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Generational Differences in Beliefs about Technological Expertise

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Abstract: Drawing on Bourdieu's (1990, 1998, 2000) socio-cultural theories, this article explores the construction of technological expertise amongst a heterogenous group of New Zealand teenagers, specifically in regard to their home computer use, which for many of them is their primary site of leisure. The qualitative study involved observations and interviews with eight teenagers aged 13–17. All the participants considered themselves to be technological experts, and their peers and/or their family supported this self-description. This article examines differences between the concepts and value of learning, expertise, and technology, and how they are valued differently between generations. After discussing the habitus (dispositions) prevalent in the field of out-of-school leisure of teenage experts, the notion that the participants are addicted to their computers is explored. This article highlights a tension regarding how practice in the field is conceptualised differently by digital insiders and digital newcomers, and discusses some implications for educators.

Keywords: technological expertise; Bourdieu; habitus; teenagers

INTRODUCTION

This article identifies similarities and differences between digital insiders and digital newcomers (Goodson, Knobel, Lankshear & Mangan, 2002), and seeks to explain how the habitus of this heterogeneous group of New Zealand teenagers disagrees with traditional notions of expertise, but sometimes aligns itself with adult notions of expertise. Three dispositions will be explained that comprise the habitus of the teenage technological experts in the field of out-of-school leisure.

This article formed part of a larger research project (Johnson, 2007a) that focused on the development of robust understandings of what technological expertise - specifically home computer use - means in settings of youth culture and leisure. I did this by looking at what was occurring in non-school settings, seeking to identify and inform the constructions of what some teenagers consider to be expert use of technology. In a previous article, I discussed the activities that constituted the social practice in this field of out-of-school leisure (Johnson, 2007b). These included website design, synchronous and asynchronous communication, game playing, information searching (surfing or browsing) for personal interest and for schooling activities. These activities I have termed as 'cyber-relations' (Johnson, 2009, 2007a) and were undertaken mostly as an individual practice, though were also completed in collaboration with others positioned in the field including gamers, other experts, peers, unknown online persons, and others of similar economic standing who had access to and use of computers and the Internet.

Findings from the cognitive psychology field pertaining to expertise have covered diverse practices such as chess, memory performance, typing, and medical analysis (e.g. Chi, Glaser & Farr, 1988; Ericsson & Smith, 1991; Sternberg & Grigorenko, 2003). Many such studies are positivist and quantitative (e.g. Ackerman & Beier, 2003; Ceci, Barnett & Kanaya, 2003; Johnson, 1988), with some designing models from which they claim how expertise is performed through linear means (e.g. Chi *et al.*, 1988; Dreyfus & Dreyfus, 1986; Ericsson & Smith, 1991).

Critics of this view argue that such perspectives are fraught with limitations, as humans (especially adolescents) are not sequential and undeviating (Rushkoff, 1997). Similarly, it is contended that discourses of developmentalism in adolescents imply a "linear progression from the simple to the

complex and from the irrational to the rational” (Kenway & Bullen, 2001, p. 3), and do not give attention to the “multiple and complex ways that adolescent and adult discourses interanimate each other” (Alvermann, 2002, p. viii). In contemporary contexts, understanding expertise must take account of perspectives such as Rushkoff’s (1997), that see youth as self-determining and comfortable with non-linear, complex experiences (an exemplar of which is what they experience in front of a screen). It remains that dominant models of expertise are those from the field of psychology. Instead of employing psychological frameworks that are focused on essentialist notions of expertise acquisition, it was important to employ a sociological framework such as Bourdieu’s (1990, 1998, 2000) in order to focus on the multiple ways that expertise is developed.

LITERATURE REVIEW

Barlow (1996) wrote about ‘digital natives’ and ‘digital immigrants’ in order to distinguish between those who have always been immersed in digital media (specifically personal computers) and those who have been introduced to it at some point of their lives and are newcomers to its use. The phrase ‘digital natives’ is sometimes regarded as problematic from the standpoint of post-colonial theorists. This relates to the suggestion that ‘natives’ have some inherent character, an awkward suggestion, as in literature the ‘essential’ native has been long positioned in opposition to ‘immigrants’. Of course, when using the phrase ‘digital natives’, the ‘essence’ ascribed to the native is designed to be a positive recognition of particular sets of skills (that is, computer competence), but the historical pattern of ascribing differences between natives and immigrants/invaders makes the easy use of these terms unlikely. For this reason, I wish to employ the terms digital insiders and digital newcomers (Goodson *et al.*, 2002), as these terms allow for multiple experiences, rather than just being at one extreme or the other of a continuum. It is this distinguishable difference of being either a digital insider (always immersed in digital media since birth) or digital newcomer (introduced to digital media) that I am referring to in this article when I discuss generations and/or a generational gap.

