Negotiating creative autonomy: Experiences of technology in computer-based visual media production

Julia Velkova

Abstract

Media production is today heavily computerised, and as a consequence of this, profoundly reliant on software. At the same time software does not represent a neutral artefact - it imposes certain affordances, logics, structures and hierarchies of knowledge onto the media making processes. This chapter explores the ways in which visual media creators negotiate the choices between multiple technological alternatives, and the ways in which these negotiations relate to the degree of creative autonomy experienced by cultural producers in their media practice. Combining perspectives from media studies of work in the cultural industries, and science and technology studies (STS), the paper suggests that choices of technology lead media producers to experience creative autonomy differently, by making them labour either within post-industrial technological frameworks that they do not have ownership or control over, or conversely, allow them greater ownership on technology and possibilities to mould their tools, bringing their practice closer to forms of pre-industrial craft production. Creative autonomy, I suggest, can therefore be negotiated by artists and media creators not only in relation to institutions of employment, or nation state politics, but also through deliberate choices of tools, the digital technical toolset that they select and embed in their practice; an approach largely inspired and practiced by some forms of hacker culture.

Keywords: creative autonomy, visual media production, free software, open source, experiences

1   Introduction

The past decades have witnessed the gradual rise of a social movement of global outreach, one that has left lasting traces on the way that the Internet and much of the software infrastructure that underpins today's communication networks function; namely the Free and Open Source software (F/OSS) movement (Coleman, 2013; Kelty, 2008; Söderberg, 2012). Representing a specific form of hacker culture that is narrowly centred on the politics of technology, of "making things public" (Kelty, 2008, p. x), in which participants value and practice "craft autonomy" (Coleman, forthcoming) through writing and sharing computer code, this movement has become an icon, and a source of inspiration for a broad range of other actors from the fields of law, education, media and journalism, all of them eager to make the case for open access (Coleman, 2013, p. 197).

In this paper I discuss one major area of media production, that of digital visual media production, in which ideas and practices inspired by the F/OSS movement have more recently started to be brought in, but have remained overlooked by scholarly enquiry. For about a decade computer graphics artists, technologists and creators working in the domains of digital painting and illustration, 3D sculpting and animation film have started to adopt and collectively develop digital F/OSS tools for the professional production of visual culture. Among the software programmes that they employ are Krita for digital painting, Blender[1] for 3D animation and sculpting, and Synfig for 2D vector animation. These programmes represent the non-proprietary but licensed software alternatives for computer graphics and animation manipulation such as 3D Studio Max, Photoshop Element, Adobe After Effects, Anime Studio and Maya. These F/OSS programmes are also used today to a greater or lesser extent in a broad range of industries and media practices. The usage ranges from the more experimental type such as conceptual art, or designs for 3D printing, to ones where the programmes are used for the production of comic books, illustrations, special effects, games, animation, and simulations[2].

My focus in this paper is on sketching out some of the trajectories that are leading media creators to adopt F/OSS tools for digital visual production. In particular, I am interested in the ways in which visual media creators negotiate

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1   Of these, Blender is by day the most well-known and broadly used free software programme for 3D manipulation and animation, with more than 3.7 million unique downloads per year, or about 300, 000 a month, see http://www.blender.org/wp-content/uploads/2015/04/Screen-Shot-2015-04-03-at-10.24.48.png

2   The range of uses can be seen, for example, through the diversity of projects presented at the annual Blender Conference: https://www.blender.org/conference/ or at Libre Graphics Meeting: http://*libregraphicsmeeting.org*

the choices between multiple technological alternatives, and the ways in which these negotiations relate to the degree of creative autonomy experienced by cultural producers in their media practice.

