‘Geek celebrities’: Gender, young people and new entrepreneurial identities in England

Abstract:

The context for this paper is the promotion of coding (computer programming) by a range of national and transnational initiatives in response to the creation of entrepreneurial work identities within the emerging new media sector. We draw on group and individual interview data with 148 young people in England to explore the gendering of these initiatives and identities. Viewing gender as performative, we show that gendered oppositions persist within young people’s talk as business is conflated with technology constructing a group of ‘geek celebrities’. As a result, White middle-class male celebrities were more likely to be identified with business and so positioned positively, as deserving their success. Turning to talk about archetypal-geek-celebrity Bill Gates, more young women than young men used technology to distance themselves from Gates, and some young men, but no young women, used it to position themselves as similar to Gates. While a straight line cannot be drawn between this talk and the young people’s career paths, we show that the stories told about ‘geek celebrities’ have implications for the kinds of careers young people can imagine for themselves.

Keywords: Bill Gates, coding, computing, ethnicity, geeks, gender, new media work, social class, technology, YouTubers

Note: Greened text indicates hyperlinks removed for anonymity

Introduction

Technological knowledge and skills have long been aligned with individual and national economic progress. However, the last two years have seen a new promotion of coding, or computer programming, by a range of national and transnational bodies and corporations. In 2013, The European Commission set up an annual Code Week with events across Europe aimed at children and young people, alongside the European Union’s Code for Europe, in which “agile” and “entrepreneurial” developers “solve local civic challenges”. The UK has declared 2014 The Year of Code and has introduced coding into the primary and secondary school curriculum. US-based code.org presents itself as a global campaign with its website proclaiming that it has led to over 1.5 billion lines of code being written by school students. These initiatives indicate a significant investment in programming careers within education and economic policy, aligning coding with business and entrepreneurialism within a ‘knowledge economy’. These moves draw on the growth of ‘new media work’ which “is popularly regarded as exciting and cutting edge work, and its practitioners are seen as artistic, young and ‘cool’ – especially when compared with the previous generation of technologically literate IT workers (e.g. programmers and software designers) who had a distinctly more ‘nerdy’ or ‘anoraky’ image” (Gill, 2002, p.70). However, underneath the celebratory and enthusiastic

narratives carried in these initiatives there are tensions in the kinds of gendered selves represented within them. These tensions raise questions about who can access and identify with the technological futures invoked within coding initiatives.

While many, if not most, of the early computer programmers were female, computing has since become a male-dominated field (Abbate, 2011; Bury, 2011). This gendering of computing is part of a wider gendering of technology (Phipps, 2008; Wacjman, 1991). Indeed, as much research shows, media representations of technological workers, like those of people who work with science and mathematics (Moreau, Mendick, & Epstein, 2009; Haran, Chimba, Read, & Kitzinger, 2007; O'Keefe, 2013), predominantly show White, middle-class, 'geeky' men (Lupton, 1995; Varma, 2007). However, following Stepulevage (2010, p.326) we want to explore not the male-dominance of technology per se, but the *relations* between gender and technology "so that the social practices which help to constitute difference can be highlighted". As Lupton argues (1995) images of disembodied machines controlled by geeks and hackers culturally align technology with masculinity. Further, analysis of STEM (science, technology, engineering and mathematics) has shown that these subjects are constructed through a series of gendered binaries which position them with masculinity as objective, rational, hard, and so on, against subjective, emotional, soft, feminine subjects (Archer, DeWitt, Osborne, Dillon, Willis & Wong, 2012; Bury, 2011; author, date). Our concern in this article is to explore how this gendering impacts on access to and identification with technology in England. At the centre of this is our analysis of data from young people talking about well-known technological entrepreneurs or, as we refer to them, 'geek celebrities'; but we open with a closer look at the coding initiatives.

Coding our future

'Nerd' images are a covert presence within the recent campaigns: despite overtly representing coding as easy, cool and open to all, they are haunted by the idea of its selectivity and inaccessibility as a field. For example, the tag-line of the UK campaign is "it's easier than you think", while the US site offers the encouraging, "anybody can learn". Yet, the repetition of such phrases suggests the position they are defending against: that coding is not easy and is the province of a select few. Two of these 'select few' are foregrounded in the UK campaign video which features: a young Black British entrepreneur who taught himself to code aged eight and, at university, created the app which became his business; and an Australian-born White male teenager, who tells us:

> At age 12 I taught myself to code, and at 15 I created a news app called Summly, which I then sold to Yahoo at 17, and is where I work today. Coding inspired me and created a lot of opportunities and I'm sure it'll do the same for you.

These stories resemble those of child prodigies/geniuses (Moreau et al, 2009). *They* are self-taught, yet school coding lessons are presented as the way that *you* can follow in their footsteps. Similarly, in the viral video that launched the US campaign

("What most schools don't teach", embedded below), speakers tell us that coding is "actually fairly simple", and that "you don't have to be a genius", comparing it to reading. Yet, later, in the same short video, others tell us that coding will set you apart, being akin to "magic powers", "the closest thing we have to a superpower" and that "great coders are today's rockstars" (a claim also made by Neelie Kroes who launched the European campaign).

