

Hoping to 'Invent Inventions': Gender and Technology in the Hopes of Boys

Abstract

Young people are often depicted as immersed in a world where digital and other technologies are ubiquitous and desirable. However, apart from earlier feminist analyses, the gendering of technology and the implications of this for young people's lives remains largely unexplored. Within the popular imagination there is the belief that boys and girls can now share, and ultimately achieve, the same hopes and aspirations. In this paper we draw on data from the *Tree of Hope Project* which suggest otherwise. This project invited 1071 students from primary school grades 1-6 to express their hopes for the future. While their hopes were multiple and varied, we focus here on one particular finding: that technology-related hopes were almost exclusively expressed by boys. This reflects the way in which technology remains chiefly coded as masculine in a social context where technology and technological expertise is highly valued. We argue that within the context of an increasingly technology-driven, information-based and ostensibly degendered society, it is important to discuss the implications of these gendered findings.

Key words: young people, children, hope, gender, technology, masculinity.

Introduction

The contemporary Australian youth/childhood landscape is often considered a place where young people are technologically savvy; where the use of ipods/MP3's, mobile/smart phones, MSN, YouTube, computer and gaming consoles and more recently, social networking sites is so common and expected it has become 'invisible' (White and Wyn 2008: 210-211; Livingstone and Bovill 2001). Researchers often focus on the implications of technology for children and young people's social relations and identity formation (for example, Sefton-Green 1998; Thomas 2007). While the impacts are disputed (are they more liberating or more oppressive and risky), such debates take precedence over discussion of the gendered nature of

contemporary digitalism—and the outcomes of this for present and future gender practices and relations. Life for contemporary children and young people is popularly perceived as both digital and degendered; characterised by equal opportunities for future success, regardless of gender. Paradoxically, it remains taken for granted that children's career hopes will largely reflect gender stereotypes: football players or policemen for the boys, for example, princesses or perhaps teachers for the girls. Such hopes for the future are not generally considered problematic however, because rarely are they 'taken seriously' by adults (teachers, professionals, researchers, politicians) (Baraldi 2010: 279). Rather, children's views, opinions and hopes are largely deemed fanciful, 'unrealistic' and irrelevant.

The *Tree of Hope* project (2006) and its longitudinal counterpart the *Tree of Hope: five years on* (2011) responds to the above discourse, specifically, to the growing awareness that '[f]ew children have participated in projects which effectively give them a voice' (Baraldi 2010: 276). Our aims were to (a) provide participants with an opportunity to publically express their hopes for their impending lives and for future societies and (b) to utilise what they have to say to better understand social change and the social/personal nexus, and to inform social policy and practise. This paper draws on findings from the initial project. We start with reference to two bodies of literature—first, we identify similarities between the sociology of youth and new sociology of childhood literature; second, we briefly sketch themes from the gender and technology literature. We then outline our research approach and method before presenting an analysis and discussion of how technology remains gendered in children's hopes for the future.

The sociology of youth and the new sociology of childhood: overlaps

A series of conceptual overlaps are evident in the sociology of youth and new sociology of childhood literature. These demonstrate various similarities in the lives of young people and children and a blurring of meaningful distinctions between these categories. Put briefly, youth sociologists: (a) critique the constructed youth/adulthood dichotomy, where young people are positioned as deficient adults (Wyn and White 1997; White and Wyn 2004: 48); (b) recognise young people as diverse, competent social actors and decision makers, whose lives are simultaneously shaped by their relations to social and institutional structures and power relations, and (c) highlight that trajectories to 'adulthood' are now non-linear and take longer to reach (Wyn and White 1997, 2004; Furlong and Cartmel 1997; White and Wyn 1998, 2004).

Similarly, childhood sociologists (James, Kenks and Prout 1998; Prout 2000; James and James 2004): (a) critique the way that children remain defined in contradistinction to adults; (b) highlight children's agency and their ability to construct their life worlds and identities (Bass 2010: 338) and shape social structures and cultures while simultaneously being shaped by them, and (c) argue that youth has extended its reach both upward and downward (Mayall 2002; Buckingham 2003; Cook 2004) as within our commodified, digital, detraditionalised society, children must become increasingly autonomous in mapping out their futures and reflexively constructing their own biographies (Jans 2004: 28).