2 Creative autonomy and the media industries

Creative autonomy[3] in media work, and, in particular, within the creative industries, has for more than a decade, been an object of intense debate among scholars of media production. Studies of the computer games industry (Deuze et al., 2007), television production, music recording and magazine publishing (Banks, 2010b; Hesmondhalgh/Baker, 2010), radio production (Stiernstedt, 2013), as well as the Hollywood animation film industry (Stahl, 2010) have pointed to an inherent tension between autonomy and the control of creative labor embedded in capitalist, neoliberal systems of production. On the one hand, artistic and technical work within the media industries carries with it the allure of work that has both a high degree of creative autonomy and flexibility and which is sometimes manifested in an anti-corporate work culture, enabling creators on occasion to develop the reputation of being an "auteur" (Deuze et al., 2007). At the same time, the organisational frameworks of production are dependent on constant rationalization and effectivization of labour in order to accelerate production, thus constraining the autonomy of creators in order to adjust creative works to market demands. This tension may arguably result in a somewhat alienating experience for artists and media creators that stems from creative work being embedded in institutions of employment and regulatory systems of intellectual property. The latter allow artistic and other creative work to be treated as any other kind of work, thereby converting creators and their creations into an object of value extraction (Stahl, 2010). At the same time, they can also develop strategies to accommodate these tensions, such as through what Banks (2010a, p. 262) and Ward (2015, p. 215) refer to as forms of "negotiated autonomy". The latter refers to processes of creating subjective meanings in creative practice in what Banks (2010a, p. 262) denotes as a "quotidian struggle to try to mediate, manage or reconcile the varied opportunities and constraints of the art - commerce relation". The primary concern in this struggle, he argues, is to find meaningful self-expression within, rather than by directly confronting capitalism.

What I am proposing is that going beyond the scope of subjective meanings, creative autonomy can be negotiated by artists and media creators through their choice of tools, the digital technical toolset (including both software and hardware) that they select and embed in their practice.

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3 In the context of this paper I understand creative autonomy in the sense of the degree of freedom a creator has to define the aesthetic dimension of an artwork.

3   The politics of technology in digital media production

Contemporary media production is today heavily computerized, and as a consequence softwarized. The computer, together with the accompanying software, has become "the new engine[s] of culture" (Manovich, 2013, p. 21) through which media production, distribution and reception are channeled, integrating the logics of software into the core of most types of production, including that of media and culture. As Berry (2014) suggests, this has also arguably led to a reconfiguration of the role of the author, or creator of media - from one who has once been presumed to be the originating transmitter of a discourse to one standing in a mediating position "as just one among all those other managers looking upstream to previous originating transmitters – database or XML schema designers, software designers, and even clerical information workers" (Hayles, 2012, p. 201). In this sense, creators of media are not only integrated in structures of employment, or nation state politics, but also in the specific logics of technology with which they daily interact and in which they are embedded at multiple levels. As art critique Boris Groys (2013) argues, one of the consequences is that the post-industrial creative industries presuppose "the innovative, project-oriented and autonomous working process. But on the other hand, the artists, designers, or writers use the means of production that they do not own or control".

Choices about technology, including ones relating to media production software, impose certain logics, structures and hierarchies of knowledge onto the media making processes and affordances (Berry, 2014, p. 16; Fuller, 2003, p. 15). In the process of so doing, these logics act as a form of power diffused through computer coded objects and computational devices (Allen-Robertson, 2015; Berry, 2014, p. 65). This power is not determining, but neither is it a neutral force (cf. Williams, 1974). It contains, rather, the politics of technical decisions, and questions about who can make these decisions, which makes software and hardware, just like any other technical infrastructure, a highly political issue (Frabetti, 2015; Star/Bowker, 2004, p. 154).

At the same time, tools and technologies are relational in their usefulness, and can make their political nature more evident for some and more seamless for others. For some, digital infrastructures such as software (or hardware) may represent an easy-to-use black box while for others, including visual media creators, they are an object of work, a daily struggle and a problem (Star/Ruhleder, 1996).

