthropic organisation, therefore the more that we can do as teacher educators to minimise the effort required by the media to build a beneficial celebrity science culture, the more likely we are to be successful. The typical process by which celebrity advocacy and endorsement takes place is the concept of 'name to a message' (Chouliaraki, 2012, p.3): a specific focus or 'message' is highlighted, and a celebrity, the 'name', is found to promote it. In terms of celebrity science culture, this would require the scientific community to wait for a celebrity scientist to emerge who was relevant to them. Recognising that it was the science that student participants remembered, not the scientists, the new concept of 'message to a name' (Dent, 2019) is introduced. Here, teacher educators start with the 'message', which is the science focus, and bring a 'name' to it, one to whom teachers and pupils can relate.

This scientist, with their specific *'hook'* (Roma Agrawal), can now be proactive with the media, offering their expertise to support science communication and engagement. As new celebrity scientists, they could now view themselves as the 'name' and actively create and look for opportunities to promote their 'message'; Roma Agrawal referred to this as the approach that she takes, and she has been very successful in influencing pupils. Teacher educators, then, by working from the premise of 'message to a name', are in a position to actively encourage scientists to become celebrity scientists.

Celebrity science culture is perceived as having the potential to raise science aspirations. This article has proposed a range of activities that could be undertaken by teacher educators to exploit this phenomenon, as an adjunct to the best practice that already exists in teacher education. Findings point to a clear and distinct role for the media, summarised passionately by Sir David Attenborough:

'...what television does do is light the flame of enthusiasm, which, if it's properly tended, will then send people to the library shelves...The object of the programmes is to spark people's enthusiasm and curiosity'.

References

Butt, S., Clery, E., Abeywardana, V. & Phillips, M. (2010) *Wellcome Trust Monitor 1.* London: Wellcome Trust; National Centre for Social Research. Available from: https://wellcome.ac.uk/sites/default/files/monitor-wave1-wellcome-sep09.pdf Accessed 15.10.12

Chouliaraki, L. (2012) 'The Theatricality of Humanitarianism: A Critique of Celebrity Advocacy', *Communication and Critical/Cultural Studies,* **9**, (1), 1–21

Dent, M. (2019) *Celebrity science culture: Young people's inspiration or entertainment.* PhD thesis. University of Derby (Embargoed until Nov 2021)

European Commission (2004) *Europe needs more scientists: Report by the high level group on increasing human resources for science and technology.* Brussels: Office for Official Publications of the European Communities. Available from: https://ec.europa.eu/digital-single-market/en/news/europe-needs-more-scientists-eu-blueprint-action Accessed 22.02.12

Giles, D.C. & Maltby, J. (2004) 'The role of media figures in adolescent development: relations between autonomy, attachment, and interest in celebrities', *Personality and Individual Differences,* (36), 813–822

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HESA (Higher Education Statistics Agency) (2011) Available from: https://www.hesa.ac.uk/data-and-analysis/publications/higher-education-2011-12 Accessed 12.07.12

Highfield, R. (2011) 'The Brian Cox effect is a star turn', *The Telegraph,* September 6 2011. Available at: http://www.telegraph.co.uk/science/roger-highfield/8742949/The-Brian-Cox-effect-is-a-star-turn.html Accessed 10.09.11

HM Treasury (2006) *Science and innovation investment framework: Next steps.* London: HMSO. Available from: https://webarchive.nationalarchives.gov.uk/+/http:/www.hm-treasury.gov.uk/media/7/8/bud06_science_332v1.pdf Accessed 12 07.12

JCQ (Joint Council for Qualification) (2011) Available from: https://www.jcq.org.uk/examination-results/a-levels/2011 Accessed 12.07.12

Marshall, P.D. (2014) *Celebrity and Power. Fame in contemporary culture*. Minneapolis, MN: University of Minnesota Press

Rodd, M., Reiss, M. & Mujtaba, T. (2013) 'Undergraduates talk about their choice to study physics at university: what was key to their participation?', *Research in Science and Technological Education*, **31**, (2), 153–167

Sjaastad, J. (2012) 'Sources of Inspiration: The role of significant persons in young people's choice of science in higher education', *International Journal of Science Education*, **34**, (10), 1615–1636

Townsend, M. (2011) 'Big Bang Theory fuels physics boom: Interest in A-level and university courses rises as US comedy makes the subject "cool"', *The Guardian,* November 6 2011. Available from: http://www.guardian.co.uk/education/2011/nov/06/big-bang-theory-physics-boom Accessed 15.10.12

Webster, P. (2006) 'We need celebrity scientists to inspire young people, says Blair', *The Times,* November 4 2006. Available from: https://www.thetimes.co.uk/article/we-need-celebrity-scientists-to-inspire-young-people-says-blair-k7lk825wjsf Accessed 15.10.12

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