I initially searched for people who were deemed to be ‘technological experts’, and then if the initial contacts needed prompting, I suggested ‘those who can do anything on a computer’, because I wished to focus on digital technologies, recognizing that technology can include artefacts such as a toothbrush, toaster, car, horse drawn buggy, or a bed. While it is beyond the scope of this article to offer a comprehensive review of sociological definitions of technology, I make the following points I consider important in this brief review. Technologies are socially shaped (Hacker, 1989; Wajcman, 2004; Webster, 1996) by cultural structures, processes and constructs. They are represented in part by physical artefacts - machines and the mechanical (Hacker, 1989), and include “human activities and know-how” (Webster, 1996), as well as social relations (Hacker, 1989). Wajcman (2004) claimed, “Technological change is a contingent and heterogeneous process in which technology and society are mutually constituted” (p. 107) as they seamlessly evolve and are negotiated and struggled over (Webster, 1996). When new artefacts arrive in a workplace, they are not gender-neutral as they quickly acquire a gender by “association with its user or its purpose” (Cockburn, 1985, cited in Webster, 1996, p. 58) and new artefacts are gendered by the expected tasks and potential of its producers and its proprietors (Webster, 1996).

From this point of view, it is a myth to say that the computer (as a technological artefact) is neutral (Bromley, 1998; Woodfield, 2000) as Bromley (1998) highlighted that, “It really should come as no surprise if information technologies turn out to benefit primarily the most powerful actors in society” (p. 15). This broad interest in computing as a practice performed and constructed through daily, personal experience shaped the analysis conducted in the larger project that informed this article.

THEORETICAL FRAMEWORK

As identified in Bourdieu's theories (Bourdieu, 1990; 1998; 2000; Bourdieu & Wacquant, 1992), intersections of habitus and capital (economic, cultural and social) generate the practice found in fields. The field that I am referring to concerns the cultural practices found around the expert use of technology in out-of-school leisure.

Habitus is used to explain the socially produced dispositions and ways of being. Bourdieu defined habitus as "that presence of the past in the present which makes possible the presence in the present of the forth-coming" (Bourdieu, 2000, p. 210). Dispositions are formed by history; they are made, not inherent, inculcated from the past into the present (Bourdieu, 1990). By inherent and inculcated, I mean that the social agent's dispositions are embodied and internalised in the social agent's view of the world, and in ways of moving and acting in the world. The inculcation of dispositions (Bourdieu, 2001) happens throughout childhood as children watch and listen (and physically experience their surroundings, environment and relationships). Lovell (2000) claimed that, "Habitus names the characteristic dispositions of the social subject. It is indicated in the bearing of the body ('hexis'), and in deeply ingrained habits of behaviour, feeling, thought" (p. 12).

The following research question guided and focused this article: How does the habitus of this group of New Zealand teenagers challenge and/or agree with traditional/adult notions of expertise? I argue that the way the participants' attained computer expertise can be attributed to their habitus that has generated and shaped the action in the field. Special focus is then given to the dispositions (habitus) generally found with the participants.

METHODOLOGY

Participants were selected using snowball sampling (Patton, 2002), a strategy that relies on persons to recommend others who fit certain criteria, and who were beyond the range of people who I knew personally. As it was not an aim to obtain a representative sample, it was fitting that I used this form of purposeful sampling (Patton, 2002), where information-rich cases were selected for in-depth study.