Below I will illustrate some of the considerations of visual media producers that lead to particular negotiations relating to the technical apparatuses they use. As will become evident below, these negotiations are conceptualized by most creators as oscillating between two poles, that of proprietary software and that of F/OSS. The material is based on the critical self-reflections of 35

digital artists, animators and programmers collected in the course of interviews and informal conversations, as well as drawing on public online material and participant observation of producers' creative practices that took place in the period 2013-2015. All of the individuals have been using or been involved in developing the three non-proprietary tools mentioned above: Blender, Krita and Synfig.

4   Early-career negotiations

Already from their formative years, visual media creators are confronted with the need to choose from a range of tools and technologies in relation to which they develop their professional skills and specializations, a process that is typical of art and media production (Becker, 1982).

In the early stages of their practice, many of them adopt popular, "out-of-the-box" proprietary media production software manufactured by a small set of large corporations such as Adobe, Autodesk, Corel. Those who do not have the resources to buy their own software, resort to pirating it in the same way as has historically been practiced in many other types of artistic activity. As Becker (1982, p. 71) has observed: "Artists get materials and equipment through the mechanisms that society has for distributing goods [...] where the market economy does this allocation, artists buy, rent or barter [...] and those without money can steal".

The use of illegal versions of programmes usually works for a certain period of time, but at the point when creators of digital media start employing them in their professional work, they begin to recognize piracy as unethical:

> When ... there was something I needed to do, I needed a tool for it - Photoshop, After Effects and all those, but they were very expensive... you had to either pay a lot for it, or just go and grab a pirated version somewhere around. That just didn't feel right. After a while I tried Linux and I switched to that (free-lancing 2D animator from Sweden).

The above considerations are related to the process of creating a professional identity. With this comes also the need to negotiate the economic aspect of software. This negotiation can manifest itself in the need to choose between continuing to use proprietary software and deciding whether to legally purchase all necessary programmes, or to move to F/OSS tools. For some, this moment comes rather early in their lives. A 3D modeller from Finland who has been using Blender in his work at Rovio, the company behind the Angry Birds franchise observes: "If you are 15 years old and want to start playing with 3D, you need to pay 5,000 dollars to buy software. You can't afford it when you are 15, and Blender is free".

In some cases, especially for creators who start their careers in non-West-ern countries the choices could also be related to technical accessibility:

> I started using Blender because I wanted to do 3D. And I didn't have a CD-Rom, so I couldn't run the big packages like Max, Maya... A friend of mine had internet and he found this software called Blender for Linux. And he said, there seems to be a Windows version too. We put it on a floppy disk, it was only 1 MB or half a megabyte....and we were like, oh wow, you can do 3D! Awesome! So we started learning it (3D light designer and animator from Argentina).

Whereas the choices between proprietary and F/OSS tools tend to be initially anchored in pragmatic, economic and technical considerations in relation to their envisaged long-term use, the reasoning changes over time and becomes more concerned with the degree of agency possible to exercise on technology.

On the surface, what differentiates proprietary from F/OSS is the legal licence under which programmes are distributed. Yet, they configure creative autonomy differently. Proprietary software applies copyright law in a way which limits users' agency to act upon the software by legally preventing in-terference with the programme's source code - both through the licence agree-ment and through the distribution of programmes in binary, "pre-packaged" form. Proprietary software configures creative autonomy in a specific way - it allows creators to work within the scope of a technical framework created, owned and controlled by someone else other than the user - in the case of visual media production software, by corporations such as Adobe, Autodesk and Corel. Conversely, F/OSS uses "copyleft" licences that "reformat copy-right law to prioritize access, distribution, and circulation" (Coleman, 2013, p. 1), configuring user agency in a way that allows producers to a greater degree "to labor within a framework of their own making" (ibid), or what Coleman (forth-coming) refers to elsewhere as allowing them to exercise "craft autonomy".

The difference between the two is experienced tangibly by visual media creators at later stages in their careers.

