

Craft and Technology

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Abstract

This presentation seeks to contextualise current work by makers using new technologies by discussing ways in which technology can be defined and the theoretical frameworks within which these definitions sit.

It will briefly highlight some of the common ways in which we discuss technology and technological mediation, and relate these beliefs to particular characterisations of technology. This will include a 'conservative' characterisation which is often championed by computer scientists and technologists and based on rigidly quantifiable aspects of technology and its use. A 'critical' characterisation will also be briefly discussed, based on the work of Martin Heidegger and Tony Fry this characterisation seeks to question how the use of technologies mediate our experience of 'being'.

A pragmatic characterisation of technology will be proposed (based to some degree on John Dewey's work) which considers technologies as 'extensions of man' (sic). The implications of this characterisation will be discussed and related to notions of contemporary craft practice and creativity.

The conclusion will discuss the implications of taking a pragmatic position when considering the use of new technologies by makers and cite examples where relevant.

Introduction

In this presentation I want to try and contextualise current work by makers who use computer technologies by discussing ways in which we can define all technologies. I will outline a range of different characterisations of technology and discuss the significant elements within each.

I do not claim to be making any original insights into the nature of technological mediation or creative practice. However, I do hope to show that if we regard technologies and how they are used from a pragmatic/instrumentalist perspective this has important implications for how we think about craft practice and creativity.

The development of this paper was instigated by a number of factors, including a recognition that the language used when discussing this subject can imply particular ways of characterising technology which I believe restricts the debate over their impact and

significance.

In discussions with makers, students and within presentations on the subject of computer technologies being used in creative practices I have heard expressions such as:

'It is only a tool.'

'It is only another means of making something.'

'It simply allows you to do something that you could not do before.'

'It speeds up my making process.'

Such phrases may seem to be relatively innocuous. However, as I hope to show as this paper develops, the implications underlying their functional simplicity can restrict our recognition of the impact which using technologies has on our experience of the world and, some may argue, our very being.

All these statements sit principally within one characterisation of technology, which has become potent and ubiquitous within western society. Its language is that of authority, big business and multinational high-tech industries. It has become the dominant way of discussing technology, almost to the point of it being considered common sense.

It is therefore not surprising that it is often employed unconsciously by people in our field, especially when discussing relatively new technologies like computers.

In his work on designing IT systems Richard Coyne defines this characterisation as **conservative**. He employs this expression because in terms of IT this characterisation is interested in the quantifiable and the conservation of measurable data, rather than any less concrete and rigidly definable aspects of technology.

I will briefly outline some of the significant defining features of this characterisation of technology as a whole and then specifically discuss it in relation to computer technologies.

I will then outline two other characterisations. Firstly the **critical** characterisation which draws significantly from Martin Heidegger's work on technology. Secondly, the **pragmatic** characterisation which draws from the work of John Dewey. It is this characterisation which I believe holds the greatest potential with which to fruitfully discuss the relationship between craft and technology. I will also attempt to draw out some significant parallels between what I consider to be defining features of craft processes and the inquiry based process of gaining new knowledge which is central to Dewey's pragmatic thesis.

Conservative Characterisation of Technology

The conservative characterisation of technology is based in a **reductive** scientific view of the world. Technologies are considered to be the application of scientific theories to real world situations. There is an hierarchical relationship between science and technology, theory and practice, and by association, the abstract and the concrete, the mental and the physical.

Reductionism proposes that knowledge is gained by dividing things up into their constituent parts (i.e. it is inherently fragmentary). It also seeks single causes for change and it aims to construct explanatory theories which can **predict** all the consequences of employing a particular technology.

Not surprisingly this characterisation is common among scientists and technologists who use the scientific method and align themselves with the philosophical tradition of logical positivism. Unlike other characterisations to be discussed, conservatism and its positivistic outlook sees no relationship between employing technologies our being (i.e. how we live in and understand the world). Positivism restricts its enquiries to the things which can be revealed through empirical investigations.