EMBED VIDEO: http://youtu.be/nKIu9yen5nc

These tensions mean that coding campaigns cannot deal with the impact of structural inequalities such as gender on who can take up computing. Women are implicitly constructed as a problem, through their recurring mention. Neelie Kroes (Vice President of the European Commission) assures her viewers that coding is "for men and women", and the young woman fronting the European Code Week campaign in 2013, Alija Isaković, states that a key motivation was all the young women she knew with great business ideas who lacked technological know-how, and informs us of initiatives aimed at "kids, women, adults", as if all adults were male. US President Barack Obama, speaking for code.org, insists that coding is for everyone "whether you're a young man or a young woman". The UK and US-based campaigns, are keen to present a rainbow image, with a high profile US video featuring a Black girl in a village and a Middle-Eastern girl in a hijab telling us in their own languages how many lines of code they have written. However, it is more often the White men who speak from coding experience and the women and people of colour who stand as amateurs who are learning to code. When women and people of colour do feature as coders, they are far less famous than their White male counterparts such as Microsoft founder Bill Gates and Facebook CEO Mark Zuckerberg. So while these campaigns present an idea of coding as democratic and accessible with differently gendered and raced bodies within it, inequalities appear through the placement of these bodies and the direction of flow of knowledge.

In this short analysis, we have begun to tease out how these campaigns attempt to re-brand coding as trendy and inclusive yet remain haunted by 'geek clichés'; They reproduce the idea of coders as a special breed, even as they also assert the opposite. These campaigns reassert the overwhelming alignment of technology with business, innovation, enterprise and progress. What these campaigns explicitly ignore but implicitly acknowledge is that becoming a coder is not just about learning to code; it is also about being able to position oneself as a (future) coder and to align oneself with what being a coder represents. It is this positioning, and its gendering, that we explore in the rest of this paper by drawing on data from group and individual interviews involving 148 young people across England in which a range of technological 'celebrities' were discussed (many featuring in these campaigns). We begin by describing how we carried out the research.

Methodology: The emergence of 'geek celebrities'

This paper draws on a larger study of 'The role of celebrity in young people's classed and gendered aspirations' funded by the UK's Economic and Social Research

Council. Within this, we are exploring the discourses of aspiration which circulate in celebrity representations and how young people position themselves in, and are positioned by, these in their 'identity work'.

> The phrase identity work, like the term subjectivity, emphasises that identity is not essence but active accomplishment, neither fixed nor singular but multiple and fractured. However, despite this multiplicity, not all positions are equally available to all and certain labels, emotions and stories get stuck to particular bodies (Ahmed, 2004). Indeed, as Skeggs (2004) argues, some bodies are able to position themselves as mobile, enterprising selves while others become fixed in place. (Hossain, Mendick & Adler, 2013, p.37)

Thus, in the research, we are tracing how discourses, or ways of knowing, about celebrity/ies become part of the ways that young people talk about, and so know, their-selves and others. While the use of this term indicates that 'identity' involves 'work', this is, only rarely conscious and intentional. Instead identity work is largely part of our accustomed ways of being and acting. Gender is part of this 'work', not something we 'are' but something we 'do' (and are done by). Thus, following Judith Butler (1990), we see gender not as 'natural', a fact about oneself, but as a phenomenon that is being constantly produced and reproduced through our talk and actions, including in relation to technology (Bury, 2011; Wacjman, 1991).

Our data are drawn from 24 group and 51 individual interviews involving 148 young people aged 14 to 17 – all of whom were in full-time schooling. These were carried out in 2012-13 in six 11-18 co-educational state schools, two in each of: London, a rural area in South-West England and Manchester (a city in Northern England). In each school, we held four group interviews, two with students aged 14-15 and two with students aged 16-17. Most groups contained six students and all but two were mixed gender. The participants were made up of 81 females and 67 males; 82 were White British and 62 from a mix of Black and Minority Ethnic Backgrounds, including 27 Asian (predominantly Pakistani and Indian), 9 Black (Caribbean and African), 7 Somali, 5 Afghan and 9 who identified as 'mixed'; 63 of the participants said that at least one of their parents had been to university and 64 that none had, with the remainder unsure or choosing not to answer. We used the group interviews to examine the shared negotiation of meanings around aspiration and celebrity. We began by asking participants to identify those celebrities who they most liked and/or disliked, moving on to ask them: to describe an 'ideal celebrity'; to talk about what makes someone a celebrity; and to elaborate how they consume celebrity.

Bill Gates was mentioned in nine different group interviews, across five of the six participating schools. As a result, we selected him as one of our 12 celebrity case studies, alongside some perhaps more anticipated figures such as Beyoncé, Kim Kardashian, Tom Daley and Will Smith. In the subsequent individual interviews, we asked 51 young people, drawn from across the group interview participants, to imagine that these case study celebrities were their age and attended their school and then to discuss who they would want to befriend, who they would want to

avoid, and how they thought that each celebrity would do academically and socially within the school.

