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Young people's participation in Tech City: Barriers and opportunities

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About the project

Young People's Participation in Tech City was a pilot study (October 2014 – January 2015) run by the Geography Department at The Open University (led by Dr Melissa Butcher), in collaboration with local organizations such as Hackney Unites, Our City and the Shoreditch Trust. The study was part of the *Creating Hackney as Home* project (CHAsH 2013-15, www.hackneyashome.co.uk) and funded by the *OpenSpace Research Centre* at The Open University.

The growth of entrepreneurial sites like London's Tech City brings with it challenges as well as opportunities for local residents. *This pilot study took a particular focus on young people living in south Hackney and explored the opportunities and barriers to their gaining access to employment and training in Tech City.*

The research involved group discussion workshops with young Hoxton/south Hackney residents, primarily students in the final years of education (16 – 20 years old). The research also involved interviews with professionals working in Hoxton/south Hackney-based education institutions, community organizations, public and private training and apprenticeship providers and Tech City businesses.

Intended benefits of this research are: 1) a better understanding of the barriers and opportunities experienced by young Hoxton/south Hackney residents for accessing training and/or employment in Tech City, and 2) a better understanding of the concerns of educators, employers and decision-makers in relation to Tech City's capacity to generate locally-oriented training and employment opportunities.

The authors gratefully acknowledge the assistance of Dr Luke Dickens in the research design, data collection and preparation of this report.

Executive summary of barriers and opportunities

Awareness and assumptions: in general, young people's awareness of Tech City and the kind of work that goes on there is limited to non-existent, although Tech City companies attending career guidance events at educational institutions has improved young people's knowledge. The Tech City workforce is perceived by both professionals and young local people to be largely white, male, middle-class and university-educated. However, young people are open to having these assumptions challenged.

Apprenticeship programmes have yet to reach their potential in scale and impact but face a number of barriers in the Tech City and Hackney contexts: 1) apprenticeships require commitments of time and money that small Tech City companies may not be able to afford; 2) companies may regard apprenticeships to be corporate social responsibility (CSR) rather than a human resources (HR) issue, a luxury rather than a necessity; 3) schools and parents may be influencing young people's focus on university when other vocational options are available; 4) consequently, Tech City companies perceive that apprenticeships attract lower quality candidates. There is an opportunity, however, to create structured programmes to get more businesses involved in Apprenticeship schemes.

Bias towards university graduates: overall, the recruitment pipeline is oriented towards university graduates. Young people assume that going to university will ensure that they have sufficient knowledge and skills to enter the job market, including the digital tech industry. However, there may be space for more entry-level rungs on the job ladder for non-graduates; job and apprenticeship models exist that 'parcel up' overlooked digital business tasks that graduates might consider beneath them, to mutual benefit.

Internships: young people's knowledge of internships is limited. They are also still perceived to be unpaid, which may be unaffordable for some local young people. Internships are possibly more suited to graduates because employers hold expectations that interns will deliver value in a short timeframe. Nevertheless, some self-taught IT-savvy young people may have sufficient skills to deliver during internships.

Work experience placements: educators and young people can lack the social capital (personal connections) necessary to organize work experience placements. As in the case of internships, work experience placements are unpaid and this may be unaffordable for some local young people. There is also the factor of limited time and capacity amongst small businesses to manage apprentices or other non-graduate trainees.

Self-starters and demographic insights: south Hackney is producing self-starting, self-taught entrepreneurial 'techies', though they still have to compete with university graduates and may lack the social and cultural capital¹ to do so. In the field of digital marketing in particular, young local people have been found to provide insights into their social demographic.

Will you/I fit? Employers' methods for assessing 'will you fit?' put young local people at a disadvantage because they lack comparable social and cultural capital. Young people's perceptions of not fitting in relate to how they think Tech City might perceive *them*, and worries about not fitting in undermine confidence to make first contact through job applications. There is an opportunity to change this situation by making job applications the second moment of contact rather than the first.

¹ Cultural capital: the way in which education, modes of speech, styles of dress, physical appearance and intellect can be understood as non-financial assets that enable social mobility, for example, access to and utilization of the social networks that characterize Tech City's workforce and way of doing business.

Face-to-face meet-ups: making meet-ups on young people's 'home turf' the first moment of contact between Tech City and young people is perceived to have three main benefits: 1) improve mutual understandings between the two 'alien tribes'; 2) give young people the confidence to take the next step and apply for jobs, internships, placements and apprenticeships; and 3) provide an 'in' for companies to access local young people.

Communicating with local young people: young people are often unaware of the existing websites and apps where training and employment opportunities are posted; job centres and career advisors remain important. Diverse social media need to be selected in order to target different groups of young people, for example, YouTube, however, low-tech methods (e.g. flyers, bus stop advertisements) may also improve local young people's awareness of Tech City.

1. Context: Hoxton, Shoreditch and the Old Street roundabout:

In recent years Hackney has experienced population change in terms of its ethnic and social mix, which some argue has resulted in the borough becoming a site of 'hyper-gentrification' (Neal *et al.* 2015)². However, Hackney still has relatively high levels of social and economic deprivation³. It has a relatively young population with an estimated 25% under 20 years of age, and 21% aged between 20 and 29 years (reported September 2014)⁴. Whilst educational attainment has improved significantly and in some cases exceeds the national average, 11% of the population were entirely without qualifications (2012), and unemployment stood at 8.8% (2013-14), two percent higher than the national average.

It is within this context that Hackney has seen the development of a cluster of digital technology businesses in the vicinity of the Old Street roundabout. Compared to the USA's Silicon Valley⁵, Tech City is considered to be Europe's top technology start-up hub⁶ and, for the sheer number of businesses (1472 as of 21/02/15)⁷, is comparable with tech clusters in New York and San Francisco. Digital tech start-ups and venture capitalists were initially attracted to the cheap rent but also by artists, and creative media and advertising agencies that were already established in the area.⁸ The number of companies setting up or moving in increased dramatically between 2008 and 2014.

Seeing an opportunity, the national government (UK Trade and Investment) founded the quango, *Tech City Investment Organization* in 2010 (now *Tech City UK*)⁹, mandated to formalize the cluster as Tech City and promote its growth. As well as smaller start-ups, major enterprises such as Google and Amazon have since established operations in the area. However, the cluster's growth has outstripped the supply of skilled or qualified talent available within the UK, an issue that has received extensive media coverage in recent years. A 2012 Centre for London report, *A Tale of Tech City*, identified an "undersupply of skilled developers and specialist staff in the UK"¹⁰. Entrepreneurs blamed visa restrictions, and "ill designed university syllabuses", perceiving there to be a "lack of understanding at all levels of the education system" of the needs of high tech enterprises.¹¹ To a certain extent, this study found that these latter concerns still resonate for many Tech City professionals.

² (2015) 'You can't move in Hackney without bumping into an anthropologist': Why certain places attract research attention, with G. Mohan, A. Cochrane and K. Bennett, *Qualitative Review* (In press).

³ <http://www.hackney.gov.uk/Assets/Documents/Facts-and-Figures.pdf> (accessed 20/02/15)

⁴ <http://www.hackney.gov.uk/Assets/Documents/Hackney-Profile.pdf> (accessed 20/02/15)

⁵ <http://www.techrepublic.com/article/first-came-the-artists-then-came-the-hackers-the-strange-history-of-londons-own-silicon-valley/> (accessed 21/02/15)

⁶ <http://techcitynews.com/2014/08/19/london-the-worlds-most-influential-city/> (accessed 21/02/15)

⁷ <http://www.techcitymap.com/index.html#/> (accessed 21/02/15)

⁸ <http://www.techrepublic.com/article/first-came-the-artists-then-came-the-hackers-the-strange-history-of-londons-own-silicon-valley/> (accessed 21/02/15)

⁹ <http://www.techcityuk.com/about-us/> (accessed 21/02/15)

¹⁰ <http://centreforlondon.org/publication/a-tale-of-tech-city/> (page 20) (accessed 21/02/15)

¹¹ http://centreforlondon.org/wp-content/uploads/2013/01/A_Tale_of_Tech_City_web.pdf (page 20) (accessed 21/02/15)

2. Methodology

Data collection for this study was carried out by Dr Johanna Wadsley (R1), with support from Dr Luke Dickens (R2). It involved initial scoping conversations and correspondence with members of Hackney Unites, Our City and the Shoreditch Trust. This was followed by **in-depth semi-structured face-to-face interviews** with eight educators, apprenticeship or training providers, Tech City entrepreneurs and non-academic researchers (in seven interviews), identified as having interests relevant to the project through reputational snowballing. Interviewees included (using pseudonyms):

- Graham: apprenticeship company
- Thomas: entrepreneur/tech trainer
- Leslie: educator
- Paul: entrepreneur/spokesperson
- Marcus: entrepreneur
- Jeff: researcher
- Jeremy: researcher
- Andrew: educator

Off-the-record conversations were also held with four teachers, the information from which serves as background. One teacher participated in a focus group; where quoted directly within a focus group excerpt they are denoted by 'Educator'.

Four focus groups were undertaken with twenty-three local young people accessed through one of Hackney's sixth-form colleges. The cohort were volunteers drawn from three different course strands so as to ensure a range of perspectives: IT (2 focus groups of six students), BTEC¹² (1 group of 4 students) and Sociology (1 group of 7 students). All participants were given or chose pseudonyms. A future project around the same set of issues should involve young people not currently in education or training, as well as young people doing or having recently completed apprenticeships and internships in Tech City.