The concept of being does not fall within this realm and therefore is indefinable and meaningless from the conservative perspective. Therefore technologies can have no impact on meaningless concept.

The conservative characterisation views technology as neutral and content free, therefore technology is not considered to make any impact on the ethos of a society or an individual's ethical being. Engagement with an item of technology simply allows society or an individual to achieve something which was either previously impossible, or achieve something more efficiently than previously possible. It is a **means** to an **end**, and that is all. In connection with this, the concept of **voluntarism**, which is the idea that there are no good or bad technologies only the way they are used, is strong within the conservative characterisation. This leads to a **non-ethical** stance and allows technologies to be employed without close scrutiny or appreciation of the impact their employment is having on the individual or the wider society.

The impact of technologies on the world are considered in terms of the directly **quantifiable**; things that can be measured in a simple direct way. Rather than recognising the **qualitative** impact of technology as well.

Central to the conservative characterisation is the belief that the means of doing something has no impact on the ends, cause and effect are exclusive of each other. It is a **mechanistic** and **mono-casual** view believing in the simple process of cause and effect; in which one can **predict** the outcome of employing a particular technology in a particular situation. The conservative characterisation ignores the complexity of real-world situations in which distinguishing and isolating causes and effects is often difficult, or even impossible.

The significance of the relationship between means and ends (causes and effects) will become apparent as this paper develops. I hope at this stage it can be recognised how the statements I quoted at the start of this paper fit into this characterisation and the implications that they hold.

From this perspective technological **evolution** is often considered as technological

progress. There is a general optimistic belief that technologies will solve all our needs and that we are moving towards a technological **utopia**. This will be fundamentally challenged by the critical characterisation which highlights the negative aspects of technological mediation, both on society as a whole and on how as individuals we experience the world.

In terms of computer technologies, the conservative characterisation is concerned with developing computer systems of increasing size, complexity and speed.

The more information which can be processed and stored, the more successful and useful computer technologies are considered to be (bigger, better, faster). It is a characterisation which includes the **'technological imperative'**. This is a belief that technological progression is an unstoppable and irreversible process and possesses its own internal drive, its own imperative. Therefore what can be developed, will be developed, with no consideration of its appropriateness or impact on existing modes of production, types of living, or ways of being.

Conclusion

The conservative outlook splits theory and practice, the mental and the physical. Furthermore it creates hierarchy between them. This has obvious implications for practices such as craft, which are grounded in physical knowing and tacit knowledge.

This characterisation, which seeks to quantify and systemise technology and its use, does not sit happily within a field such as craft which is based on individual working practices which are highly variable and context specific (i.e. a specific maker, in a specific situation engaging with the world at a particular point in time with a unique set of skills).

The Critical Characterisation of technology

In contrast to the conservative characterisation of technology is the critical view which looks beyond the quantitative and seeks to highlight the qualitative impact of technologies on individuals and society as a whole. It believes that we are conditioned by the technologies with which we engage and that they frame the way we experience the world.

Like the conservative characterisation there is a belief in the technological imperative. However, this is not used as an argument for the taking of an amoral position, but taking a critical stance which challenges the utopian ideals previously stated. It is a stance that would regard technologies as out of control, rather than simply rapidly progressing.

The critical characterisation recognises that technologies are not ethically neutral and value-free. Ellul insists that:

“..technique carries with its own effects quite apart from how it is used. No matter how it is used, it has of itself a number of positive and negative consequences. This is not just a matter of intention.” (Ellul 1990, p.35, in Chandler 1995, p.27)

This is in stark contrast to the conservative notion that technologies are simply a means to

an end with no consequences beyond the predicted desired effects. The significance and impact of the technique, technology or medium through which we engage with the world is central to Marshall McLuhan's famous work 'The medium is the Message' and many other critical media theorists.

Heidegger's Critique of Technology

One of the most significant writers and thinkers developing ideas from this perspective was **Martin Heidegger**. I will only give a very brief outline of his critique of technology (*techné*), but I hope this will be sufficient to provide a general feeling for his critical stance.