Youth/childhood, technology and gender

As noted above, researchers argue that for the 'digital generations' (Buckingham and Willett 2006) manifold technologies are completely ordinary. Both young people and children are positioned as 'adolechnics' (Holden 2006) and 'digital natives' (White and Wyn 2008: 210) and are recognised as both consumers and producers of digital media (Wyn and White 2008:

211). They communicate via MSN, publish blogs, upload photos, videos and other information to YouTube, MySpace and more recently facebook. Less is known however, about young people's and children's hopes and plans to work in the technology industries or to engineer the associated and requisite 'technological tools' (Castells cited in Nilan et al 2007: 235).

What is known, is that despite recent increases in girls participation rates (Gilbert 2001: 91), far more boys than girls choose to undertake science, technology, maths and engineering at all educational levels (Parker, Rennie, Fraser 1996; Barton, Tan and Rivet 2008). Young women are therefore less likely to envisage themselves and hope for futures as scientists or engineers. Current changes in such gendered trends are most likely to be found among children—who have no experience of life before the digital revolution. However, our data suggest that despite its ostensible omnipresence and attraction, the idea of a future in technology remains far more available for appropriation for young boys, than young girls. In fact, we found that such hopes were almost exclusively spoken about by boys.

Theoretical explanations for this are well established in feminist writings where it is argued that like gender, science (including technology, engineering, even cyberspace), is socially constructed (Harding 1996: 3). More specifically, science has been discursively 'genderised' (Lykke and Braidotti 1996: 4) into a 'masculine strait-jacket' (Harding 1996: 3) that excludes femininity—which has become identified with non-technological and non-scientific. From childhood, boys and girls are provided with different access to, exposed to different ideas about and therefore develop different attitudes towards and levels of confidence with technology (Kirkup and Smith Keller 1992). In short, science and technology are the product of a gendered culture where men are portrayed as scientific experts but women are not and

where girls are not expected to take on a 'technical view of the world' but boys are (Benston 1992: 39). Thus, from childhood boys are more likely to develop a view of themselves as authorities; as capable of gaining technological expertise; as better able to design, invent and build.

Methodology and Methods

The *Tree of Hope* project employed a qualitative, strengths-based approach which entails an optimistic attitude towards children's assets, knowledge and capacities (Rapp, Saleebey and Sullivan 2005). Researchers created a space for the participants to articulate their hopes, safe in the knowledge that these would be respected, not trivialised. Different strategies reduced power imbalances, for example the children were explicitly located as the experts, were empowered to choose whether to participate in the project and whether to have their hopes displayed in the final exhibition, held at a local museum.

We accessed participants through local primary schools in the Launceston, Tasmania area and the final sample comprised of 1170 children from grades 1-6, from 45 class groups and 15 schools. To counterbalance previous adult-centric research with children (Page 1998), in-class activities were participatory, task-based and involved three elements. First, the researcher sat on the student's level and opened dialogue about the importance of their views. This inspired smaller group discussions about what 'hope' might look like. Children were encouraged to think about hope however they saw it: about themselves, their families, friends, local communities, Australia, or the world. Participants were then invited to express their hopes through writing and creative expression on a provided paper leaf template.

We used content analysis to detect the presence and nature of technology in the data. This provided a method for capturing both explicit and implicit instances (Sproule 2010) of technology in an objective and systematic way. Words such as ‘scientist’ and ‘computer’ were coded as explicitly related to technology. Hopes about driving or building pieces of machinery were coded as implicit references. Content analysis revealed clearly gendered dimensions to the data.

The findings: boys, hope and technology

Despite the focus on technology and gender taken in this paper, the children’s hopes were varied, multiple and ranged from the personal to the local and global. Central to our overall findings is that while children raise social issues such as war, poverty and pollution, they are not pessimistic. Rather, most are hopeful, believing we will find solutions to these problems in the future. Often, as we discuss below, they see science and technology as the answer to these problems. We argue elsewhere (Bishop, Willis and West, 2011) that such belief in positive futures transpiring is important as it is fundamental to a sense of wellbeing.

Mastering technological tools

Technology is an identifiable theme in the children’s hopes. The gender disparity however, is patent; references to technology are absent from the girls’ accounts. Hopes for more advanced automobile technology to arise—and furthermore to be the owners and drivers of this technology—were frequent. Thirteen boys expressed what might to some readers be considered whimsical hopes for ‘flying’ or ‘hover cars’ to be invented: “*To have a hover car as an inventor!*” (Jake 1/2¹). Reflecting the Australian context of the research, some even

¹ The number indicates the classroom grouping – in this case Jake was in a composite class of Grade 1 and 2 children

expressed their hope “*that there was hover utes in the future*” (Jordan 3/4). The boys enjoyed drawing themselves at the wheel of—as the masters of—this new technology; the girls did not draw themselves in positions of technical mastery. This tendency for boys to draw themselves mastering tools and various pieces of equipment such as bikes, sporting bats and balls was evident throughout the data (see Bishop, Willis & West, 2011).