With participants' written permission, interviews and focus groups were audio-recorded and then transcribed. Transcripts were analysed using a mix of standard discursive thematic analysis and NVivo software. This report presents the strongest themes arising from the analysis, focussing upon general perceptions of Tech City and its workforce, barriers and pathways into training and employment opportunities, and modes of communicating between Tech City and young people in Hackney.

The ethical protocols for the study were approved by the Open University Human Research Ethics Committee (memorandum HREC/2013/1356/Butcher/1, 03/10/14). As much as possible, all identifying factors have been removed to try to maintain conditions of anonymity for participants.

¹² BTEC are vocational qualifications certified by the Business and Technology Education Council, equivalent to GCSE (levels 1 to 2), A Level (level 3) and university degrees (levels 4 to 7). The BTEC students amongst the cohort were in the A level equivalent stream.

3. What is Tech City?

3.1 DEFINING TECH CITY: PROFESSIONALS' PERSPECTIVES

When asked to define or characterize 'Tech City' professional interviewees did so in four main ways.

The first characterization referred to the **geographical clustering** of digital tech businesses in Hoxton and Shoreditch, with specific reference to Old Street (station) as the centre of the 'hub'. 'Silicon Roundabout' was also frequently used to denote the area with some irony.

The second characterization framed 'Tech City' as a **hub of entrepreneurial and creative activity** in the interrelated fields of digital marketing and communications (particularly around social media and mobile digital technologies), digital design, games development, app development and data management.

The third concerned the digital tech community itself: the **socio-professional network** of coding-literate entrepreneurs engaged in the above activities, their sense of 'community' facilitated by businesses such as 3Beards (a "content, promotion and events company"¹³) and events such as the weekly "Silicon Drinkabout" (a 3Beards event). For some this network constitutes an 'ecosystem' and those directly involved in tech training (either corporate or via apprenticeships) wanted to see better integration of young local talent into this ecosystem and its constituent tech companies.

The fourth mode of characterization specifically referred to the **British Government's branding** all of the above in order to structure and promote it as a globally-significant specialized business hub. The TechCityUK organization, established by the UK Government in 2010, is the publicly-funded agency mandated to promote the growth of London's digital technology sector and provide expert knowledge and recommendations to policy-makers.

3.2 DEFINING TECH CITY: YOUNG PEOPLE'S PERSPECTIVES.

When asked whether they had heard of Tech City the young people participating in the focus groups were either unaware of its existence, or its proximity, or the kinds of activities that go on there. The following quotations evidence the breadth of understandings but also, with a few exceptions, indicate the general lack of awareness of what Tech City is about:

- *I think it's a college.*
- *I think it's an organisation that helps young people get jobs in technology.*
- *I don't know what it is but I know it's something to do with the shops in Shoreditch.*
- *I'm not sure about what Tech City is, yeah.*
- *I don't even know what it is.*
- *I heard about it first last week.*
- *I think it is like a place that has been set up by the government to get young people more involved in IT, yeah.*
- *From what I know so far it's a white company...*
- *I just heard that it's, like, where Google is in the UK.*
- *I heard it was on Old Street or something I, never heard anything about it.*

¹³ <http://3-beards.com/>

- *I have an idea that you can help young people, like, open their own business because I participated last year bringing up ideas. Like, we had to bring out ideas and it helped, so yeah.*
- *Right now? Helping young people to be able to find jobs, or get jobs.*
- *I've heard it was just like a bunch of technology companies all in one area, and there's something similar in California or something called Silicon Valley or something like that.*
- *To be honest with you, I've never heard of Tech City. I'd really like to find out what it's about.*
- *It does trickle in conversations here with the teachers. It's on Old Street, isn't it? Just down the road. I know it because occasionally it comes up in the papers with a nickname London's Silicon Valley but I heard there's an enormous number of businesses in tiny companies comprising of three people but there's hundreds, thousands of them all in this one compact space. I know bits and bobs of it. What they do in the community is beyond me.*
- *I've heard of the name and assumed IT, computers, networks but it's never gone beyond that, to be honest.*
- *I've never heard of it.*
- *The Silicon Roundabout.*
- *Basically, what I remember I think it's a little company with an idea and if you want to get funding and everything they contribute [.....] So they have some time to make sure they can find work and in a few years they launch a product*
- *I never knew Tech City was around the corner. I thought it was advertising companies and marketing companies. I never knew it was around here [.....] Yes, I never knew that like it was said you know Silicon Valley. I thought there would be something similar in the UK but [.....] I didn't think it was local. I thought it was somewhere going out of London maybe, but you learn something every day.*

While it may be unsurprising that the students enrolled in Sociology or B-Tech streams were either not aware of the technology cluster's existence or, if they *had* heard of it were uncertain about what goes on there, it is significant that the IT students were similarly unaware. One member of the cohort had even done a games-testing placement over the previous summer but was unaware of the wider context of the company in which they had been placed. *The students who were most aware of Tech City's existence were usually those who had attended in-college career guidance events at which companies were represented, usually larger entities rather than small start-ups.* The significance of this point is addressed in Section 5.4, which considers the mutual benefits of meet-ups in places familiar and supportive to young people.

Barrier: in general, young people's awareness of Tech City and the kind of work that goes on there is limited to non-existent

Opportunity: Tech City companies attending career guidance events at educational institutions improves young people's awareness of Tech City

3.3 WORKFORCE COMPOSITION: PROFESSIONALS' PERSPECTIVES

The Tech City workforce is perceived by the professionals interviewed to be largely white, highly educated (in computer engineering or another STEM – science, technology, engineering, maths - field), young, middle-class and male:

...it's people 25 to 35 is what I typically think of. Probably blokes in skinny jeans and beards, that's the sort of the image that I have, but of course it's not. I mean certainly that sort of trendy Hoxton, Shoreditch kind of vibe [.....] and certainly other people tell me that it's very kind of monochrome in terms of the make-up of the workforce, they're mainly white university graduates. That's my perception. (Graham, apprenticeship company)

The phrase 'skinny jeans and beards', or variations thereof, was a common short-hand categorization of the kinds of people working in Tech City. Marcus provided nuance to the white, male middle-class professional tags by setting out the diversity of trajectories by which people come into the Tech City workforce:

A lot of people transitioning from corporate jobs [.....] finance, decided to come and do something different. Or people transitioning out of large [.....] marketing agencies and coming to do something a bit more free form. Or people just coming straight out of university and have always been sort of programmers, developers, marketers, coming into the sort of space. So it's a lot of emerging talent rather than kind of a huge collection of really experienced sort of professionals; there's a lot of sort of people doing it for the first time, learning it as they go. (Marcus, entrepreneur)

Paul also commented on the professional diversity within Tech City start-ups, but recognized that the need for 'bright talented scientist engineers' inevitably resulted in not only a 'geeky feel', but also gender disparity:

*I think for young women they see mainly the **young men** [.....] we've got to close the **gender gap** and we've got to close the **racial gap**. We don't have a lot of blacks in the tech sector and yet you know there are black communities in and around Tech City. How do you, we bridge that gap? (Paul, entrepreneur/spokesperson)*

Other professional interviewees also identified ethnic and gender gaps as problematic, especially given the make-up of the local population within which TechCity is based. Thomas specifically cites the 2012 Centre for London investigation that found that a third of Tech City employees have studied at Oxford or Cambridge¹⁴, linking a lack of social mobility in the UK with low levels of participation in the IT sector of people from the black community, particularly black women.

Overall, professionals' perceptions of Tech City's lack of diversity around ethnicity, gender and education correspond with the reputational issues associated with the global IT industry more generally.¹⁵¹⁶ Educators interviewed for this study noted that it is a concern among young people from BME and lower socio-economic backgrounds that 'it is not for them'.

3.4 WORKFORCE COMPOSITION: YOUNG PEOPLE'S PERCEPTIONS

For many of the young people once they knew of Tech City's existence their perceptions of its workforce composition were based on their experience of seeing people walking around Hoxton and Shoreditch. These perceptions ranged from positive stereotypes to a sense that the presence of TechCity was part of wider changes in Hackney that had more negative impacts on their lives such as being unable to afford access to new facilities and housing (CHASH report, www.hackneyashome.ac.uk).

¹⁴ <http://centreforlondon.org/publication/a-tale-of-tech-city/> (page 66) (accessed 21/02/15)

¹⁵ EC (2013) *Women active in the ICT sector*. Brussels: European Commission.

¹⁶ Raghuram, P. (2014) Gendered skilled migration and gender segregated labour markets, paper to IOM-OECD Expert Group Meeting on the Migration of Highly Skilled Women April 3-4, Geneva.

Shannon: I think I share that sense of it, I think it's one of the two sides of the spectrum. You've either got quite well dressed people running about with their quite nice suits or you've got quite like what you imagine people running about in a Google Glass. Not much care as to what they're wearing so much as they're being paid quite a lot of money.

R1: Have any of you seen the beards? [Laughter] Everyone's laughing at that, [Laughter] the beards.

David: There's a lot of little niche restaurants and cafes and whatever. There's always something going on there [.....] Problem is [.....] gets pricey for average things.[.....]

Robert: They look friendly.

The majority of the student cohort was sensitive to the socio-economic and ethnic differences they perceived to exist between themselves and the Tech City workforce:

Sarah: I think it's people with degrees. [.....]

Demba: Internet nerds isn't it? [.....]

Sarah: Nerds. [.....]

Demba: Yes, the little ginger white with glasses and that, yes. [.....] People with suits. [.....] Obviously must be clever people [.....]

Mark: I think they're just going to wear jewels and hoodies and they're just scruffy types.

Demba: Yeah, they're normal people like us. . [.....]