His works on technology attempted to demonstrate that our experience of the world is 'enframed' through technological mediations and that this restricts our ability to experience in the world in other ways which he believed, held the potential to reveal a more primal natural truths.

Heidegger was concerned about the role of technology in the way we fundamentally live and know, in our very being. He was concerned that modern technology, instead of being an instrument by which elements of nature can be revealed to us, has turned nature into a resource to be exploited. Unlike the conservative characterisation he considers all technology, from the most basic to the highly complex, to be more than merely a functional means to an end. He considers technology to be a way in which we approach the world and a mode of revealing, he states that:

“It is as a revealing and not as a manufacture that *techné* is a bringing-forth.”
(Heidegger, in Krell 1993 p.319).

Heidegger makes a definite distinction between 'techniques of handicraft' and 'machine powered technologies'. Tools which are driven by human power or nature (e.g. wind) are instruments through which aspects of nature can be revealed. For example through the use of a hand chisel you can *bring forth* a wooden bowl which reveals aspects of natural woodiness and vesselness. Through using this tool there is a direct interaction between the individual and a specific natural feature.

In contrast machine powered technologies involve a 'standing reserve' of energy, which has been extracted from nature and stored as a resource which can be controlled by man (e.g. electricity, oil, coal). This divorces man from nature and the '*bringing-forth*' of handicraft becomes a '*challenging-forth*' in which these technologies order and fragment our relationship with nature. It is this process which he entitled '*enframing*'.

Through using modern technologies we restrict our ability to see the world as anything but a resource to be used to fulfil our needs. Furthermore it is so pervasive that our ability to '*bring-forth*' in other ways, for example through art and *poiesis*, is limited and he believes it is these modes of revealing which hold the potential to reveal more primal truths.

This vision of technology is almost diametrically opposed to the conservative characterisation. While conservatism only seeks simple functional explanations of the impact of employing technologies, Heidegger attempts to uncover their deep philosophical and psychological impact on both an individual's being and society's future.

Tony Fry's critique of technology and craft

Tony Fry is a more contemporary theorist who has published widely on issues of sustainability, ecology and design. His work is strongly influenced by Heidegger's philosophy. Fry also recognises how engagement with the world through modern technologies *enframe* our being. He states:

“Technology becomes a form of the world that stands between us and almost all else, it mediates the world as knowledge, image and touch. The more we see through system technology the less is known to our being- the body is emptied of spirit and the mind drained of life.” (Fry 1992, p.261)

In one of his works on the nature of craft a Heideggerian perspective is also prevalent. Instead of trying to understand craft as a commodity or an object with particular physical characteristics, Fry believes craft should be considered as:

“a particular way of becoming and being through the actions and consequences of modes of material production...craft as a textual and experiential phenomena.” (Fry 1992, p.257)

By this Fry is suggesting that craft should be considered as way of '*being in the world*', (i.e. craftspeople understand/experience the world through crafting, they literally craft their world). He believes that craft is essentially

“...a way of being with making: the expressive being of an object that is placed with a genre of objects that exist to proclaim an otherness to non-human centred manufacture: and the expressive being of an object that is created to carry the signature of a maker.” (Fry 1992, p.257)

As one might expect, central to Fry's conception of craft is the role hand and the handmade. He believes that the hand is an essential means of 'staying in touch with the world', both physically and as a mode of being in, and understanding the world.

We can see how Fry's concept of craft production can be aligned to what Heidegger describes as 'techniques of handicraft' and his 'non-human centred manufacture' to Heidegger's 'machine powered technology'. Fry regards the skills of an individual to be directly challenged by technologies which attempt to embody those skills within the machine itself, to automate it and so create 'dead labour'. His concept of craft practice and the impact of mechanised equipment on an individual's working practices will be returned to and challenged in the conclusion.

Conclusion

Heidegger raises some important issues in his development of his definition of technology. His argument that technology is more than an instrumental tool, in the sense that an instrument is a value free implement which can be employed whenever considered appropriate with no effect on the user, is an important one.