Semi-structured interviews and observations were employed to collect the data over a period of four months in 2005. Interviews and observations were conducted mostly in the participants' homes. All of the participants lived in a provincial New Zealand city of approximately 100,000 people. Informed consent was obtained from both the participants and their parents; pseudonyms are used to protect identification. Initially, I conducted an observation with each participant. The observations were approximately an hour long each, and consisted of me observing the teenagers using their home computer in a manner that they described as typical of their use on any given day. During the observation, I recorded what they did, and how they did it, and recorded most of what was said to me. The second session was an interview. The third session usually combined an observation and an interview. Through the use of these semi-structured, open-ended, semi-formal interviews, I encouraged participants to explain their understanding, experiences, and attitudes. The content of the qualitative data collected was analysed according to the key themes raised within Bourdieu's social theory, including (but not limited to) habitus, field, and capital. Searches were made for patterns, themes, and categories. Patton (2002) claimed the aim of such an analysis was to determine patterns, inter-theme consistency or convergence, and contradiction, or heterogeneity.

Table 1 summarizes some of the demographics of the eight participants in this study.

Name	Anne	Charli	Chris	Jake	Joe	Lisa	Tom	Tim
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Sex	F	F	M	M	M	F	M	M
Age	14 – 15	13 – 14	13	16– 17	14	15 – 16	16 – 17	16
Location of computer	Kids' wing	Hall	Dining room	Kids' wing	Dining room	Lounge	Bed-room	Bed-room
Type of internet access	Broad-band wireless	Dial-up	Dial-up	Broad-band	Dial-up	Dial-up	Broad-band	Broad-band
Year	10	10	9	12	10	11	12	12
Per- formance	Average to above	Above average	Above average	Average	Above average	Average	Above average	Average
Type of school	Public girls years 9 – 13	Public co-ed years 7 – 13	Public co-ed years 9 - 13	Public co-ed years 9 - 13	Public co-ed years 9 - 13	Public co-ed years 7 – 13	Public co-ed years 9 - 13	Public co-ed years 9 - 13

Table 1 – Summary of Participants

Each of the five boys attended the same co-educational secondary school. Two of the girls attended the same secondary school (different to that of the boys), while the third girl attended a public girls only secondary school. Participants were not selected on the school they attended. It was not a purpose of the study to obtain a representative sample.

LIMITATIONS OF THE STUDY

The time spent by the teenagers on the computer was not quantified through observations or external measures, but instead, was informed by the participants stating how much time they spent each day or week on the computer. This study did not address the moral panics and concerns associated with access to unsavoury websites. I did not interview the parents about their understandings of their child's expertise and whether they viewed their children's usage of computers as possibly unhealthy. The parents were not questioned about the ways they monitored their children's use of websites. Future research could focus on parents' understanding, and triangulating that with what the teenagers understood about their parents. However, what I did do was focus on traditional notions of expertise evident in published literature, which was arguably inherent in the participants' reporting of their parents' opinions. A limitation of this study is that, because I did not interview the parents, I am unable to discuss how much parents have influenced the children's habitus within and without this field. It was beyond the realms of the study to compare the parents who did have an interest in and positive influence in their children's use of computers with those that did not; this statement itself is arbitrary and dependent on the views of the participants.

Dispositions (habitus) of the practice in the field

It is important to identify the way the notion of the field of out-of-school leisure changes when it is considered as a site involving adult and teenage interpretations of practice. Through the data gathering and analysis process, I found three key dispositions in this field of out-of-school leisure that every participant adhered to in their practice.

The three key dispositions were:

1. Time;
2. Experimentation;
3. Flow.

These are the accepted ways, or *doxic* ways of thinking and acting in this field by those who are positioned in it (Lovell, 2000; Grenfell, 2004). These dispositions shaped the performance of expertise in this field. What follows in the description of each disposition is what can be accredited to each and every participant as helping them to become technological experts: these dispositions constituted their habitus.

Time

Practice in the field of out-of-school leisure is identified by the time spent experimenting with computers. All of the participants referred to the amount of time needed to become an expert. The following statements illustrate how each participant believed they became an expert through the cumulative effects of spending time on the computer. In order to become an expert, one has to “become more and more experienced” (Anne) from using computers since an early age (Chris), or spending a lot of time per day on the computer (Jake). Tim was pragmatic about gaining expertise and stated “. . . if you use something a lot, and you know a lot about it, and then done it for a long time . . .”.

Charli explained that she became an expert over time from exploring and learning from experience: “It was over time really, just from like going onto the other links and sites and stuff and exploring really. Yeah, just exploring. And you learn with experiences”.