Abdur: When you drive past it you see it's always....I'm not trying to be rude or anything. You don't see that brown people, only white, I mean Asian people or something like that, you see white man with their suits and ties and their...briefcase [.....]

Mark: I think they will be from a rich background [.....] Yes, that's why they had the opportunities that they had, to spend all their lives doing stuff really to computers and a lot...

Sarah: Private schools.

Mark: Yeah.

R2: Privately educated?

Sarah: Yeah.

R2: Yeah, so they're not people like you?

Demba: But it could be, we don't know, we haven't been there yet.

While some of the students describe what they see (e.g. suits, beards), it is important to draw attention to how a number of comments in this extract and particularly the final exchange reveal assumptions of socio-economic differences ('they must be privately educated'). However, the final comment suggests an openness to have these assumptions challenged through interaction. The potential significance of face-to-face meetings that break-down assumptions and barriers are discussed in Section 5.4. Related to this, for those students who might be interested in a career in Tech City, in whatever capacity, their perceptions of the workforce were often linked to concerns about how they themselves might be perceived by Tech City employees. This important point is discussed in more depth in Section 5.2 and we would recommend it as an area for future research.

Barrier: Tech City is perceived to be largely white, male, middle-class and university-educated

Opportunity: Young people are open to having their assumptions about Tech City challenged

4. Technical skills: opportunities and barriers

4.1 EXISTING PATHWAYS

This section considers research participants' views on existing pathways by which young people can access training and employment in Tech City. These are, primarily, apprenticeship programmes managed by public (education institutions) and private providers; skill-specific commercial training courses delivered by Tech City businesses, either as an add-on or their main focus (some provide free places to disadvantaged young people); internships; and work-experience placements. Programmes aimed at primary and secondary school students (Code Club, Apps for Good, etc.) are not discussed.

Face-to-face meet-ups such as 'geek-a-thons' are discussed in Section 5.4; young people's awareness of as online portals and apps listing training and employment opportunities is considered in Section 6.

4.1.1 Apprenticeships

Apprenticeships were understood by professional interviewees to be vocational but generally non-technical, that is, not developing skill sets around coding and computer programming. Rather, apprenticeships were constructed around business administration, digital marketing, web and digital design, IT helpdesk and IT technicians (installing digital services).

None of the young people involved in the study were currently enrolled on apprenticeship programmes. One student amongst the cohort had successfully applied for and completed a summer-long 'apprenticeship' with a digital technology company. The placement, arranged through a job centre, involved participating in gaming and taking notes on improvements. With mentoring and feeling part of a team, it had proven to be 'a very good experience' for the individual concerned. In this placement, the nature of the tasks indicates the utilization of existing skills as a gamer to test products. However, while positive, this style of placement is more like an internship than an apprenticeship that requires more time and results in an accreditation of some kind (if not a permanent job).

The draw-card for apprenticeships as opposed to other entry-level jobs is that it results in an accreditation as well as experience and a salary, the significance of which was summed up by Graham:

*... the thing about apprenticeships is that they are recognised by parents and young people as a good [s.l. bet], it tends to be the kid, **the apprentices and their parents care a hell of a lot more about the qualification part at the beginning of the apprenticeship than they do at the end.** At the end they can like, yeah they've the certificate, but what they're delighted by is that their **child is in a great job and, particularly if they're employed at the end of it, they're off and away,** and the apprenticeship itself as a qualification becomes very second order. But at the beginning when they don't know that that's what's gonna happen in a job, **a job which comes with an apprenticeship is seen as a safer, better, higher quality opportunity that one that doesn't come with an apprenticeship.** (Graham, apprenticeship company)*

For the education providers in this study, the mandate of providing pathways to qualifications was as important as the skills and experience acquired during the apprenticeship. This required them to find ways to *incorporate skills into the qualifications they are delivering.* However, the educators were not alone in

recognizing that there was an inherent tension between designing and delivering qualifications, and the timeliness and relevance of the skills delivered through those programmes. This concern was also prevalent amongst those Tech City entrepreneurs most concerned with young people's prospects.

*The trouble within the sort of digital economy is that the skills required and learnings of those frequently change so quickly that **by the time you've codified that into a curriculum or to an offering, it's out of date.** And we've seen this with the computer science degrees within universities. **By the time we've all agreed what we should be teaching, that has moved on ...** (Marcus, entrepreneur)*

The mismatch between university and apprenticeship pathways into Tech City and the intrinsic speed of the digital economy are discussed in more depth in Section 4.2. What is pertinent at this point, however, is that the rate of change in the technology sector is directly linked to the capacity and willingness of Tech City businesses to take on apprentices:

*... Because, to say, okay we can commit, but for the next 12 months we can teach you, kind of, these skills, and make use of you in these ways. Like SMEs in the tech sector can't make that commitment, 'cause they don't know what they're gonna be doing in a year's time, they don't know what skills they're gonna need, and what skills the people that currently work there are gonna be using in nine months' time. **They just don't work on the same timeframes - apprenticeships are too kind of slow and bureaucratic, and unwieldy for them, at the moment** (Jeff, researcher)*

Likewise, the risks to small enterprises are also disincentives to taking on apprentices. It was noted by one informant that Tech City, unlike Silicon Valley, consists mainly of many small, young, less well established enterprises for whom taking on an apprentice may be too costly. There is an investment in time and costs in apprenticeships that is particularly difficult for smaller tech companies to manage.

The perception that taking on apprenticeships is neither feasible nor sensible for small businesses is perhaps reinforced by the idea that companies are only doing it for purposes of Corporate Social Responsibility (CSR) rather than Human Resources (HR), with CSR regarded as only feasible for larger companies:

So it's great, them doing it, but it's like on a surface kind of thing, 'oh, we're doing some apprenticeships', and I think part of that's borne out by a bit of embarrassment around not actually helping the local area. (Thomas, entrepreneur/tech trainer)

However, we would pose the question that even if companies *are* taking on local apprentices to meet CSR rather than HR objectives, is this necessarily negative? This point is made in the context of how, within the professional sphere of corporate responsibility specifically concerned with local employment, the emphasis has shifted from *the why of CSR* to the *how*, which has positively changed the nature and efficacy of many corporate-community engagement endeavours.¹⁷ As Andrew (educator) suggests, 'So although there are elements of the corporate social responsibility in the agenda, at least that's one thing that gets them to think a little bit differently in terms of recruits'.

Nonetheless, a number of the professional interviewees observed that any given apprenticeship experience could only ever be as good as the placement company's enthusiasm, time and capacity to supervise and train the apprentice. A key point made in this context was that companies that had survived five years of trading were thought likely to be the most successful in this regard, and the most committed to the principle of 'giving something back' to the south Hackney community where Tech City is predominantly based. As noted

¹⁷ <http://www.geog.qmul.ac.uk/docs/research/116503.pdf> (accessed 20/02/15)

by Andrew (educator), a lack of sufficiently mature and stable Tech City companies coming forward is a barrier for apprenticeship providers to scale up the apprenticeship offerings.

However, the importance of structured programmes (such as accredited apprenticeship schemes) to facilitate scaling up was identified by Graham. As an apprenticeship provider they have a clear vested interest in promoting such schemes, but the principle resonated across much of the interview data:

*... everyone's got a story of someone they know who came in, blagged a job on reception or doing something and has worked their way up, but actually **if you want to increase the numbers you have an impact on scale and you probably do need to provide more structured programmes** (Graham, apprenticeship company)*

The difficulty around developing structured programmes seems to be finding the right balance between structure and the needs of each individual company. We have already seen how designing apprenticeships is challenging because developing curricula takes time, but time is a luxury that the Tech sector often lacks. Section 4.4 explores ways around this, particularly 'bundling up' tasks into bespoke apprenticeship packages, but an issue arising is whether this strategy for minimizing 'slow bureaucracy' generates risks in terms of quality assurance and subsequent diminishing of the value of any accreditation.

Developing a structured approach could also be enhanced by increasing knowledge about how companies can develop apprenticeships as part of their HR strategy. Information is currently fragmented, according to Paul:

[...] we've gotta do a better job of communicating where business can go to find out how these schemes are working and again if the public sector can do that, that's great but I also think the private sector should play a role here and those companies that are doing apprentice schemes, you know, we need to work with them to say "okay, how do we get the message out"? (Paul, entrepreneur/spokesperson)

Section 6 specifically attends to the issue of fragmented knowledge, along with the pros and cons of the different media used to communicate to and with young people.

Barrier: apprenticeship programmes are currently too small scale to have an impact

Barriers: apprenticeships require commitments of time and money that small Tech City companies may not be able to afford

Barrier: companies regard apprenticeships to be CSR rather than HR, luxury rather than necessity

Opportunity: create structured programmes to get more small to medium-sized, medium term businesses involved in apprenticeship schemes

4.1.2 Educational Expectations and 'push' factors

Other interrelated issues raised by interviewees as impacting on the take-up of apprenticeships by both young people and employers centred on the 'push factor' from local schools encouraging 'strong candidates' to go to university instead of considering vocational pathways. There may be a circular issue here, that schools may not be pushing apprenticeships because such programmes have yet to achieve a critical mass and positive reputation. Following on from this, there was a perception that employers assumed that candidates coming through apprenticeship schemes were lower achievers regardless of whether this might be the case or not.

*It's very much seen as, kind of a second rate solution option for kids who aren't doing well academically. Which is obviously not going to entice companies into doing it, because they know they're not getting particularly strong candidates. And there are also a lot of **strong candidates who would probably really enjoy apprenticeships**, and they'd be very well suited to them, but apprenticeships are **not something that their school is gonna push them towards**. Their school is gonna push them towards A level and uni. (Jeff, researcher)*

In conversations and interviews with educators, all were of the opinion that the improved standards and educational outcomes of Hackney's schools and academies was, in some ways, undermining efforts to improve vocational pathways into tech careers and apprenticeship schemes:

Hackney actually has got fantastic schools and academies so you've got to be pretty determined to take your child out of a good academy, which you probably struggled to get them into in the first place, because they have got their interest in a career in tech (Andrew, educator).