5   Negotiations in later stages of a career

French illustrator and digital comic artist, David Revoy, recalls how the up-grade to a newer computer and a newer version of a proprietary operating sys-tem caused all his legally purchased tools such as Corel Painter, Manga Studio, Photoshop Elements, CS2 and more to stop working on the new computer, and on the new version of the operating system that came with it: "I had to do a lot of horrible hack to make all my software run[ning] on it, but it wasn't stable as it was on Xp anymore. I had to reboot almost twice a day" (Revoy, 2013). From a tool that automates and mediates creative expression, media produc-

tion software can become an artifact with "agential" (Paasonen, 2015) rather than instrumental properties that may, for some time, leave the user powerless. Faced with the choice of either re-purchasing all programmes to match the new operating system and hardware, of reverting to the older computer and operating system, or of doing something completely different, Revoy (2013) chose to move to F/OSS:

> I thought all of this circus couldn't work in the long term, and wasn't happy.... I switched my machine to a full open-source system around 2009 ... thinking, open-source could work on (in) the long term.

The result of this negotiation was not explained in terms of economic gain, but in the qualitative difference related to a new degree of creative, or craft autonomy gained:

> I really like the independence I get from it: I can install it on laptops, every machine, upgrade, downgrade, fine tuning it. This independence is gold. The con is that I'm now dependent on hardware 'linux' compatible. Which is not easy to find, and not well documented.

Another moment of negotiation emerges in situations of anxiety over the inability to drive forward the development of software so as to adjust it to one's individual way of working. A former artist, now developer of Blender code, recalls a moment from his early professional life working for an industry that was a heavy user of proprietary software for computer simulation:

> As a user, I was like – okay, you pay a lot of money, they give you a good product, this is fair, this is okay. There is no problem with that ... it works actually, I wouldn't be too dismissive of that... But software that your business relies on – it's complex and ... it has bugs. It's got problems. It is imperfect. (Blender developer, interview, 2014)

This imperfection is inherent in any kind of software, but the way imperfections are overcome differs substantially between F/OSS and proprietary software.

> I tried to report bugs with those closed source guys and they were ... sort of ... in the position of pretending as if there was nothing wrong. Because they had sold you something. And if you told them that something was wrong, then they just tell you that this feature was never meant to work or something like that....and that's okay, fair enough. But with open source, the people who I dealt with were like..., oh, fella, really you found it [a bug], can you give us a file, and....yeah, that's fixed. And the number of problems I had fixed the same day that I reported them would be in the 50s probably. (Blender developer, interview, 2014)

Creators who use specialized software are dependent on its responsiveness. The degree to which they can intervene in the process of development, and in the re-inscription of software, its improvements and failures directly affects

their work processes. The greater the possibility to mould the production software to their needs, the greater their sense of creative autonomy becomes. A US-based animator and director had the following observation to make about this: "Free software matches very well with the artistic idea because no artist wants to be locked into what they can do - a lot of the process of making art is about making the tools" (Bassam, animation director, archived blog post, 2014).

The actual making of tools may not necessarily be performed by the creators themselves, who may not have the skills to do the programming, but is enacted through the mechanisms of F/OSS development based on "making things public" (Kelty, 2008, p. x) and the autonomy to act upon them:

> I experienced the "ask for a feature—have it the next day" thing, which was really new to me. I was actually being part of the making of the tool... The Blender way really seduced me (an animator and digital painter from Costa Rica).

These experiences suggest that the distinction visual media creators make when negotiating between proprietary and F/OSS are in relation to the way technological power configures their creative autonomy. The "failures" of proprietary software are perceived in a way that resonates with philosopher of technology, Feenberg's (2005, p. 49) proposition that power in industrial capitalism is configured "through designs which narrow the range of interests and concerns that can be represented by the normal functioning of the technology and the institutions which depend on it". The way technological power is exercised through F/OSS could instead be seen as allowing one to *expand* one's range of interests, and the possible applications of software independent of a single controlling body, thus adapting tools to individual creators' work processes and momentary demands, and illustrating the possibility of exercising craft autonomy. As a French digital painter Timothée Giet shared with me: "It is more like the old painters who made their paint themselves. Mixing the ingredients and building their paint themselves".