Our methodological starting point was that research on young people should be 'youth centred'. Thus, we allowed our participants to define 'celebrity' and to identify and contest the boundaries of this category. This meant that we were often surprised by inclusions (and exclusions) of figures within young people's definitions of celebrity – expanding out from traditional or 'expected' fields of entertainment and sport to include criminals like Fred West and historical figures like Winston Churchill. The prominence of what we are calling 'geek celebrities' within the data was another surprise. It reflects changes within the cultural, publicity and media industries so that celebrity is now associated with a broader range of fields (Turner 2013), and the wider 'celebrification' of new media careers (see Gill, 2002).

The interviews were audio-recorded and transcribed. We then used the computer package NVivo to code the group interview data into seven broad themes, including 'behaviours', 'genres' and 'routes to celebrity'. Within each of these themes we had a series of subcodes. Although the word 'geek' was not used in these interviews and 'nerd' only twice, a large number of celebrities from the fields of 'business and technology' came up, and were given a subcode within the 'genres' theme These celebrities were not as oft-mentioned as those from 'sport', 'music' or 'film', but they were discussed in most of the group interviews and more often than those from the field of 'science and nature'. As we explore below, technological names dominated this genre. In addition we found an influential group of YouTubers – 'entrepreneurial' individuals who have marketed themselves and acquired a following through the global video sharing site, often with millions of people subscribed to their channel. While YouTubers cut across a range of genres, two dominate, comedians and gamers, reinforcing the association between technology and business.

In this paper we draw across the group and individual interviews, tracking how these 'geek celebrities' figured and the positioning of the young people in relation to them (Davies & Harré, 1990). Revealing how gender, in intersection with social class and ethnicity, shape these processes, we suggest that the possibilities of imagining a future in coding are far from equal. In the next section we trace the way that business aligned with technology and entrepreneurialism within the group interview talk, as it does in the campaigns discussed earlier. We then move on to explore young people's positioning of Bill Gates in the individual interviews as a case study of the impact of the gendering of the technology/business nexus.

'Geek celebrities' and their Others

YouTubers embody this technology/business nexus, epitomising the new online entrepreneurs whose careers are made through monetising one's self and pursuits. As such, YouTube celebrities were largely viewed positively by participants, with value placed on those seen as building their following over time. For example, they were positioned by 14-15 year-olds in a South West school as more "genuine because they're liked for who they are", as "self made … they've done it all

themselves" and so as deserving of their success. In a Manchester school, two 14-15 year-old males drew a similar picture of YouTubers' success. Discussing gamer Syndicate, they emphasised how he had "worked his way up in life for being talented". Syndicate's difference from "normal people" was represented through how he is "really successful on YouTube because he's sponsored by Lucozade, and ... he's setting goals for himself". However, even with sponsorship and goals, a young woman questioned whether his is a legitimate form of work, given that "all they do, is just play games". This suggests the shifting nature of gaming as a previously-denigrated masculine leisure activity which is in the process of being remade as part of new media work, as geek becomes chic. Comedian Jenna Marbles was the only female YouTuber viewed positively. (The other female YouTuber discussed was 'Tampon Girl' who provoked intense, universal disgust.) As with Syndicate, Marbles also provoked discussion about whether creating content on YouTube constitutes work:

> Laura: Out of these guys or any other ones that you can think of, whose job would you most like? …
>
> Mike: Lady Gaga's. No Jenna Marbles. She is a YouTuber and all you have to do is sit on your backside [laughter] and record yourself talking at a camera, occasionally dress up, do nothing else and you get paid loads. She's like a man, she bought like a really new house out of it. … She's awesome. (South West School, 14-15 years old)

At the time of writing, comedian Marbles has over 13.5 million subscribers, having uploaded over 200 videos to YouTube. In young woman, Mike's, reading, Marbles' success is related to her ability to "get paid loads" by monetising her popularity. Mike's comment "she's like a man" aligns her with masculinity – perhaps because of her associations with the masculine fields of not just technology and business but also stand-up comedy. As do the women working in ICT in Bury's (2011) study, Marbles' balances her masculine-aligned identities with behaviours associated with femininity: much of her content refers to the feminised activities of fashion and beauty ("dress up"). Summing up, in these YouTuber data we find the association of business with technology, the alignment of both with masculinity and the tentative and ambiguous positioning of female entrepreneurs. These patterns pervaded our wider data on business celebrities.

Business as a genre of celebrity came up in in young people's talk in two ways. First, there are a group of celebrities who were primarily defined by their work within the business world and for whom fame was a by-product of this. They are White male technology entrepreneurs who we label 'geek celebrities'. Second, there are a group of celebrities for whom business was an additional label, with their main claim to fame being in another field. They are female-dominated, work in fashion, publishing, music and television, and their position as businesspeople is contested; they are geek celebrities' Others. In the rest of this section we look briefly at each group tracking how business is aligned with technological innovation and entrepreneurialism and how this is gendered through oppositions between the two groups.