Young people's perspectives on the 'university push' will be covered in more detail in Section 4.5, however, almost all were of the opinion that going to university was necessarily the better path. The reasons why, however, are more complex than the school 'push factor' alone, bound up as they are with what they know about earning trajectories, assumptions about the relevance of what they'll actually learn, and concerns about the need to 'fit in'.

This returns to the earlier discussion on how the lack of diversity within Tech City may impact on young people's willingness to take up an opportunity such as an apprenticeship. Similarly, several interviewees highlighted the different ways in which the content or skills delivered by apprenticeships didn't tally with the nature of Tech City itself. Marcus (entrepreneur) expressed concern that the apprenticeships pathway trained people to do specific jobs but didn't train people to create jobs, to be entrepreneurs:

*There is **nothing currently exists that teaches people that they could create their own jobs**, that they can begin to understand business models, to understand the basics of the PNL, of understanding the basic of spreadsheets, of presenting yourself, of doing public speaking, of fund raising, of attracting things ...so there's nothing that really kind of teaches you to be a well-rounded sort of business owner or potential business owner. Now **when you're confronted with the reality that small businesses form a huge part of the UK economy it's kind of very backwards that they're not teaching people to create businesses**. (Marcus, entrepreneur)*

Much of what Marcus is describing here could be categorized as particular forms of social and cultural capital, which, as will be discussed later, is something that many young people in south Hackney perceive that they lack. This specific issue has been identified by educators and trainers, and several organizations have trialled or are trialling short-term projects designed to encourage skills like "pitching as a way of life" (Andrew).

Barrier: an emphasis on university when other vocational options are available

Barrier: companies perceive that apprenticeships attract lower quality candidates

Barrier: apprenticeships may not be preparing young people with the right skills

4.1.3 Internships

When comparing internships to apprenticeships, the latter have tended to be longer (at least one year) and therefore thought to be more likely to result in the development of a comprehensive skill set, allowing time for candidates to demonstrate that they are the right person for the job. On the other hand, this study notes that internships have some advantages including requiring less commitment from both parties, which, in certain circumstances, might be an incentive for Tech City companies to take on local young people.

However, according to Andrew (educator), because of their unpaid and temporary nature, internships have previously almost exclusively involved graduates. While there has been some improvement on the issue of paying interns, most are still not advertised and instead rely on word-of-mouth to be filled. There are companies attempting to address this barrier by establishing databases of intern programmes. At the time this report was produced one such company, was advertising 30 internships in London, ranging from 5 days to 12 months, in the fields of IT, business development, marketing, social media and project management. Yet many of the recruiting companies are expressly looking for graduates and, ironically, many of the positions require previous experience. Internships then appear as more suited to graduates because they are more likely to have sufficient skills to come into a company for a short period of time and still deliver some value. The exception may be IT-savvy young people (gamers, those already making computers or designing apps) who have requisite skills, although they may still lack the experience of workplace environments.

Internships were generally found not to be 'on the radar' of the young people involved in the study. They were generally viewed as unpaid jobs, the equivalent of work experience placements, but useful in terms of gaining experience. Others expressed the assumption that internships were for graduates and, therefore, they would not consider such opportunities until they had completed their university degrees. While for the IT students, with an existing skills base and personal interest, internships weren't necessarily a graduate-only domain, it was unattractive as an entry-level pathway because of the risk that it would not lead to a job. Obtaining a university degree was a way of minimizing that risk – university fees notwithstanding:

Bentner: Yeah but for the entry job now, the thing is, if it's a guaranteed job after that, yeah. Is it a guaranteed job?

R1: Often internships lead to permanent jobs, yeah. But not always, you're right.

Bentner: Exactly, you're unsure about that, you're not sure it's guaranteed. When I can go to uni and get a better chance, 90 per cent chance of getting a job.

R1: Yeah, so you still feel that that's a better path, rather than choosing a path that doesn't give you as much debt as the end?

Bentner: Because the one that don't give you much debt at the end is not guaranteed a job. But with uni, experience, knowledge, everything you need to know, you have 90 per cent guaranteed a job.

The extent to which the IT students evidenced strong faith in what a university education will do for them is striking. Section 4.5 presents young people's views on the necessity of attending university in more depth, but a 'push factor' from schools could be influential, along with the mandate for colleges to deliver qualification outcomes oriented to university entry. However, these processes of decision making, the

weighing up of the risks of each career pathway, and the role of family, peers and school in influencing those decisions is an important area for future research. There is a policy and commercial imperative to understand why and how young people are making their choices.

Barriers: young people have limited knowledge of how to access internships, which, if unpaid, can be unaffordable

Barrier: internships are possibly more suited to graduates because employers still hold expectations that interns will deliver value in a short timeframe

Opportunities: some IT-savvy young people may have sufficient skills to deliver during internships

4.1.4 Work experience placements

As with internships, finding and filling work experience placements (or any sort of Tech City training job, for that matter) are also hampered by a lack of knowledge about how people outside the Tech City 'ecology' find out what is available. Similarly, unpaid work as a means of gaining experience is not an option for people who cannot afford it. In the course of talking with subject teachers responsible for the students in the research cohort it became apparent that it was very difficult for them to arrange work experience placements, even though the courses were to a certain extent designed to ready students for the workplace. It was clear that they spent a lot of time on the task without much success, despite some of the students having advanced knowledge and skills that would enable them to do productive work.

IT Educator: We've been trying but it's extremely difficult. Actually it's become an impossible task to be honest, especially to place students, sorry, I don't want to add to their worries. [...] It's becoming extremely difficult to place students on the right levels, on the right jobs for them to gain the beneficial experience [.....] You can see the talent, they're actually working [...] I see them giving all their best and some of them, they do excel in work, the fact of the matter it counts for almost nothing. Then they get the qualification, but what do they do next?

Implicated with the difficulty of finding placements is that teachers may not have sufficient social capital in terms of connections to Tech City to build and maintain relationships there. That personal connections enable more productive connections between education institutions and Tech City businesses was clear from the interview with Leslie, who *did* have personal links to a Tech City business:

Leslie: Because [redacted] [has] always been able to translate for me when we're talking about pythonistas and geek-outs. He was able to use the language ... which would encourage those young people working at Tech City to think, "Oh, okay I might come and see what these people are doing". They haven't even got employment opportunities some of these very small businesses for the young people we've got here, but they were interested enough.

Some students have used their own initiative, such as finding a placement through the job centre, but again in the example below, it was facilitated by a personal connection.

I went to the Jobcentre and seen a project going on rated with companies and I was asking if there's any apprenticeships. And they told me that they had one opportunity but it was very difficult to get [onto] ... But the person that gave me the opportunity knew the person that was running the place, so I got onto that, yeah. (Leon, IT student)

These findings reinforce the sense that face-to-face meetings and personal connections are an important part of differentiating talented and motivated young *local* people from the crowd of talented and motivated applicants on paper. The mutual benefits arising from face-to-face meetings are discussed further below.

Barriers: both educators and young people lack social capital (personal connections) necessary to organize work placements

Barrier: work placements are unpaid which may be unaffordable

4.2 TIMING MISMATCHES AT TWO LEVELS

Of relevance at this point is that two levels of temporal mismatches are perceived to undermine the capacity of Tech City businesses to take on and train up young people, including those engaged on apprenticeship programmes. These are: the rate of tech development outstripping formal education; and that Tech City business timeframes do not necessarily mesh well with training inexperienced staff.

4.2.1 The rate of tech development outstrips formal education

Across the interview cohort of educators, trainers and entrepreneurs there was a general concern that the rate at which technology changes, along with the increasing breadth of skills required, means that formal STEM education pathways can be out of date by the time a young person is deemed 'ready' to enter the workforce:

... a three year degree in computer science – you might as well call it computer history, ancient history, computer ancient history 'cause it's changed so radically by the time you've finished your degree. Or media, the same, has changed so radically; one year you're studying telly and in year three you're studying ... there is no ... it's all YouTube and telly's changed 'cause you've got smart TVs. It's all changed drastically. So a three year degree course, if it's historical or Latin or ancient Mediterranean studies or shit that happened years ago or whatever; great. But anything else which is any way relates to practicality you're gonna struggle with and I'm not sure we should be sending kids to do degrees (Thomas, entrepreneur/tech trainer)

When this issue was put to the IT students, for whom it might be most relevant, they were very aware of the rate at which new tech comes to market but were also very optimistic that university and any university-organized industry placements would be sufficient to stay abreast of developments:

Yeah but I reckon in university, like, if a new digital area comes up, then they teach it in uni, they'll give you an extension course. There's something new, so they give you something extra to learn about it [.....] Yeah, I think it will all come down in the university, I reckon it will. (Bentner, IT student)

As mentioned earlier, faith in the benefits of a university education resonated across the focus groups. They were not blindly optimistic, however; it was more that worrying about it would be a paralysing waste of time, as Bentner explains: "So you won't move, you're just stuck. So you just have to do what you've got to do" (IT student).

4.2.2 Tech City business timeframes do not mesh well with training inexperienced staff

Another timing issue identified by many interviewees was that taking on unskilled staff that need to be trained up on the job was a bad 'fit' for the nature of Tech City start-ups. Overall, the characteristically small staff teams, in combination with short-term venture capital funding deadlines and the speed with which

products and projects need to come to fruition, means that many Tech City companies simply do not have the capacity.