This sense of autonomy, also experienced in other practices of F/OSS development such as hacking (Coleman, 2014), often does not emerge immediately upon the first encounter with F/OSS. The first attempts of creators to produce something with a F/OSS tool such as Blender, Krita or Synfig are often disappointing. They often describe these early attempts as painful, full of a sense of powerlessness that stems from not having developed the skills to use these tools, and the failure to understand the social mechanisms in which they are embedded. Sometimes this drives creators to the point of emotional desperation. However, once these frustrations are overcome, visual media creators often experience a sense of freedom, independence, and autonomy. For many this comes as a revelatory moment of illumination in their creative practice. As

Manu, a 3D modeler from Finland puts it: "The transition to Blender has been one of these things that are a spot in your lifeline, when it starts moving your life in a different direction".

This direction is related to the creation of a specific feeling of ownership developed in relation to the tools of media production that gives pleasure, and an experience of a high degree of creative autonomy (see Velkova, forthcoming). It can lead to further engagements such as becoming part of the core development of the tools, or of becoming employed in the production of visual media for organisations that have incorporated them into the core of their business operations and their creative practices (Velkova/Jakobsson, 2015).

6   Conclusion

User encounters with technology are caught up in a constant tension between control and powerlessness, between freedom and dependency, with networks, devices and software embodying different potentialities for action (Paasonen, 2014). The experiences described above, although not representative of the whole spectrum of possible encounters of visual media creators with technologies, illustrate some of the key trajectories of negotiations with respect to software tools used in creative practice. They also suggest a somewhat dichotomous distinction between proprietary and F/OSS as technological choices, one that excludes the wide range of other programmes existing in the "grey zone" between these two, such as freeware, or small low-cost applications that could be integrated into work processes. This could be due to the specifics of the production frameworks of some digital visual media, such as animation, games and illustration, and is an area on which further research could be profitably dedicated. The trajectories and considerations outlined above have been expressed in relation to what creators consider their "main" production tools and systems used in their practices. The way in which visual media producers reflect on the use of these tools suggests a craft-like attitude to technology, even in work related to producing "purely" visual media artefacts. This attitude could be summarized through the idea that: "you get the best out of the computer and its software if you are able to drive the tool rather than being driven by it" (Dormer, 1997, p. 146). In creative practices in which creators are dependent on increasingly complex specialized software tools, the degree to which one is allowed to mould, re-inscribe and extend their predefined functions can provide the experience of "good work" (Hesmondhalgh/Baker, 2010), and of creative autonomy. The latter is perhaps best described in the comment with which Krita's founder, Boudewijn Rempt, concluded our interview: "*If you want to be free, you need to have all your tools free*".

7   References

Allen-Robertson, J. (2015) 'The materiality of digital media: The hard disk drive, phono-
graph, magnetic tape and optical media in technical close-up', *New Media & Society*:
10.1177/1461444815606368.

Banks, M. (2010a) 'Autonomy guaranteed? Cultural work and the "art-commerce relation"', *Jour-
nal for Cultural Research,* 14(3): 251-269.

Banks, M. (2010b) 'Craft labour and creative industries', *International Journal of Cultural Policy,*
16(3): 305-321.

Becker, H. (1982) *Art worlds.* London: University of California Press.

Berry, D. (2014) *Critical theory and the digital*. New York: Bloomsbury.

Coleman, G. (2013) *Coding freedom: The ethics and aesthetics of hacking*. Princeton: Princeton
University Press.

Coleman, G. (2014) 'Hacker', pp. 245-248 in M-L. Ryan, L. Emerson and B. Robertson (Eds.)
John Hopkins guide to digital media. Baltimore: John Hopkins University Press.

Coleman, G. (forthcoming, spring 2016) 'Hackers', in B. Peters (Ed.) *Keywords: A vocabulary of
information society and culture.* Princeton: Princeton University Press.