When I asked Joe about his current level of expertise, and how he got to that level, he replied, “By probably spending time, by spending time reading things and getting other people to help me, for example, my dad, just spending time on the computer It's just time, yeah, and just dedication, sort of, yeah”.

Tom was asked, “So it's about having time?” He replied, “Yeah, having the time and patience to read”. He thought that other people could become an expert in the same way he did, and said, “Um yeah, it's not that hard. Just do it on the [Inter]net”.

All of the participants spent a significant amount of time using computers, and this was possibly an inherent part of being a digital insider, that is, the participants had always been exposed to screens, media, technology, and computers. It is feasible to state these digital insiders were so used to technology and media being part of their everyday life that they did not think twice about spending a lot of time using a technological artefact. Their lives are infused, indeed permeated with technologies and the everyday use of them, especially the computer. It is not only an accepted way of thinking and acting in the field (to spend a lot of time on the computer), but it is an embodied way of life for these digital insiders. It is possible that young people of similar age to these participants who are disinterested in digital technologies perhaps could be considered to be ‘digital outsiders’ (Johnson, 2009).

Bereiter and Scardamalia (1993) discussed some of the history of research in expertise and presented basic premises about the nature of expertise, including that many cognitive psychologists believe expertise comprises knowledge, that skill is viewed as a type of knowledge, and that it may take 10,000 hours or (an arbitrary figure of) ten years for a person to become an expert in a field. While this study sought to confront traditional, cognitive psychological approaches to understanding expertise, it may look as if the findings from the participants in this study could be aligned with cognitive psychological findings. However, at the ages of 14-17, it is unlikely that teenagers would have spent 10,000 hours or ten years becoming an expert as those in the fields of chess, medical analysis, or memorisation do. Indeed, it is possible that some people would not consider teenagers as being capable of being considered an expert due to their age. What may be inherently different is that the nature of technological expertise is different to other researched (previous) fields of expertise because of the changing nature of technology in this digital age. Interacting and engaging with technology in the 21st Century is very different to playing chess, speed typing, and memorising lists of information. Another facet to contest this argument is the notion that a lot of time is not available to everyone, neither is a lot of access, nor are some technologies (Johnson, 2004, 2009).

Experimentation

The most apt term to generally describe what all of the participants do, despite the different ways they described concerning how they go about learning is *experimentation*. This could be represented in use of the term *bricolage* (Turkle & Papert, 1992) or ‘tinkering’. In regard to what the participants do while being ‘on’ the computer and spending time using the computer, all the teenagers used phrases such as “mucking around” (Jake) or “fiddling around” (Lisa) in order to learn, and in order to gain expertise. When the participants were asked about how they went about learning new things on the computer, they answered by giving examples of their experimentation in practice:

- Anne: ‘Oh, what does this button do? Oh, look!’ And that sort of thing, or by accident.
- Charli: When I stuff up . . . I know like okay, I'll go back and do this thing cause this is sort of what I do . . . and what most people do, and I'll always try that. Like I sort of have like an idea of what to do with everything.
- Joe: Y’know, just browsing along and trying new things, and yeah, exploring, yep.
- Tim: I just try things and figure it out, and just try it, just keep trying until you get it right, yeah.

While Jake had also learnt from others, he spent much of his time learning things by trial-and-error. He said of others: “I know a couple of people who've learnt by just mucking around and seeing what it sounds like, without any proper training or anything like that”. In an observation of Jake, I recorded, “Much of what was done tonight [was done] by compensating for lacking something, or trying something else because something wasn't working, or modifying something to make it fit, etc. A number of things went wrong, or crashed, or cut out. Jake had to find out what was going wrong and fix it.” All of the participants used experimentation as their main way of learning and solving problems, or through trying to achieve something when they were using a computer. In an observation of Chris, I recorded, “After those results were received, he then added ‘download’ to the search. He comments ‘I'm not getting anywhere’ and tries another route.” The amount of time spent online, offline, and experimenting means that their knowledge, and therefore their expertise continued to increase and develop, especially in order to maintain their level of expertise.

According to the participants, the time spent experimenting led some of their parents to wonder if their children were addicted, possibly considering their social practice to be unhealthy. The participants made comments regarding their parents’ concern, for example, Tom’s dad regularly said to he and his brothers to “go outside and get some vitamin D”.