*I think the trouble with the very nature of sort of start-ups and high growth ... you have to separate out sort of two things. One is we're trying to fulfil places for companies that are growing at a sort of unsustainable rate whereby they're in the ascendant and they frankly they need bodies, they frankly need people. **That's the moment where injecting unskilled labour actually slows you down rather than speeds you up** because actually you need people who can go in and hit pace really quickly, not go in and work slowly and then have to be **managed and trained and sort of guided up through the system. That takes a huge amount of resource off you.** [...] The reality is **if that person is unskilled [...]** you spend so long educating them in what you need to do that actually by the time you've done the training you're three months further down the line but you haven't moved anywhere. (Marcus, entrepreneur)*

As will be seen below, the implication of this temporal/capacity disjuncture is that a diverse team in terms of educational backgrounds, technical knowledge and experience may bring dividends in the long run, but the cost – and risk – is the time needed to invest in training which a small Tech City start-up may not have.

Barrier: Time limitations and the capacity of small businesses to manage apprentices or other non-graduate trainees

4.3 GRADUATES VS NON-GRADUATES

My sense is there's an expectation level that you're taking on board a university graduate (Paul, entrepreneur/spokesperson)

Even that's immaterial in the tech world, whether you have a degree or not, who cares. How good are you, what have you made? You can see on the web, here's what you've made. So having a piece of paper is a bit old school (Thomas, entrepreneur/tech trainer)

As seen in the two brief excerpts above, interviewees were divided as to the extent to which having a university degree was necessary in order to contribute creatively and economically to the Tech City sphere. However, a common theme was that a bias towards recruiting STEM graduates meant that Tech City businesses were 'missing a trick'; several tricks, in fact.

4.3.1 Local self-starting, self-taught entrepreneurial 'Techies'

In the first instance, that IT and digital technologists can be self-taught – indeed, are expected to maintain self-directed learning throughout their careers – means that young people whose education pathways had been less than linear were potential tech talent because of their intrinsic interest and enthusiasm.

[...] it's very raw talent but [which has] huge academic potential that's not really being properly tapped into and may not show itself on bits of paper, and they may not have the history that looks great. One of the young people here came from a youth offending unit and PRU [Pupil Referral Unit], he's brilliant. He could wire up someone's network in five minutes, and he's running a business and he knows what he wants to do, [...] if he was just given the right opportunity he'd be absolutely a huge success wherever he went. (Leslie, educator)

A number of similar stories were told by interviewees, about local young people who had built tech-related businesses whilst still in education. Indeed, we met a few budding entrepreneurs in the IT focus groups. What they lacked in these instances was knowledge of how to take it further and whom to connect to, an issue related to Tech City's 'meet-up' culture.

The implication of much of the interviewees' talk about the failure to look beyond the graduate recruit pool was that Tech City businesses were missing out on the benefits of employing young people whose creative potential had not been formed – and normed – by a university education. However, Jeremy and Jeff, think-tank researchers interviewed in tandem, were more ambivalent about the capacity of Hackney's self-taught 'techies' to compete against university STEM graduates, personal motivation notwithstanding:

*Jeremy: You know, **most of these people have got physics masters degrees. The fact that you went to a much improved school in Hackney, good as it is, is not gonna get you all the way there [.....]** people who learn coding are often self-taught [.....] self-starters, they have an intrinsic motivation to do it, they're interested in it. They're computing nerds, basically [.....] On the other hand, it means that finding somebody aged 16, and hoping that they'll be able to compete with a load of self-starting computer nerds from elsewhere, with a physics degree, is...*

Jeff: Optimistic!

*Jeremy: Yeah, it's optimistic! So I'm not quite sure what I make of that overall. But it's not easy for them to get involved, and **they face very tough competition.***

There are several factors that contribute to why 'self-starting computer nerds' from Hackney may not be able to compete. Issues around a lack of particular forms of social and cultural capital (the question of 'will I/they fit in?' discussed in Section 5) and how these non-technical social and cultural skills and assets might be acquired by attending university, were implicated by some professional interviewees and many of the young people involved in the focus groups. In particular, differences of cultural capital – life experiences in common that enable and facilitate social interactions and the ability to communicate on the same 'wavelength' – are implicated in the minimal connections between Tech City businesses and young local people, including those that might be facilitated by apprenticeship programmes:

*So when they do present themselves to each other and **these two alien tribes do finally meet each other**, these employers with all their **cultural conditioning about graduates**, these people have been culturally conditioned to have graduates, these people have been told **none of the tricks of the trade about how to actually engage with these people**, it's not surprising that they don't often meet, and **why the Tech City stuff in terms of apprenticeships and so on hasn't really kind of shot up in numbers.** (Graham, apprenticeship company)*

Opportunity: south Hackney produces self-starting, self-taught entrepreneurial 'techies'

Barrier: they still have to compete with university graduates and may lack forms of cultural capital needed in order to do so

4.4 A LACK OF DIVERSITY AND ENTRY-LEVEL RUNGS ON THE JOB LADDER

4.4.1 In some areas, raw talent and creativity can trump a degree

Two of the most significant barriers identified by interviewees, almost regardless of the nature of their professional activities (entrepreneur, training provider, educator) were the interrelated assumptions that, 1) computer studies/engineering graduate-level entry positions constitute the lowest possible rung on the employment ladder, and 2) that more computer studies graduates are what Tech City needs. This tendency was consistently framed as an internal cultural bias that needed to be overcome for the benefit of both the

Tech City cluster as well as young local people. Andrew, as an educator, identified a lack of diversity as an outcome of this focus on recruiting graduates with detrimental implications for business:

*[.....] if your clients are Coca Cola or Nike who might **already be selling to a young urban clientele then rather than have a focus group why not have some people on your staff team who come from that background?** [...] we've got some great quotes from companies who say, "you know, I'm in the business of saying 'we are the best, we are different, but if my workforce looks the same as every other agencies workforce how am I different?'" So, or, "**if I replace an old white middleclass degree educated man with a young white middleclass degree educated man, where's the fresh thinking coming into the business?**".*

Precisely this same point was made by 'Mark', a BTEC student:

*If you bring people from different upbringing they're going to be different ideas, different business, start-ups, apps. **Whatever they're going to make is going to be completely different** from a different walk of life, it's going to come in to affect other people, **not just that straight down the line, every other Tom, Dick and Harry sort of thing.***

Thomas, a successful tech entrepreneur and digital technology training provider, was an enthusiast of the benefits of bringing young, local people on board, regardless of their lack of formal university qualifications. Noting the financial as well as creative benefits to be gained by training-up young people on the job, he argued that it was a viable business model given that companies may not be able to afford graduates and needed to stay abreast of technology changes: 'So, **whether someone has got a First Class from Oxford or not is totally irrelevant** and that's my belief, especially in technology'.

In a similar vein, Graham argued the case for creating more rungs on the employment ladder to be filled by school-leavers and apprentices. This particularly related to tasks 'that are typically unloved and tend to go undone or not done very well'. Graham gave examples of testing, pay-per-click campaigns and monitoring social media. These are low-level tasks often outsourced to an agency at a cost to the company but that could be undertaken by a junior or lesser skilled employee.

*So there's this **mismatch**; all these tasks that need doing and these people are happy to do them but **culture and practice** means that **employers typically don't look to these people as a solution**, and actually what they don't do very well is actually even look at those tasks and think about them in a very effective way, to actually say 'hold on a minute, we've got a **whole bunch of tasks, we could parcel these up and create a job out of it**'. ... so there's a lot of work I think to be done, lots of people are beginning to do that but that's certainly my perception. (Graham, apprenticeship company)*

However, while identifying lower level work as an opportunity for non-graduate employees we would argue there is a need to ensure the possibility of career progression, otherwise this cohort may find themselves relegated to 'dead end' jobs. Creating more lower rungs on the employment ladder also *risks entrenching a two tier system in the IT sector*, in which lower qualified employees get 'stuck' doing repetitive, low-skilled, low paid tasks while graduates maintain their access to higher value, better paid work. However, as Thomas argues, while they may be on different pathways, they are also on a track to improve earnings, based on the opportunities of supply and demand.

4.4.2 Risks and benefits of diversity

In addition to the possibility of improved financial margins associated with training up school leavers rather than taking on graduates, Thomas linked the diversity that came from recruiting outside of the usual pool of graduate talent to widening market opportunities, an idea supported by others, such as Paul:

*I think we need to do [.....] more with our ethnic groups that are out there and say you know “you can be of Pakistani origin, of South Asian origin, you can be from the Arabic culture, it’s okay” and actually the beauty of a lot of these businesses is **they have people from all over the world working in there and they’re connecting back to their [.....] home markets.** (Paul, entrepreneur/spokesperson)*

Internal culture was again highlighted as a barrier to diversity in employment with claims that Tech City was behind other industries when it came to recruiting beyond the usual graduate pool. According to Graham (apprenticeship company):

*‘... although there’s of course huge amounts of innovation in Tech City around the technology, in terms of how they build the companies they’re all very similar to each other, certainly the feel, the culture of all the companies that I’ve been into, in fact you’re, I can’t remember which one you were, you’re just like that one over there’. So **how they’re building their businesses is actually very, very un-innovative,** even if the software there might be working on in a field sense is cutting edge. (Graham, apprenticeship company)*

The implication is that the Tech City focus on recruiting graduates represents potential lost opportunities for both companies and young people. Furthermore, and as was reinforced by Andrew, the recruitment paradigm perpetuates “because of the way the recruitment pipeline works in those Tech businesses effectively is self-replicating” (Andrew, educator).