Deuze, M., Martin, C., Allen, C. (2007) 'The Professional identity of gameworkers', *Convergence:
The International Journal of Research into New Media Technologies,* 13(4): 335-353.

Dormer, P. (1997) *The culture of craft: Status and future.* Manchester: Manchester University
Press.

Feenberg, A. (2005) 'Critical theory of technology: An overview', *Tailoring Biotechnologies*, 1
(1): 47-64.

Frabetti, F. (2015) *Software theory. A cultural and philosophical study*. London: Rowman & Lit-
tlefield International.

Fuller, M. (2003) *Behind the blip: Essays on the culture of software.* Brooklyn: Autonomedia.

Groys, B. (2013) 'Art production'. Downloaded on 5 October 2015 from http://www.formerwest.
org/DocumentsConstellationsProspects/Texts/ArtProduction.

Hayles, K. (2012) *How we think digital media and contemporary technogenesis.* Chicago: Uni-
versity of Chicago Press.

Hesmondhalgh, D., Baker, S. (2010) *Creative labour: Media work in three cultural industries*.
Abingdon, New York: Routledge.

Kelty, C. M. (2008) *Two bits: the cultural significance of free software. Experimental futures,*
Durham: Duke University Press.

Manovich, L. (2013) *Software takes command: extending the language of new media*. New York:
Bloomsbury.

Paasonen, S. (2015) 'As networks fail: Affect, technology, and the notion of the user', *Television
& New Media*, 16(8): 701-716.

Revoy, D. (2013) 'Why I use open-source?' Downloaded on 5 October 2015 from http://www.
davidrevoy.com/article170/the-choice-of-open-source.

Söderberg, J. (2012) *Hacking capitalism: The free and open source software (FOSS) movement.*
London: Routledge.

Stahl, M. (2010) 'Cultural labor's "democratic deficits": Employment, autonomy and alienation in
US film animation', *Journal for Cultural Research,* 14(3): 271-293.

Star, S., Bowker, G. (2004) 'How to infrastructure', pp. 151-162 in L. Lievrouw and S. Living-
stone (Eds.) *Handbook of new media: Social shaping and consequences of ICTs.* London: Sage.

Star, S., Ruhleder, K. (1996) 'Steps toward an ecology of infrastructure: Design and access for
large information spaces', *Information Systems Research,* 7(1): 111-135.

Stiernstedt, F. (2013) *Från radiofabrik till mediehus: medieförändring och medieproduktion på
MTG-radio. Doctoral dissertation*. Örebro: Örebro universitet.

Velkova, J., Jakobsson, P. (2015) 'At the intersection of commons and market: Negotiations of value in open-sourced cultural production', *International Journal of Cultural Studies*, doi: 10.1177/1367877915598705.

Velkova, J. (forthcoming) 'Free software beyond radical politics: negotiations of creative and craft autonomy in digital visual media production', *Media and Communication*, Special issue on Politics in the Digital Age.

Ward, J. (2015) *Cultural labour in the context of urban regeneration: Artists' work in Margate and Folkestone. Doctoral dissertation*. Thesis submitted to the University of Kent.

Williams, R. (1974) *Television: Technology and cultural form*. London: Routledge.

Biography

Julia Velkova is a PhD candidate in Media and Communication Studies at Södertörn University in Stockholm, Sweden. Her interests are in computer cultures, the politics of infrastructure and internet governance. In her dissertation project she explores forms of autonomy, value creation and power enacted within techno-artistic practices that are centred on building independent media production infrastructures and content in the domain of digital media commons. She examines them through the phenomenon of "open films" developed by the Dutch organisation Blender Institute in Amsterdam, and adopted on a minor scale by others among them the Russian project "Morevna" in Siberia. Previously Velkova studied the relevance of alternative journalism to internet governance that resulted in her master thesis on 'WikiLeaks CableGate and the multistakeholder model of internet governance'.

Email: julia.velkova@sh.se and jvelkova@gmail.com