We have called the first group 'geek celebrities' because, apart from a passing reference to the adventure tourism company Bungy and to "fashion designers", all are men from the field of technology: Alan Sugar (Amstrad), Bill Gates (Microsoft), Burnie Burns and Gavin Free (Rooster Teeth Productions), Richard Branson (Virgin) and Steve Jobs (Apple) are named, alongside "the guy who created Twitter" (Jack Dorsey), "the guys who made Google" (Larry Page and Sergey Brin), "the Facebook guy" (Marc Zuckerberg) and "the Farmville guy" (Mark Pincus). Of these, all are White and all but Alan Sugar come from professional middle-class backgrounds (Sugar's working-class upbringing is central to his public persona). These technology entrepreneurs were widely admired for their talent, innovation and wealth. The following two extracts are typical. The first features two young men who chose the pseudonym Bob discussing whose celebrity life they would like:

> Bob1: Richard Branson, who's like really rich, and he like he has a big business, so you can like improve someone's ideas and make better business as well. He owns a private island, that's pretty cool as well.
>
> Bob2: I would say Bill Gates because he's really rich and yeah. I just like his lifestyle. … because he created like a whole new generation to like technology, and that's something I want to do. Coz he's really successful because of what he created, so that would be really nice.
>
> Interviewer: How about you with Richard Branson?
>
> Bob1: Sometimes business can help people you need business to like run or start like business or marketing or something and some people's careers are to be businessmen and to have like Richard Branson as inspiration, he can help people get some ideas to how to make money and stuff and make profits. (London, 14-15)

> David (male): But doesn't every celebrity … if they get loads of money, they just waste it?
>
> Luigi (female): No.
>
> Mavie (female): No, not Alan Sugar. [laughter] Sorry, but he's like...
>
> Ally (male): He's a good role model.
>
> David: Yeah.
>
> Ally: Coz he only got one GCSE at school, and he could still, that gives other people young people who are maybe not as clever as others a lot of hope, because if he only got one GCSE at school, and he still becomes a er multi-millionaire.
>
> David: Basically an entrepreneur. They're good role models, and they're celebrities.
>
> Mavie: Who's the guy that owns Virgin?
>
> David: Richard Branson.

> Mavie: Yeah, him.
>
> Ally: He's also a good role model, because er when that Virgin accident happened with the train, he er came right from holiday straight away to go and see what happened, because obviously it was his company. And if you were a bad person you wouldn't, you would stay on holiday, whereas he didn't.
>
> Interviewer: Yeah. So you think businesspeople generally are more, are better role models than sports people, is that?
>
> Ally: Yeah. Because they're usually brought up in the right manner, ain't they, because that's how they got there in the first place. Because when you're a footballer you basically just dive into loads of money. Whereas if you're a businessman you have to work your way up to earn that money. (London, 16-17)

Both extracts evidence the value and status attached to these 'geek celebrities' within our data through their positioning as businesspeople. Their business skills and innovation are things you "need" in order to "help people" as individuals and "to start … business and marketing" to support the economy. By implication, this is contrasted with other areas, such as modelling and Reality Television, which we found were generally constructed as unnecessary and valueless (see authors, date). We see how Branson is presented as an "inspiration" and he and Sugar as "good role model[s]". Similarly, their route to celebrity is highly valued: "he's really successful because of what he created", "if you're a businessman you have to work your way up". Thus, these celebrities are associated with hard work, the most reliable way to gain value as a celebrity in our data (authors, date). Their behaviours and routes to fame, are counterposed with those of footballers and other celebrities who are "bad" and "waste their money". As David's comment about celebrities generally wasting money suggests, excessive and undeserved wealth was seen negatively by young people. However, being a "multi-millionaire" or even "own[ing] a private island" are constructed positively in the above discussions when they are attached to businesspeople because they are seen as examples of "earn[ing] that money", rather than "just div[ing] into loads of money" as, largely working-class, professional footballers are positioned as doing.

The second business-related celebrity group is smaller consisting of just six people who are marginally and/or provisionally positioned within business, being primarily associated with entertainment, including television, fashion, modelling and music. They are more diverse, being female dominated and containing people from a range of social class and ethnic backgrounds: Tyra Banks, Victoria Beckham, Kim Kardashian, Demi Lovato, Katie Price and Puff Daddy (aka P. Diddy). Associating one of these celebrities with business was a way to claim value for them. For example, Kirsty, explaining why she admired Price, positions her as having business acumen:

> Kirsty: I think even though she's known for her botox, and … obviously her boobs are massive, and she's a Page 3 model, I think that she has got a good head on her, and she knows how to make

> money, and how to create a business. So I think for that she's really good. (Manchester, 14-15)

Kirsty's framing suggests that she is aware that respecting and valuing Price as a businessperson is difficult because of her associations with her excessive feminine body, via "botox and … boobs" that are "massive".