It is likely that several factors are involved in why the pipeline remains oriented to university graduates despite the positive alternatives presented by interviewees like Leslie, Graham, Thomas and Paul. For example, it may not be just about a degree but also how employers are, unsurprisingly, assessing candidates on the basis of who is most likely to provide the best ‘fit’ – and the most straight forward way to do that is to find someone with a similar life trajectory as oneself and one’s colleagues. We consider this point further in Section 5.1.

Barrier: as the recruitment pipeline is oriented towards university graduates there are not enough entry-level rungs on the job ladder

Opportunity: increasing recognition that diversity in the workplace can enhance innovation; young people can provide a creative and marketing edge with insights into their social demographic

4.5 LOCAL YOUNG PEOPLE ASSUME A UNIVERSITY EDUCATION IS NECESSARY

Even though the professional respondents’ opinions about the value of university degrees in the context of the digital tech industry were varied, the majority of young people who participated in the research were of the view that attending university and acquiring a degree was going to be necessary (though they might elect to undertake an apprenticeship or work for a couple of years beforehand). This is despite the significant financial burden that would come from needing student loans for university fees and living costs.

Although none of the young research participants personally knew anyone who worked in the Tech City cluster, one, Mark, a BTEC student, had a father working in the IT industry. Mark's opinion on the value of a university degree was very much shaped by his father's experience that not having one imposed a ceiling on his career trajectory – a 'cap':

... because my dad's in that industry and he didn't go to university he always complains that there's always a cap 'cause he came in at entry level and now he can't go any further because he doesn't have a degree

Mark's perspective is an important counter-point to the optimism expressed by some professional respondents about the extent to which young people without formal qualifications, or with certifications below that of a degree, can 'make it' in the tech world.

While the majority of the student cohort was of the opinion that going to university was necessary, there were striking contrasts in levels of optimism around the likelihood of finding employment afterwards, with a clear association between optimism, scepticism and the different subject streams from which the cohort was constituted: IT, BTEC, and Sociology. Specifically in relation to Tech City, IT students displayed high confidence that the advanced knowledge acquired through doing a university degree would be enough to find well-paid tech-based employment, and on that basis discounted apprenticeships as an option.

Bentner: Yeah, 'cause to me, uni is more advanced, isn't it, they teach everything that you should know.

Crazy8: Doesn't give you a guarantee though.

Bentner: Yeah, it's not guaranteed, but it's more advanced, like you have a better chance, if you're going to uni, and then coming back with a chance after going to uni.

Justin: It's like going to uni, and then coming out of it, you have a much better chance of getting a job.

Bentner: Yeah, it's like 80/20 if you go to uni.

Justin: Because only this year, they showed us some research of how far a uni student would go, and an apprenticeship student would go. And it's massive, it's like by the age of 35, an apprenticeship should have around £290,000 in the bank. Whereas a uni student would have around £360,000.

The association of higher education with higher earning capacity corroborates Mark's earlier comments that his father's career was being 'capped' by not having a degree.

The idea that socio-economic factors outside of a university education might have an impact on their ability to gain a job in Tech City (such as lacking social networks or possessing cultural norms like speaking in a particular way) did not resonate for the IT students. For them, their personal interests in all things 'tech' (gaming, coding, making their own computers) – in conjunction with strong confidence in the value and relevance of a university education in terms of acquired technical knowledge – were deemed to be sufficient to ensure successful entry to well-paid employment in an environment like Tech City. This corresponded with the opinion held by Leslie (educator), that the students who were confident, natural 'techies' and entrepreneurs, would thrive.

Given that most of the IT students were also keen gamers (with some wanting to be games designers), a topic for future research might be to explore the extent to which being part of an expert and international community of gamers contributes to their greater confidence. For the non-gamers, however, it is relevant to the study that young people are evaluating their educational and vocational options with a concern to

secure financial safety prevalent in their minds, which may explain the preference for a university degree. As Graham (apprenticeship provider) suggests:

I think actually young people of that age, 17, 18, 19, are actually by and large remarkably unadventurous, as they want security, they want safety, they wanna know that what they're doing is a safe option that other people are doing as well.

Unlike the IT students, the BTEC cohort were, in general, more cautious and sceptical about the extent to which a university education would enable them to overcome what they saw as fundamental hurdles of difference. When asked about what kinds of things might get in the way of working in Tech City, Mark expressed a concern that he would be socially isolated:

'Cause we've already talked about the kind of people that work there, I don't think I could associate with them as much and so I wouldn't be inclined to go work in that field because I'll be having lunch on my own (Mark, BTEC student)

Even though Mark was committed to going to university to study computer engineering in order to escape the career 'cap' represented by his father, he nevertheless feels that Tech City is not the place for him. This response brings home the point that perceptions of having insufficient social, but particularly cultural, capital – beyond that acquired through a university education – shapes local young people's thinking about Tech City as a place to work. The next section of the report considers these issues in greater depth, and explores the extent to which some of these concerns, often articulated in terms of class and ethnic differences, can be attributed to perception rather than reality.

Barrier: young local people assume that going to university is the best path to a place like Tech City

5. Soft skills and organizational culture

Examining people's understandings of whether or not a university education is necessary reveals the extent to which differences in cultural capital and associated communication difficulties negatively impact upon young people's access to training and employment in Tech City. This section of the report explores how the question of 'will you/I fit in?' intersects with self-replicating recruitment outcomes. It ends with a discussion of how to improve the frequency and quality of interactions between Tech City businesses and local young people, and, based on the information provided by the studies' student participants, recommends modes of *communicating Tech City* to local young people.

5.1 "WILL YOU FIT?"

The following interview excerpt is revealing as a key mechanism by which the Tech City recruitment paradigm is self-replicating and generates a particular organizational culture. Pursuing the question of 'will you fit?', a lack of common experiences renders each party unable to communicate with the other. The excerpt, from an apprenticeship provider, is presented in full because it evokes a sense of how specific interactions between Tech City employers and young local interviewees are symptomatic of a gulf in cultural capital:

*Well just culturally there is [.....] just that sense of it being really cool, 'are you in, are you in the club, **do you know the rules, do you dress the right way, do you know how to talk in the right way**'. Tech City is still quite a trendy and therefore exclusive, wants to be quite exclusive and cool [.....] and they'll also want to be people who are [.....] "we're really*

*open, we're really broad minded", but ...like all they're probably far less broad minded than they'd like to be, [...] one of the things that I've noticed, not just at Tech City but across the advertising industry, is that, someone who's been in the advertising industry five or ten years, **one of the ways in which they evaluate people coming in is, ... 'will you fit, will you be a good person to have around, will you kind of get how to get on on a Friday night when we go for beers after work, will you fit in with how we run meetings with what we find funny, what we joke about, what we complain about', all that 'will you fit?' is a really important part of the advertising industry. They all wanna work with people who are alike, to that extent, like them, and they have a tried and tested set of topics of conversation to work that out and typically with a young person it'll be around things like university, social life and all the rest of it, and actually lots of these kids don't have, have never had it, have never been, you know, if someone says "so, do you like music or have you been to any festivals", all these young kids say "oh 'cause I haven't been able to afford it, I've never had the money, I didn't come from a background where I could just shell out 250 quid for tickets [...] booze, food for a weekend, so no I can't talk about that"** and then the people who are in there think 'well god, this kid's either shy or they're not into this sort of stuff, or they're not cool or...', just because they **haven't had a shared topic of conversation and university would be another one**; what did you get up to at university, were you into this, were you into that. And therefore the people on the company side of things don't have, **they kind of pick off the usual conversation areas that they like to have, and find they're pulling complete blanks, they can't have a conversation and they don't know how to have a conversation with an 18 year old to evaluate whether they are a good fit or not.** (Graham, apprenticeship company)*

Differences in cultural capital – a university education and associated social life, the financial resources to participate in cultural activities such as music festivals, styles of dress, ways of speaking, shared jokes and complaints – are seen to make it very challenging for Tech City employers and young local people to communicate effectively *precisely* at the moment of negotiating access. However, it also needs to be acknowledged that companies do need to find people who can 'slot into' their organizational culture with minimal negative operational impact. Minimizing risk is a significant driver and shaper of recruitment strategies, particularly in small firms.

Barrier: methods for assessing 'will you fit?' can put young local people at a disadvantage

5.2 "I WON'T FIT IN"

Worrying about not fitting in is, of course, an experience common to people in all walks of life. Paul, a Tech City entrepreneur, wanted to demystify the sense that what goes on in Tech City is all about being a 'cool techie', highlighting that there are many other roles in the tech sector that require different skills. However, as Jeff (thinktank researcher) argues, despite a wide variety of roles, there is still a sense that, for some young people, "that's not for me":

The reason that young people from South Hackney aren't going into Tech City is [...] 'cause they perceive that young people from South Hackney don't go into Tech City. And so, it's almost an intangible...it's just that 'people like me don't do it'.

In this context there were, again, significant contrasts in how the different subject streams within the student cohort thought about issues of cultural capital and 'fitting in' to the tech sector. The IT students were once more the most confident:

Justin: I don't see the point of fitting in or anything, you know, what is there to fit in with. Everyone has their own style, everyone has their own way of doing things. Why should you change what you do for other people?

Bentner: And that's where teamwork comes in, 'cause you have to work in a team, and that means everyone. At the end of the day, you're going to make the same project, you're all creating something.

Falcao: [...] You don't have to fit in, you just have to be yourself and just do it.

R1: Okay, and so you have the conviction of your own selves, to take you forward, belief in yourself.