It is interesting that the teenagers reported perceptions of parents’ arguments against increasing time of computer use are generally simplistic. The notions seem to be aligned with the argument that “it's not what we used to do before” and therefore it is of moral concern. I suggest we need to reframe the way we view the field these participants have placed themselves, in order to understand the value of their practice, of which the addictive tendencies can be described as doxic and acceptable because it is part of the trajectory towards expertise. There seems to be a tension between one set of activities (time on task, pleasure, etc) being read as a natural trajectory to expertise or an unnatural trajectory to social malfunction, deviance, or ill health. The progressive nature of the practice lends itself to being thought of as addictive, but a level of dependence – or a close, regular engagement with a technology – is somewhat doxic in this field, and sometimes arrives as a natural and pleasurable result of *flow* (a disposition in this field). I now focus on the *flow* inherent in and resulting from this engagement and experimentation.

Flow

Though the term *flow* (Csikszentmihalyi, 1988) comes from a psychological field and initially presents itself as an unlikely fit with Bourdieu's theory of practice and with sociology (Bourdieu, 1990; 1998; 2000), I use it because it aptly describes the practice and performance of expertise in this field. However, flow does not describe how expertise is obtained; it describes a phenomenon that artists, athletes, and scientists experience when they are absorbed in an activity that proves to be progressive in nature, and which provides sustained pleasure (Bereiter & Scardamalia, 1993).

Common characteristics of flow are listed below:

- Total absorption in the activity;
- A feeling of being in control;
- A loss of self-consciousness (“which Csikszentmihalyi attributes to all mental resources being invested in the activity, so that none are available for self-reflection”, Bereiter & Scardamalia, 1993, p. 102);
- A loss of the sense of time;
- A balance between ability and challenge (so that there is neither too much anxiety and frustration, nor too much boredom); and,
- Sustained pleasure, which becomes a motivator for more flow, which could result in the feeling of enjoyable addiction (Bereiter & Scardamalia, 1993, p. 102–103).

From my observations and interviews conducted with the participants, the common characteristics of the flow experience can be attributed to each one of the participants in their practice within this field. It is actually a disposition that constitutes their everyday engagement with computers and associated technologies. The nature of their practice is ever-increasing and progressive, so of course the loss of sense of time, and the loss of self-consciousness - both of which could be seen as addictive practices by parents - can be justified as part of the practice in the field. The sustained interest that results from the balance between ability and challenge means that their practice consists of few boring experiences. If their practice were boring by the standards of the field, they would not continue with it. The experience or disposition of flow is part of the teenagers' trajectory towards expertise, but also corresponds with the other dispositions in the field, and the notion of addiction.

Of course, these findings are not generalisable due to the small sample size. The key purpose of this article is to explore the gap between insider and newcomer views of expert practice, and it is that notion I now take up in the discussion.

Participants' interpretation of parental understandings

The reason for my interest in the parents is that I believe Bourdieu (1990, 1998, 2000) would look at parents as they contribute significantly to the habitus of these children (who are digital insiders), and they help to structure fields, especially the field I have focused on. I present five varied explanations of parental influence:

- Chris' mum had limits on his computer time, and limits of the ratings of games he played and that she bought. This was in comparison to his father who did not seem to.
- Charli said, “In the holidays, mum's not home so I can go on it anytime I want”.
- In reference to his game-playing, Tim said, “Mum and Dad say it's a waste of money but [smiles] not for me, it's not”.
- Joe's parents asked him to type things up for them on the computer: “They're pretty confident in me . . . and how efficient I use [the computer]”.
- During the course of the fieldwork, Tom's mother banned him from using the Internet for six weeks, because he had not handed in a school assignment on time. In regard to the amount of time Tom spent on the computer, he said of his parents, “Um, if they see me doing a website, they don't mind, but if they see me playing just games constantly, they

think it's not good, yeah". When he has not banned, Tom had unlimited time on the computer, especially as it was in his bedroom, and his use was not monitored by his parents. There is a clear gap here between insider notions of expert performance being tied to experimentation and time, and newcomer perceptions that it is time on a particular *type* of task that is of value. In the cases of Chris, Charli, and Tom, their mothers were the monitors of how much computer time was appropriate. No participant mentioned their father as the one who had placed limitations on the amount or type of computer and gaming use. An exploration of the types of Internet monitoring that varies between mothers and fathers would be useful.