Indeed, within our wider dataset, such attributions of value did not usually go uncontested, as in these two extracts:

> Makavelli: He [Diddy] made his own water, his own alcohol line, clothing line, as well as music he is like successful.
>
> Snoop: Then he made, I mean he made the Big Mac as well for Biggy.
>
> Sasha: Really?
>
> Snoop: It say Big Mac on it, because he's B.I.G, Biggy. We're told he is B.I.G, Big Mac, you know.
>
> Edward: Seriously?
>
> Snoop: Yeah. (London, 16-17)

> Ally: She's [Price] not talented in any way, is she?
>
> Mavie: She's got a good business.
>
> Ally: Huh?
>
> Mavie: She's got a good business.
>
> Ally: Huh?
>
> Mavie: She's got a good business.
>
> Luigi: Yeah, she's made a lot for herself, even though she
>
> Ally: Yeah, she's got a good business, but is it her that created it? And is it her that done all the stuff? No.
>
> Mavie: Yeah, for her kids.
>
> Ally: She's not a businesswoman, I'm telling you know, Katie Price is not a businesswoman.
>
> Mavie: She owns Mamas and Papas.
>
> Ally: Sorry?
>
> Mavie: Do you know, Mamas and Papas.
>
> David: She, really?
>
> Mavie: Yeah, that's her business.

Ally: Yeah, she can own it, but, I think, oh, she's not a businesswoman, she's pathetic, honestly.

David: Did she make, or did she buy it?

Mavie: No, she made it all. (London, 16-17)

The claims that Diddy and Price are businesspeople draw on inaccurate information: Diddy is unconnected with the Big Mac and Price is unconnected with Mamas and Papas. However, such inaccuracies occur frequently in our data, often passing unremarked. What is important here is how the constructions of Diddy and Price as businesspeople are subjected to strong contestation from others in the group. Sasha's "Really?" and Edward's "Seriously?" question Diddy's positioning and the challenges to Price's are more strident still. Ally three times indicates that he fails to hear Mavie ("Huh?", "Huh?", "Sorry?") when she mentions Price's business credentials, and twice insists that she is "not a businesswoman". David and Ally both question Price's right to be classified as a businessperson simply for owning a business: "but is it her that created it?", "did she make it or did she buy it?". This offers a striking contrast to the discussion of Branson and Sugar in the same group interview that we quoted earlier. The refusal to see Price and Kardashian as authentic business people is perhaps less about their femaleness per se than their special markers of 'bimbo' and 'frivolous' which are associated with femininity but which also attach to some racialised male celebrities such as Diddy, as blackness too historically aligns with body not mind, with skiving rather than striving (Stinson, 2013). Thus we can see the relationship between 'geek celebrities' and their Others constructed via a series of gendered and racialised binary oppositions: technology vs entertainment, intellect vs vacuousness, creativity vs unoriginality, hard work vs frivolity, enterprise vs idleness, masculinity vs femininity. As we argue in the next section, these constructions have implications for young people's gender identity work.

Talking about Bill Gates: Aligning with technology?

In this section we focus on the gendering of possibilities for alignment and identification with technology. Viewing 'geek celebrities' positively – for example, as changing the world, being philanthropic, and so on – is not the same as identifying with them. While many young people across class, gender and ethnic lines viewed these celebrities positively, not all were able to imagine themselves in the kinds of careers they represented. Identification with 'geek celebrities' often crossed class and ethnicity – Bob1 and Bob2 in the first extract above are from Asian backgrounds. But this was less common with gender. The discussion of technology entrepreneurs and gamer YouTubers was dominated by male participants across the group interviews. Female participants often fell silent when these celebrities were mentioned, as in the second extract above. When women were involved their responses were usually short, often taking the form of questions that were then answered by males, and frequently ignored or talked over by the male participants who dominate this talk.

Notably, the group discussion of Gates came almost entirely from boys. The most substantive comments from young women occurred in one Manchester group in which three made very brief remarks, two by asking questions: "Is he the one that made Microsoft?" and "Is he still alive?". This suggests these technology celebrities operated as a space of expertise and authority for some young men with women often asking questions of them to reinforce this, doing gender through these performative interactions. In the next extract, Ann Rose tries – and fails – to insert the Canadian singer Justin Bieber, a celebrity with a predominantly-female fan base, into a discussion of Gates. Bob reclaims the focus for Gates by saying that he is "helping eradicate polio from the world", a feat against which even Bieber's "really good charity work" cannot but fail to match up:

> Bob Dickens: Charity work. I think, there's Bill Gates, like last week.
>
> Ann Rose: Justin Bieber does really good charity work.
>
> Bob Dickens: It was on the news yesterday, he was like helping eradicate polio from like the world. (South West, 14-15)

There was considerably more discussion of Gates by young women within the individual interviews. We read this difference as resulting from a combination of the more stringent policing of gender-appropriate tastes that happens within group interview settings (Authors, date; Nayak & Kehily, 1997) and the association of the cultural alignment of technology with masculinity which means that talk about technological celebrities has become an important way of doing gender. Thus, in order to further explore the gendering of dis/identification with Gates, we turn to the individual interviews and specifically, the imagination activity, mentioned in the methodology section. We use the figure of Gates as a case study to address the wider question of: Who can position themselves, and be positioned, as like these 'geek celebrities' and so aspire to the selves/careers that they represent? These are selves and careers which, as we showed at the start, are currently validated, even idolised, within education and employment policy.