Bentner: Yeah, definitely.

R1: Okay, so you think that's a really important part of it.

Bentner: Being confident.

Crazy8: But you can't be too confident.

Bentner: No, but once they're confident, you're more motivated 'cause you know you know certain stuff.

This confidence acquired from knowing 'certain stuff' corresponds with Leslie's (educator) understanding of students enrolled in STEM streams more generally:

Where the young people have been confident they don't really care who they're working for. They're themselves, but it's more whether they've got the confidence to get out there and find themselves something or talk to people. So there might be an unconscious barrier, but they don't say, "Oh, we can't go and work for those people". Where we've brought people together it's gone really well.

Both of these extracts illuminate a sense of how intrinsic confidence from already having acquired a level of knowledge leads to a confidence in one's self that makes fitting in more possible. However, Leslie also points towards the issue of confidence "to get out there and find themselves something [...] talk to people", and it is here that the crux of the 'fitting in' issue lies. At another point in the discussion with the IT students, Falcao articulated how fear of failing at the application stage might put young people off applying in the first place: "Fear to fail, I suppose. Because say they go in and apply for these opportunities and they don't get it, it'll put them down, mentally" (Falcao, IT student).

For the BTEC students the picture was also more ambivalent around this moment of making contact through applying for jobs. When asked what might make it difficult for him to access work in Tech City, Abdur, a BTEC student, articulated a set of concerns around perceptions of Turks, Asians and black people, along with differences of class. It is salient at this point to clarify that the IT and BTEC segments of the student cohort had similar levels of ethnic diversity, with the majority of students being of Middle-Eastern, South Asian or African Caribbean descent.

Even though Abdur, like many of his colleagues, had not heard of the Tech City cluster prior to the focus group, he ascribed the sector with the same kinds of prejudices that he felt the London/UK job market to have more generally¹⁸. Abdur felt that he wouldn't get an interview because of his ethnic background:

*... I feel like obviously first of all we haven't got the qualifications yet and second of all that we **probably won't even get interviews 'cause when they see our name...in a way black***

¹⁸ Recently reported research highlighted that ethnic minority groups faced higher incidents of discrimination in the job market, <http://www.independent.co.uk/news/uk/home-news/british-muslims-face-worst-job-discrimination-of-any-minority-group-9893211.html> [accessed 02 March 2015]

*people still get treated a bit better than like, let's say...us **Turks and Asians** and that 'cause when they see our name, like, Erkan or Abdul they know straight away this guy's not English, but a black name could be called Caleb or John or something... he will get the interview and he'll get to prove himself to them, we don't get that chance [.....] I was born and bred in this country, I'm just not... [.....] I like white people, I haven't got anything against them, I've got white friends, but it's just the people in there that's...[.....] **I don't think they want people of our class to join...***

On following up these interrelated concerns of class and ethnicity it became clear that several members of this discussion group attributed exclusionary thought processes to Tech City employers and how they might perceive them:

Like I'm saying, if I go there I'm not going to go work there because I won't fit in. They're probably saying, "Oh, I don't want him to work here because he won't fit in with me", sort of thing (Mark, BTEC student)

Other than characterizing the Tech City workforce as largely white, male and middle-class, the majority of professional respondents were circumspect in relation to discussing the extent to which differences of ethnicity or class were impeding young local peoples' access to opportunities in Tech City. For Thomas (entrepreneur and tech trainer), however, ethnicity and gender imbalances within Tech City were perceived to be symptomatic of broader biases:

*... if you ask a spectrum of the Tech City businesses, 'what is the percentage of people who have been locally schooled in the local area, that you have employed?' It'll be around zero percent [.....] And, I think that's the fundamental issue [.....] I have a real worry, because whilst technology's a great equalizer and a great leveller, it can also be used to be a great divider, because you can create old boys clubs, except that this isn't old boys clubs, this is old class clubs, right? This is the social mobility issue, the symptoms of which, in technology are, predominantly male, predominantly white, low ethnicity. But the **key issue is class. So, which universities, which school did you go to,** [.....] it's very easy in a new market, in a new technology, to have this clique develop, and Tech City is probably the biggest clique I have ever seen in my whole life [.....] I'm not going to talk about ethnicity or sex or anything because I think those are symptoms. I think they're all from the same class, right? And I think that's the problem. Because then **the societal biases, selection biases that exist, pervade,** which means the symptoms are, white male, [and] underrepresented ethnic recruits don't feature ... (Thomas, entrepreneur/tech trainer)*

If Thomas's perspective is in any way accurate, the implication is that there is an unfortunate element of truth to young people's perceptions that ethnic and socio-economic differences play a role in how easy or difficult it is for them to access training and employment in Tech City. However, when asked whether they would gain confidence from actually knowing what Tech City people think rather than wondering about it and assuming the worst, even the most sceptical of the young respondents showed some optimism.

Concerns about 'fitting in' appeared to be centred on the nature of the initial moment of contact. If that first moment is a job application then young people may lack the confidence to apply. But, as Mark (BTEC student) suggested, "If interviews are more open and easy to get then I think I would be more confident to go for the job". Face-to-face meetings were also cited by both young people and professionals as vital to breaking down barriers; to be explored further in Section 5.4.

Barrier: organisational culture within Tech City influences who is employed

Barrier: young people may feel they won't fit in, related to how they think Tech City might perceive them

Barrier: worries about not fitting in undermine confidence to make first contact through job applications

5.3 ADAPTING SOCIAL AND CULTURAL CAPITAL FOR THE WORKPLACE

While, as noted above, diversity can have positive benefits for businesses in Tech City, differences in social and cultural capital are highlighted in the various ways in which young people understand the norms of a workplace. This can impact on employers' perception of young people from different backgrounds and their willingness to recruit from a potentially different pool of employees.

*We get guys coming in, because I do the induction thing, and they wear their coat. This is the first morning in their new, technically they're not in their job but it's the first – they're being paid – they're just with us for the first week, and they've got their coat on! And it's **completely obvious that no-one's ever said to them you should take your coat off.** So that sort of advice; but tough advice. (Graham, apprenticeship company)*

Graham's anecdote encapsulates the extent to which even if young people successfully apply for an apprenticeship or placement, some still have work to do in terms of learning basic behavioural norms that enable them to fit in. Communication may be an even more fundamental challenge to overcome given the linguistic diversity of Hackney and language inflected by contemporary youth slang. As Graham (educator) notes,

our feeling is that there is something about not speaking English when you are at home that has an impact on people's ability to present and to talk in an articulate way, in the way that the companies would recognise as articulate.

There is a stress here on what the *companies* would recognise as good communication. However, it could be argued that this definition needs to be broadened if those companies are to benefit from a multi-lingual workforce, particularly in terms of having employees that can connect with diverse consumers and bring innovation (as noted in Sections 4.3 and 4.4). This returns us, though, to the issue of time, as research into global workplaces indicates that while there are benefits to a diverse workforce, it also takes time to bring cohesion to the team and this is particularly related to communication.

Differences in communication styles also impact on the social networking that is key to Tech City recruitment. Concepts and products are 'pitched' at weekly events such as the Silicon Drinkabout and 3Beards' 'Don't pitch me bro'. The significance of networking to gaining access and doing business in Tech City was repeatedly reiterated in the interview data. That these events and activities might actively exclude local people, young or otherwise, was raised by Thomas (entrepreneur/tech trainer):

So I think working practices, the way people communicate in businesses, alpha male behaviour even if it's not a male, it's a woman, but you know, they need a bit of understanding of the local culture. Just thinking, a really blindingly obvious statement I'd say, say of a drinking culture, what happens if you're Muslim? I mean I'm not and I drink too much, but you know, do you feel excluded? What happens if you have kids? Feel excluded. If it happens to be a woman then it's all male sexism. Tech City has like got a lot of very male engineers who say some really inappropriate things ... it's not sustainable [.....] Like Silicon Drinkabout, there you go, just the word says it all. Ping Pong Fight Club,

there you go. Just think of all these events, just the name, you don't need to go any further than the name to realise the thinking around whether it's gonna appeal to local residents or not. Of course it [isn't].

Nevertheless, Andrew, Leslie and the other educators all talked about how improving young peoples' abilities to present themselves to potential training providers and employers was an increasingly important part of the educators' mandate to prepare students. But such training was not necessarily part of existing formal curricula, that is, it was being delivered around other course requirements.

While preparing students to access Tech City was one strategy, another was to bring Tech City to them on campus. When discussing the outcome of such events Leslie was enthusiastic, particularly noting the opportunity for young people to learn how to network. However, the most successful outcomes involved students who had basic social skills and the confidence to introduce themselves and talk to adults. Less encouragingly, Andrew spoke of how, when they have brought young people together with company representatives, low confidence affected how they responded, rendering students unable to make the most of the opportunity:

[...] if you are young and black, and I do think that young people temper their expectations, and they don't want to seem too keen and enthusiastic [.....] So I know some of my staff get very, very frustrated when opportunities are presented to young people to take part. I mean, these digital business days, we start a day with 50 people and we will end up with 40 people, because they get easily bored or they think it is not for them. (Andrew, educator)

Educators we spoke to off-the-record confirmed that because of assumptions or misperceptions about how they would be perceived, young people were often reluctant to attend in-house events designed to open up opportunities for them. This said, the relative successes arising from bringing young people together with Tech City businesses need to be acknowledged, and the IT students in particular referenced those kinds of events – even though they were not aware of Tech City as the general context in which those companies are embedded. The potential for breaking down assumptions on both sides are considered next.