References to mastering technology may reflect the way in which young people’s conspicuous consumption of the ‘latest’ pieces of ICT and other pieces of technology and machinery plays an important role in the construction of personal identity (Nilan et al 2007: 229). Inability to ‘keep up’ (increasingly difficult in a time of planned technological obsolescence) leads to the demarcation of ‘flawed consumers’ (see Atkinson 2008).

However, we argue that the references above to owning (and having control over) hovercrafts (in particular) chiefly reflects the way in which technology remains coded as masculine (Kirkup and Smith Keller 1992: 37) and the ways in which specific tools can be appropriated as a means of expressing masculinity—not femininity.

Using technology to fix the future

The boys often hoped for the development of ‘more’ and newer technologies. This demonstrates their view of technology as important and beneficial for their lives, their families and beyond. Mathew, for example, hoped simply that the future brings “*More technology*” (5/6) and Jacob hoped to “*Get more technology for my family*” (3/4). Some of the older children were more specific. Aware of social and in particular environmental issues, they saw technology as the solution for these. A number of the boys, for example, perceived advanced robotic technology as able to perform a social good: “*To make robots to help people around the world and Australia*” (Tristan 1/2). Similarly, Nathan hoped to be

“Driving a hydrogen powered car so it doesn’t pollute the air” (5/6). Such an understanding privileges the idea of technology as a social good per se, and a view that technological responses will provide solutions to contemporary problems.

While some of the boys expressed this general desire for more technology to be invented, others (and again none of the girls) envisaged themselves in the powerful role of inventor. Sam, for example, planned to *“invent inventions” (1/2)*. Daniel was more explicit. He hoped to be personally responsible for developing a new technology able to fix a current social/environmental problem: *“that I will make a car that runs off pollution” (5)*. Certainly many of the girls were also concerned about pollution and hoped for solutions to arise. Their hopes, however, did not reveal the same faith in technology as a fix for the future.

Hope for a technological career

Even when not related to flying cars or social problems, the boys saw technology as integral to their future. While the participant’s hopes were often selfless and global, many were also quite personal, for example to pursue a particular career, ranging from the Arts, health, law and order and architecture. Again this aspect of the data is differentiated along gendered lines. Unlike the girls, none of the boys hoped for success in the beauty, hairdressing or modeling industries. Reflecting our earlier discussion about the genderising of science, technology and cyberspace (Lykke and Braidotti 1996), no girls in the sample hoped for a future in science, technology, computers, gaming or the motor industry.

Izaak imagined himself as scientist. His expressed hope was to become *“a scientist and create a formula that allows me to shape-shift” (1/2)*. Tsheopo hoped *“To become an aerospace engineer” (6)* and Max aimed to work at the *“Head office of Apple Centre” (5/6)*.

Reflecting the gendered nature of computer and gaming rhetoric and its media portrayal, Ethan aspired to become “*a computer guy*” (2) and Nick hoped “*To be a video game designer*” (5/6). Suggestive of the ongoing portrayal of men, more often than women, in positions of power, status and authority, some of the boys aimed higher than simply working within these industries; they hoped to be in charge. For example Dayne planned “*To become the head of Mindset*” (5/6).

Conclusions

We did not see the changes we might expect among today’s ‘digital generation’. Rather data from the project provides evidence that young people’s hopes for the future continue to be shaped by an enduring, gendered culture and by the dominance of technological determinism. Despite the prevailing view about the ordinariness of technology rendering it invisible, and that accessibility to new technologies has resulted in them being degendered, our research demonstrates that this is not necessarily the case. The gendering of technology has a series of implications for the future. In particular, the concentration of technological knowledge and skills among boys and men provides them with particular forms of power and control.

The data presented above demonstrates that technology is imbued in the boys hopes; in their views of the world, in a way in which we did not see with young girls. This suggests that efforts can be made to deconstruct the hegemonic construction of science, technology and ‘invention’ as a masculine enterprise. It is possible, however, that in the intervening five years things have changed, particularly with the extremely rapid growth of social networking sites such as facebook. It is for this reason that our longitudinal study, *Tree of Hope: five years on*, aims to interrogate these findings further.

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