I now highlight how according to some of the participants, they or their parents believed they were addicted to the computer (or tended to exhibit addictive-like behaviours in relation to the computer). Not all of the participants discussed addiction, nor was it a purpose of the study to determine what addiction was and is in the lives of these participants. This notion of addiction is discussed because it was a recurring theme in the data, and not because the parents said their children were addicted.

Addiction

An initial tension between insider understandings of expert behaviour and how expertise is performed, and newcomer understandings where some kinds of computer activities are more highly valued than others, has been outlined above. This is a distinction between 'work' and 'gaming' that privileges work over leisure. In this context, the amount of time spent on a task is ascribed different meanings depending on the motivation for the task. In addition, there is a point at which time on a computer becomes read as indicative of some level of extreme behaviour – in this case, addiction.

The recurring notion of teenagers' addiction to computers was one of the dominant features of the field of out-of-school leisure. The three females denied being addicted, though two of them joked about it; one male admitted that he was addicted; one male denied addiction; and, the other three males did not mention addiction. The amount of time spent on computers was monitored in different ways by different parents, perhaps in a bid to ward off addiction. The following paragraphs describe the participants' thoughts on addiction to computers.

Anne said she was "not really" addicted, but as stated above, she and her dad were "addicted to *FreeCell*TM". Anne said none of her friends were addicted to computers or the Internet. I did not ask Anne what she thought addiction was, but she referred to addiction as a joke. Her saying that "she couldn't live without it" is probably more indicative of her dependence on (or daily use of) the Internet.

Charli's parents limited her hours on the Internet because as Charli said, "cause they think that I like I just get addicted to it, and it's unhealthy. I don't agree with that". In a later interview I prompted, "So you mentioned to me that you were addicted to the Internet?" Charli replied, "That's just what people say I am but I'm not. Well my mum and dad say I am". Charli defined addiction as:

Like you can't go a day without, like you can't do anything without being, like without going on it. It's like an alcoholic; they can't get through a day without like having a certain amount of drinks or something. It's like somebody can't go through a day without being on the Internet for a certain amount of hours or something. Yeah.

Charli referred to addiction as a serious matter that she did not believe she could be fairly accused of. Lisa referred once to addiction as a joke, in reference to her mother, whom she said was "addicted to that site" - a trader website of new and second hand items. I did not ask Lisa what she thought addiction was. Chris did not mention addiction. When I asked Joe, he said he was not addicted. Regarding the amount of time Jake spent on a computer, one could say that he depended on it, which could be considered to be an addiction. Tom said he was "definitely addicted" to the

Internet. During the latter part of the research (as previously mentioned), he was banned from the Internet for six weeks for not handing in a school assignment, and so he read up on a *World of Warcraft*TM game manual so he could “get his fix”. I asked him before he was banned, “So what happens if you can't go on the computer?”

Tom: Um, I haven't been without one for that long before, so I don't know.

Researcher (R): So basically, you have to go on it every day?

Tom: Yeah, even if I'm not enjoying it, I just go on it.

R: So, what's that like then, feeling like you have to.

Tom: I dunno, just normal, I'm used to it. I don't feel like I'm not enjoying it very often.

R: When do you think you first became addicted?

Tom: Pretty much straight away. [we both laugh]

R: So what does addiction mean to you? How would you define it?

Tom: You've gotta have it, like if you don't have it, you just crave it, I guess, yeah, even if you're watching somebody else and not doing it yourself.

Tim said he was not addicted to computer games, and he also implied that his friend Tom was not addicted to the computer, illustrated in the following excerpt:

R: Do you think being addicted to the computer is a positive or negative thing?

Tim: Oh, if you were like a proper addict, probably negative [smiles]. Because like you'd fully go insane or something if you spent all day locked in a room or something [we both laugh], without going outside, doing no exercise or anything like that. Probably wouldn't be good for you. So that's probably negative.

R: Mmmm. Do you have any friends who you think are computer addicts?

Tim: Nah, not addicts. I've got friends the same as me, just like playing games and that, yeah. No one that's like on it 24/7 or anything like that.