Barrier: differences in understandings of workplace norms

Opportunity: contact between Tech City and students can begin a process of breaking down misperceptions

5.4 OVERCOMING MISPERCEPTIONS

Face-to-Face meetings

Educators were very positive about the benefits of 'meet-ups', whether they were tech-oriented, such as 'geek-a-thons', or more general career guidance events. A key recommendation of this report is that these *meet-ups ought to constitute the first point of contact between young local people and Tech City businesses.*

Face-to-face meetings and meet-ups are already happening because educators, trainers and careers advisors understand the significance of networking to the way that business gets done in Tech City. We referred earlier (Section 4.1.4) to how educators' personal networks were also implicated in their capacity to set up work experience placements for their students, and draw Tech City businesses to campuses for a 'look-see'. Importantly, meet-up events hosted by education institutions also provide 'ways in' for Tech City businesses who might otherwise not know where to start in terms of accessing local young people.

There is an interest in working with young people, but it's how do you, you know, you don't just go knock on the door of a school and say, "Can I come and give you a hand you need some pathways in, as well as pathways for the students out." (Leslie, educator)

Young people say, "if Tech City were to come to us"

From the perspectives of young people across the four groups in this study, connections with Tech City could be strengthened were Tech City to have initial contact with them on their 'own turf', boosting their confidence through providing information. As Abdur (BTech student) put it: "If they come first you will go back, but if you go there first you don't know if you're going to get rejected [by] them".

The question of 'who moves first' and fear of rejection are central to intercultural debate, and there is definitely a sense in which these 'two alien tribes', as Graham described them in Section 4.3, need assistance overcoming their differences: language, dress, social mores and norms, education, and interpersonal expectations. For many young people, going into Tech City is akin to stepping into the unknown, but also involves stepping into a realm perceived as potentially hostile because of their lack of qualifications or because of their ethnic backgrounds; and, as was seen in section 5.1, Tech City employers may struggle even knowing how to construct a conversation with young people.

Helen and James (sociology students) point to the work of other industries, such as banking, that deploy the strategy of meeting young people before they went to university:

James: I just got out of a meeting by the City Brokerage people who work for the banking industry over near Liverpool Street and they come in and have a sit down and talk to us. [...]

*Helen: Last year the same thing happened so a banking firm came to here, they offered us internships. **The only reason I was able to get on the course because they came to us.** It was really helpful as well.*

In addition to providing an opportunity for them to meet and mingle, face-to-face meetings would go a long way to making up for the generally fragmented knowledge about the different modes of working and income generation that Tech City enables. Marcus, a tech entrepreneur, without university qualifications, emphasised that in addition to Tech City needing generalists (problem solvers both digital and otherwise, with multiple technical skills and the agility and adaptability to apply them to different problems), it also provides an environment for people to turn their personal creative interests and skills into careers:

*... schools are not telling young kids of any age that there is a job filming the Arsenal football players for the digital channel of Arsenal TV which goes out on YouTube. No-one knows that. **Careers tutors in themselves don't know what jobs exist** so let alone do children know they exist. So **unless you're associated to this world in a meaningful way** then how are you to know? You're just **gonna assume** ... most people are only aware of the jobs that their family and friends have and predominantly family and friends are unemployed or out of work or on educational training then what hope do you have, and especially if you're kind of walking around and **what you see is white boys like me staring at a £2,500 laptop drinking beer in the afternoon looking like he's not working.** It's very hard for people to break into this arena [...] I mean there's a lot of **very talented, creative people in Hackney** who are doing incredible work whether that be as graffiti artists illegally, or whether just drawing in their room or **not realising that they can monetise that**, but realising that messing around on their iPhone making stupid videos that's one sizable ... I think people don't know that **you can actually engineer a life where you get paid to do the things you love and are good at.** And this area is really good at actually*

monetising that sort of stuff; finding people who will pay for that sort of idea and creativity. (Marcus, entrepreneur)

Marcus ties together the multiple barriers that we have noted in this section: fragmented knowledge; lack of role models; different social and cultural capital; Tech City's organisational culture and misperceptions of what actually gets done there. All of these barriers can be distilled to a need for a more systematic approach in connecting young people and Tech City, as well as finding ways that young people's and Tech City's cultural and social capital can be translated so that it becomes meaningful for the other.

Barrier: it can be difficult for companies to know how to access local young people

Opportunity: make meet-ups the first moment of contact

1) to improve mutual understanding between the two 'alien tribes'

2) to give young people the confidence to take the next step and apply

6. Communication preferences

As noted above, face-to-face meetings were considered a vital first step to breaking down barriers and misperceptions. With few exceptions, the young people in this study were completely unaware of any existing online portals (both websites and apps) through which Tech City internships, placements, apprenticeships and jobs were advertised. And such portals are obviously ineffective if young people did not know Tech City existed in the first place. Therefore, given the general lack of awareness about Tech City, what is done there and by whom, participants in this study suggested that companies do more to promote themselves using various channels, including the use of the non-digital.

*[...] go for **social media** or if it's **leaflets when you go to a tech store** or whatever or **just getting off a bus, and inviting us there and letting us see what they do**, I think that will help us to understand it more. (Shannon, Sociology student)*

Different groups of young people had distinct preferences for how Tech City can best communicate with them. YouTube videos were the preferred method for some, citing both data and hardware limits on their smart phones as well as a general disinclination to read tracts of text on websites, manuals or other documents. Facebook was a popular preference among others who were more likely to read websites to which they had been directed. However, apps were not popular because alerts and notifications were thought to be irritating.

Barrier: young people are unaware of existing information outlets where Tech City opportunities are posted

Barrier: there are different preferences for communication channels, including 'low tech' methods, that may require companies to take a more diverse approach to disseminating information

Opportunity: improving communication may raise awareness of Tech City activities and opportunities, enhancing the potential to find local recruits

7. Conclusions and recommendations

There is an inherent tension between the fundamental nature of Tech City's digital technology innovation and start-up model and efforts to render Tech City more accessible to young south Hackney residents. That model requires rapid technological change, high levels of technical knowledge, minimally staffed small companies, short business development time frames, and regular participation in a socio-professional network with its own organisational culture. This presents both a technical and socio-cultural skill set that young people may lack. The best way to attain this skill set has led to debates over the level of education that is generally considered the norm for Tech City employees (an undergraduate degree as a minimum), and whether alternative entry-level models such as apprenticeships can achieve the scale necessary to provide more opportunities for young people .

Barriers were also evident in the extent to which differences in social and cultural capital negatively impacted young people's access to training and employment in Tech City. Potential employers' means of answering the question of "will you fit in?" are bound up with the extent to which Tech City recruitment outcomes are self-replicating. At the same time, young people's assumptions that they won't fit in may be grounded in a lack of knowledge about what Tech City can offer and a lack of confidence. Students held diverse opinions on the relationship between 'fitting in' and socio-economic differences, with some seeing it as more of a barrier than others. It is clear, however, that face-to-face meetings in environments familiar to young people go a long way to breaking down barriers of misperception.

While recognising organisational impediments such as the speed of technological development and the need to mitigate against risk in human resources strategies, this report has noted evidence to suggest that diversity within its workforce could enhance innovation and productivity in Tech City. Therefore, to address the barriers identified in this study, and enhance the opportunities for both Tech City and south Hackney residents, this report makes the following recommendations:

- There is a need for a more systematic approach so that opportunities are not just reliant on ad hoc connections between individuals in education institutions and Tech City companies. This could include formalising networking and 'pitching' skills into vocational curricula; and regular, scheduled meet ups of Tech City businesses at schools and colleges, not only developing links with students but also teachers and careers advisors. Funding schemes or payment should be provided to support young people in work placements and internships. It is likely that a more systematic approach is necessary first in order to support a shift in opinion among young people, and influencers such as school and parents, that apprenticeships are a viable option.
- Building on initial contact, there is a need for companies to commit to formalizing the transition from 'meet & greet' events to placements (other business sectors provide examples of successful models). There is space for mediating organizations or brokers to facilitate the educator-Tech City connections and guide companies through processes of taking on trainees.
- Creating lower rungs on the job ladder (such as apprenticeships built around 'bundled' tasks) needs to be balanced with career development opportunities that prevent employees from non-graduate backgrounds getting 'capped' in lower skilled, lower paid work in the long term.
- There is a need for greater recognition of the benefits of diversity within the technology and creative industries. This may require training within Tech City companies to raise awareness of how organisational cultures can create barriers to diversity.

- Tech City companies may need to revise how they communicate what they do to attract recruits from a diversity of backgrounds. Communication channels and communication styles could be adapted to target different cohorts of young people.
- Recognising that there are risks to companies in start-up phase, larger companies and established SMEs could take the lead in upscaling internship and apprenticeship programmes.

AREAS FOR FUTURE RESEARCH

The processes of young peoples' decision making – the weighing up of the risks of each career pathway, and the role of family, peers and school in influencing those decisions – is an important area for future research. There is a policy and commercial imperative to understand why and how young people are making their choices.

The solution of 'hiring local kids with no degrees' could have other challenges that we do not yet know about. Future research could involve working in-depth with young people who have made it into the system, how that has been managed and what have been the outcomes for them and the organisation.

An in-depth study that differentiated between the different sectors that constitute Tech City (creative media, advertising, games development, data management innovation, hardware development, IT services etc.) is required to pinpoint where the best avenues may be for improving young people's access into the workforce; likewise, the more intractable barriers associated with cultural differences.

Further research should also involve evaluating the relative impact of deploying various media to communicate with different cohorts of young people. Whilst we have identified that there is a need for a range of communication channels, including low tech solutions, more research is required if Tech City companies are interested in targeting particular cohorts of young people in the future, IT students and self-taught 'techies', for example.