The exercise where we asked young people to imagine they were at school with our 12 case study celebrities produced a general pattern of: naughty kids to avoid (Justin Bieber, Katie Price, Kim Kardashian, Nicki Minaj); clever students and teachers' pets (Bill Gates, Emma Watson, Harry Windsor, Kate Middleton); and people with whom it would be fun to hang around (Harry Windsor, Will Smith, and to a lesser extent, Emma Watson, Kate Middleton). However, there were also large variations in the responses across our 51 interviewees. Focusing on Bill Gates, in stark contrast to the marginalisation of women in talk about him in the group interviews, the 15 individual interviewees who had nothing to say about him were more gender balanced consisting of nine females and six males, and several young women spoke about him at length. Indeed, here, there was more of a pattern by schools than by gender with 10 of the 15 who said nothing coming from just two of the six schools (one in London and one in the South West). However, while both male and female participants drew on oppositional discourses above in talking about Gates, there were differences in how they positioned themselves in relation to him. Young women were more likely than young men to invoke technology as a way of

distancing themselves from Gates and young men more likely to invoke technology as a way of aligning themselves with him. Twelve interviewees distanced themselves from Gates, all with reference to technology. The most negative comments came from eight young women, with more neutral comments from the four young men. Fifteen interviewees wanted to befriend Gates. Two of the (just) five young women in this group gave gaining help with school work as their only reason for wanting him as a friend, and one was drawn by his wealth. All four people in this group who articulated technology as a connection to Gates were male. We now look in detail at these two contrasting sets of position(ing)s.

The four male participants who said they would try to avoid Gates offered only brief comments. For example, Tom (South West, 14-15), joked: "he'd be always in the computer room at lunch-time". In contrast, the female participants' longest discussions of Gates came from this group. The amount of talk signals the importance of distancing from Gates within some young women's identity work. For example:

> Olivia: I'm not sure if he'd be friendship type, I think he'd be a bit awkward … how he got into computers I think was not having a social life at school, and spending all his time in the computer room doing computer stuff. [laughter] So I think he would, I don't know if we'd have much in common. … I think he must have done brilliantly in like science and maths, but I have a feeling maybe he didn't do so well in something like English. Like I think quite a lot of really sciencey people just don't really care about English and history, and things like that. … I have a feeling Bill Gates would have been off doing his own thing studying his maths, and stuff like that. Rather than being concerned about, you know, going to parties and having friends. (South West, 16-17)

> Lise: I think he would probably be just a loner. … He seems geeky. … He could be the ICT thing. Because there are some students who are good in ICT and they help teachers to do things. And some of the staff in our school say that well, if you need help you can ask this student because he'll be able to help you or she'll be able to help you. (London, 14-15)

Although only Lise explicitly uses the term "geeky", we can see key aspects of geek images in both extracts. As Kunyosying (2012) identifies, geek brings together being non-conformist, unpopular and lacking in social skills with an interest in knowledge that can be profitable. In Lise and Olivia's imaginings, the school-student Gates is *both* "a loner" who does "not hav[e] a social life" *and* doing "brilliantly in like science and maths" and, in a strangely dehumanising phrase,"be[ing] the ICT thing" to whom teachers defer. Olivia also draws on ideas of a gendered opposition between science/mathematics and arts/humanities subjects (Thomas, 1990) to portray Gates as different from her: someone with whom, as an aspiring lawyer, she would not "have much in common".

We can understand the reason why Olivia, Lise and some of the other girls go to such lengths to distance themselves from Gates, through research showing the tensions between geekiness and normative femininities. For example, writing about science, Louise Archer and colleagues show that the subject's associations with geekiness mean that it "appears by default as an imagined space that is incompatible with girls' performances of popular/desirable hetero-femininity" (Archer et al, 2012, p.181). Varma (2007) found that, for women who had chosen to study computing at university and who then leave their courses, geek culture had less impact on ethnic minority than on White women's decisions to 'drop out'. However, we found no clear differences by ethnicity among the female participants in this school-aged group.

Turning to the male-dominated group of interviewees wanted to befriend Gates, we find a striking contrast. Here it was the young men who generally spoke at greater length about Gates than the young women and much more positively.