Tim's idea of addiction included the statement, “I don't think like about it all day, every day”.

This point is well illustrated by adult responses to the new experiences of teenage technological enjoyment. From an adult point of view, or in dominant discourse, addiction is typically seen as a negative state of mind, and can be considered mental, physical or both, where the relevant activity in the field is the ‘fix’. The dehumanising affect on agents can be linked to a hysteresis of the habitus, which is where the agent's perception does not reflect current reality, but of a past one. Grenfell (2004) defined hysteresis as when the

... field moves beyond the habitus, whose structural dispositional possibilities can no longer respond to the actuality of the field. This situation – hysteresis – leads to action, which is no longer appropriate or relevant for the present state of the field and the ‘collective expectations’ (p. 29).

Another way to view hysteresis would be to consider that the habitus of the agent perceives the current world as the past world so that the habitus is stuck in time. The ‘fix’ is the only thing of value in the constricted field.

As the field of home computer use is always changing and developing, so the habitus of these participants responds to changes in the field, which also requires time. Therefore, this suggests that hysteresis is not applicable in this field. Thus, these participants are not addicted because they are simply using strategies the habitus has presented as advantageous. So while their practice could be considered to be addiction, it cannot be considered to be a hysteresis of the habitus. The participants are always dealing with change, and negotiating with new fields within their field.

To summarise, the theme of addiction highlights an opportunity to compare how children and adults read the same behaviours. In this instance, the regular use of computers by teenagers is viewed as leisure, and as a way to increase expertise. However, the practice is understood by the participants

to be generally read by adults as negative, as all-consuming, as an addiction, rather than as a skill or rehearsal, such as playing tennis for six hours a day, or getting up to go to a swimming club at 4:30am. Those who are dedicated to the daily practice of tennis or swimming tend to be admired, and are not considered to be addicted. Addiction is seen as negative, or bad, but really, the practice of these teenagers is not understood according to the conventions of the field that they have been placed in. The habitus of the adults, who may see the practice as addiction or addictive, is different to the habitus of the participants.

CONCLUDING COMMENTS

The dispositions in this field (habitus) included time, experimentation, and flow. The accumulation of time spent on and offline on the computer provided the participants with the opportunity to experiment - an inherent part of learning within this field. The huge amount of time spent on the computer (due to the sense of loss of time and loss of self-consciousness resulting from the pleasurable experience of flow) defined some of the doxic practice within this field. Some of the participants questioned whether they were addicted because of adult discourse(s) surrounding addiction.

It is possible that these digital insiders were unsure that game-playing and other computer use that constituted general forms of out-of-school leisure were a legitimate site for learning and expertise. Though they dismissed adult notions of what was acceptable, they were still influenced by the preceding generation that arguably disparages the practice in this field.

Digital newcomers tend to talk about computer use by children or digital insiders as something that is optional: that is, it is something they can do without if they were motivated to engage in other activities. However, in the current age, Internet access is fundamentally tied to access of knowledge that it seems somewhat strange to think about engagement with computers as an unwelcome departure from the norm of traditional childhood play and leisure (Johnson, 2009). This raises some questions about whether digital newcomers are able to conceptualise trajectories to teenage technological expertise if they see the use of certain technologies as problematic. However, in order to gain expertise in the use of computers, it is arguable that the everyday association and engagement with computers is necessary. By spending many hours engaged with digital media, expertise may be developed, and in fact, the likelihood of expertise development is increased with more use (Johnson, 2009).

The dispositions the participants have include an interest in and capacity to negotiate digital technologies. The elements that make up each participant's trajectory towards expertise can also be presented as dispositions, as part of what makes up their habitus, as part of what makes up part of being a teenager in youth culture, and part of the assimilation, acceptance, and association with the multiple texts of consumer-media culture (Kenway & Bullen, 2001; Mackereth & Anderson, 2000). This study has implications for schooling and how formal education might cater to children who prefer, are used to, and are motivated to learn through digital and electronic media (Downes, 2002a; 2002b). Though not every child will be motivated to learn through using digital technologies, this research suggests that children who are digital insiders may have preferences to learn in this way because of the prevalence of technologies within society. However, the key implication of this research is to engage in more robust approaches to conceptualising the obtainment and performance of multiple forms of expertise from a socio-cultural perspective¹.

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