> Boo: He is phenomenally successful businessman. … I would just like to find out more about him and his charity work and what he thinks about it in general rather than how the media talks about him. … I think he has probably gone beyond structured education, intelligence-wise, and would be someone who would never actively work, would do the minimum. And if asked a question, he would always know the answer. The teacher would be trying to point him out as someone who doesn't listen. And I think he is probably the type of person who is cleverer than the teacher … you would probably find it a bit arrogant, but in another way you would admire it and want to be like that. (Manchester, 16-17)

> Rick: He's a bit of a nerd and I've got that side to me so that would be quite fun to talk about, and obviously he became a very wealthy man. (London, 16-17)

> Edward: I'm a bit of a computer geek. … He's made Microsoft and Windows, and all these amazing things. So I'd love to be friends with him. … We'd share interests, probably speak a lot, but I'm not sure if we'd be good friends. (London, 16-17)

> Dave: Probably Bill Gates [is my favourite of the 12] just because it's a lot of effort to make a computer company that's been running for all these years and he's rich, it's become the most successful company ever. … I am not really interested in celebrities. I'm more interested in what they do than who they are. Like for example, Bill Gates, I'm more interested in his computers than himself. He's a good guy, and he's rich and he's really smart, but I'm not really interested in him as much as his computers. (Manchester, 14-15)

These young men come from diverse class and ethnic backgrounds: Boo is Indian middle class, Rick is White working class, Edward is African middle class and Dave is mixed heritage (British/Jamaican) working class. Their talk has some things in common with that of Lise and Olivia (discussed above) in their use of the term geek – describing Gates as a "computer geek" and as "cleverer than the teacher" – and in the slight distancing in Edward's comment "I'm not sure if we'd be good friends". However, there are also clear differences, namely, that these participants emphasise the things they have in common with Gates: Dave's "I'm more interested in his computers than himself", Rick's "I've got that side to me", Edward's "I'm a bit of a computer geek" and Boo's "want[ing] to be like that" and seeing him as "beyond structured education". Boo, similarly, was highly achieving but produced himself, within the interview, as antithetical to schooling's rules and regulations, succeeding via 'effortless achievement' (Mac an Ghaill, 1994). Success, wealth and intelligence permeate all four extracts and come together with technology within them.

Women in this group also talked about Gates positively. For example, Mariam (Manchester, 16-17) said, "he invented a product that majorly changed everyone's lives", and Julia (South West, 16-17) said "he would be the sort of people that would be quite down-to-earth". However, they did not relate to him to the same extent and never spoke about doing so via a shared interest in technology as a hobby or career aspiration or by aligning part of their-self with him.

In contrast, Edward and Dave were two of only three of the 51 participants we interviewed individually who spoke of aspirations to technologically-oriented careers, in electronic engineering and games design respectively. Here we can see some alignment between how they talk about Gates and how they talk about their own imagined work futures. Notably, Dave mentioned the big budgets available for games, and how "you don't really know about games designers, you just know about the game they made" paralleling how with Gates, he's "not really interested in him as much as his computers". However, this is important beyond narrowly technological jobs. Boo wanted to pursue journalism and Rick remained undecided and was studying a mix of film, literature, mathematics and philosophy. Nearly 30 years ago, Valerie Walkerdine (1988) identified the way that masculinity is constructed through mathematics and its position as 'the mastery of reason'. Our earlier analysis of the coding campaigns suggests that coding has joined mathematics at the pinnacle of logic, carrying our social fantasies of rationality. So perhaps alignment with technology through Gates offered to Boo and Rick the possibility of imagining themselves as successful and powerful in the future. Thus, while a straight line cannot be drawn between this talk and the young people's career paths, the stories told about 'geek celebrities' have implications for the kinds of careers young people can imagine for themselves.

Conclusions

In this paper we have shown that gendered oppositions persist in representations of business and technology celebrities despite the recent creation of supposedly-democratic careers within new media work. We have also shown that these

oppositions impact who can position themselves as part of the technological and entrepreneurial futures that are currently being promoted by government, business and third sector organisations. Among the young people with whom we spoke, young men were far more likely to relate to technological celebrities within their identity work, and young women far more likely to distance themselves from them. In the light of these findings, we now return to the tension with which we started, between elitism and accessibility in how coding is represented. This is the same tension that we find within representations of mathematics (author, date). It causes difficulties for learners and teachers of the subject (Atweh, Graven, Secada & Valero, 2011) and it is disturbing to see it replayed repeatedly within this new focus on coding. The arguments and data, we presented, suggest that without different approaches, computer programming will continue to exclude women. They also show that 'celebrity talk' can provide an original and provocative way of exploring this issue.

The association between masculinity and computing is not inevitable, as history shows (Abbate, 2012; Spender, 1985). We will end with some indications of what we feel are productive directions. Our research, in highlighting the importance of identity work in young people's aspirations and choices, supports other research that points to the limitations of one-off initiatives in creating deep-rooted changes (Jensen & Vetleseter Bøe, 2013; Phipps, 2008). This suggests the need for both longer-term work and initiatives that address our culture beyond school. The alignment of coding with masculinity is part of wider gendered constructions and power relations. Such inequalities need be to tackled directly, rather than by the more surreptitious methods, such as the reiteration that coding is for "men and women". Similarly, approaches which attempt to make coding 'girlie' are limited since they do not challenge the underlying oppositions (author, date). Critical work on gender has been shown to help to unpick these oppositions and make available other ways of doing/being girls and boys, women and men (Davies, 1993). So alongside coding we would like to see gender introduced into the school curriculum, an approach we find in second wave feminist activist work on gender and STEM (Burton, 1986; Phipps 2008). This could encourage young people to critically interrogate the gendered dimensions of the world around them, and thus of their own imagined futures.

Acknowledgements

We are grateful to the ESRC for funding this research (Project Reference: ES/J022942/1), to the participants at six schools who shared their views with us and to their teachers who facilitated the research. We presented some of the ideas in this paper at Sheffield Hallam University and benefited greatly from the feedback we got from people there. The project has an active and supportive advisory group, one member of which, Becky Francis, gave perceptive comments on an earlier draft of this article.

References

Abbate, J. (2012). *Recoding Gender: women's changing participation in computing*. Cambridge, MA: The MIT Press.

Ahmed, S. (2004). *The cultural politics of emotion*. Edinburgh: Edinburgh University Press.

Archer, L., DeWitt, J., Osborne, J., Dillon, J., Wills, B., & Wong, B. (2012). 'Not girly, not sexy, not glamorous': primary school girls' and parents' constructions of science aspirations. *Pedagogy, Culture and Society, 21(1),* 171-194.

Atweh, B., Graven, M., Secada, W., & Valero, P. (Eds.) (2011). *Mapping equity and quality in mathematics education*. Dordrecht: Springer.

Bury, R. (2011). She's Geeky: The Performance of Identity among Women Working in IT. *International Journal of Gender, Science and Technology, 3(1),* 33-53.

Burton, L. (Ed.) (1986). *Girls into maths can go*. London: Cassel.

Butler, J. (1990). *Gender trouble: feminism and the subversion of identity*. London: Routledge.

Davies, B. (1993). *Shards of glass: children reading and writing beyond gendered identities*. Sydney: Allen and Unwin.

Davies, B., & Harré, R. (1990). Positioning: The Discursive Production of Selves. *Journal for the Theory of Social Behavior, 20(1),* 43-63.

Gill, R. (2002). Cool, creative and egalitarian?: exploring gender in project-based new media work in Europe. *Information, communication and society, 5(1),* 70-89.

Haran, J., Chimba, M., Reid, G., & Kitzinger, J. (2007). *Representing women scientists in film and television drama, dramadoc and documentary*. Bradford: UKRC.

Hossain, S., Mendick, H., & Adler, J. (2013). Troubling "understanding mathematics in-depth": Its role in the identity work of student-teachers in England. *Educational Studies in Mathematics, Online first*.

Jensen, F., & Vetleseter Bøe, M. (2013). The Influence of a Two-Day Recruitment Event on Female Upper Secondary Students' Motivation for Science and Technology Higher Education. *International Journal of Gender, Science and Technology, 5(3),* 317-337.

Kunyosying, K., & Soles, C. (2012). Postmodern geekdom as simulated ethnicity. *Jump Cut*, *54.*

Lupton, D. (1995). The embodied computer/user. In M. Featherstone & R. Burrows (Eds.), *Cyberspace, cyberbodies and cyberpunk: cultures of technological embodiment* (pp. 97-112). London: Sage.

Mac an Ghaill, M. (1994). *The making of men: masculinities, sexualities and schooling*. Buckingham: Open University Press.

Moreau, M.-P., Mendick, H., & Epstein, D. (2009). Constructions of mathematical masculinities in popular culture. In E. Watson (Ed.), *Pimps, wimps, studs, thugs and gentlemen: essays on media images of masculinity* (pp. 141-156). Jefferson, NC: McFarland Publishers.

Nayak, A., & Kehily, M. J. (1997). Masculinities and schooling: why are young men so homophobic? In D. L. Steinberg, D. Epstein & R. Johnson (Eds.), *Border patrols: policing the boundaries of heterosexuality* (pp. 138-161). London: Cassell.

O'Keeffe, M. (2013). Lieutenant Uhura and the Drench Hypothesis: Diversity and the Representation of STEM Careers. *International Journal of Gender, Science and Technology, 5(1),* 4-24.

Phipps, A. (2008). *Women in Science, Engineering and Technology: Three Decades of UK Initiatives*. Stoke-on-Trent: Trentham.

Skeggs, B. (2004). *Class, self, culture*. London: Routledge.

Stepulevage, L. (2001). Gender/Technology relations: complicating the gender binary. *Gender and Education, 13(3)*, 325-338.

Stinson, D. (2013). Negotiating the "White Male Math Myth": African American Male Students and Success in School Mathematics. *Journal for Research in Mathematics Education, 44 (1)*, 69–99.

Spender, D. (1985). *Nattering on the net: women, power and cyberspace*. North Melbourne: Spinifex Press.

Thomas, K. (1990). *Gender and subject in higher education*. Buckingham: Open University Press.

Turner, G. (2013). *Understanding celebrity*. London: Sage.

Varma, R. (2007). Women in Computing: The Role of Geek Culture. *Science as Culture, 16(4)*, 359-376.

Wacjman, J. (1991). *Feminism Confronts Technology*. Cambridge: Polity Press.

Walkerdine, V. (1988). *The mastery of reason: cognitive development and the production of rationality*. London: Routledge.