In addition, his view that technology is more than a means to an end because it involves a process of revealing, not just manufacturing, is significant. It lays the foundation for discussing the relationship between intentions and the process of making. In comparison with conservative characterisation, it suggests a much more creative and complex interplay between a technology and a user.

However, it has been argued by Rothenberg (1993) that Heidegger's quest for a poetic (*poiesis*) revealing of the essential natural world, a *being-in-the-world* which is not ordered and fragmented by the lens of technological mediation; is destined for failure. For as we claim to know something of nature it becomes humanised and therefore technologised.

If there is an inhuman essence to nature we will never grasp it, since the ways in which we reach for it are part of human *techné*. Our tools for understanding the world (e.g. language, theories, systems etc.) are all mediating technologies, we have no way of directly accessing an essentially natural experience.

Pragmatic/Instrumentalist Characterisation of Technology

The final characterisation to be discussed is the instrumental/pragmatic way of considering technology. In some ways it can be considered to philosophically lie somewhere between the last two characterisations. I hope it will become obvious as I outline its defining features why I considerate the most appropriate perspective to take when discussing technological mediation in relation to craft practice.

One of the key figures within the development of pragmatic philosophy was **John Dewey** and specific reference will be made to his brand of Instrumental Pragmatism. His work contributed most to the development of a theory which emphasised the central role which **inquiry** plays in the construction of meaning and truth. Through this interest in inquiry and activity Dewey developed a critique of tools and media. The concept of a **'tool'** is used throughout much of Dewey's instrumentalism to describe the function of both physical implements and theoretical concepts. Coyne summarises the breadth of function and definition of a tool in the statement:

“The tool is part of the active productive skill brought to bear on a situation. The tools that feature in the reorganisation of the experience include theories, proposals, recommended methods and of course action. The applicability of the tool is worked out in the situation.” (Coyne 1995 p.39)

A pragmatic perception of reality can be said to be based “...in what we do, what we use and what we think” (Coyne 1995, p.6). It opposes the rationalist tradition of philosophy which favours theory above practice. “For the pragmatist,...,theory is just another kind of

practice.” (Coyne 1995, p.17) It is not superior to, or a precursor to, practice.

Whereas rationalism and the conservative characterisation affirms the subservience of the technology to its content (i.e. technologies are simply a functional means of achieving something), pragmatism is orientated towards an active engagement with technologies and materials. It is concerned with what works and how technology fits into the practical day to day activities of people. Dewey, states:

“There is no such thing as genuine knowledge and fruitful understanding except as the offspring of doing. Thinking and doing are inseparable, ... only by wrestling with the conditions of a problem at first hand, seeking and finding his own way out, does he think.” (Dewey 1916, p.275)

It can also be recognised from this statement how the pragmatic consideration of the relationship between thinking and doing as inseparable opposes the hierarchical relationship which is set up by the conservative characterisation.

The pragmatic characterisation is primarily concerned with the consideration of technologies as ‘extensions of man’, as tools with which to change a situation. Although these tools can be both mental or physical, the pragmatic perspective is often identified with the physical employment of tools and machines, and the consideration of man as homo faber (i.e. a tool-maker and tool-user). This focus on the study of tools has led to a perception of pragmatism as reductionist. However, pragmatism’s consideration of the relationship between cause and effect is not the same as the conservative characterisation.

The conservative characterisation encourages a consideration of ends (i.e. the results of employing a technology) to be fixed, goals to be defined and successes and failures to be judged on the achievement of these goals. The rationalist/conservative tradition seeks simple linear causative relationship between causes and effects. In contrast, pragmatism recognises the complexity of the means-ends relationship (i.e. cause and effect). Dewey developed the phrase ‘ends-in view’ to describe his concept of ends which are provisional and evolutionary. These ‘ends-in view’ can be considered as plans which guide an ongoing process (e.g. the making of an artefact). ‘Ends-in-view’ are dynamic and active throughout the process of an inquiry. They are never remote, (as an end as final outcome would be), but imminent through every stage in a process. Therefore ‘ends-in-view’ are continually under review, in a reflexive relationship with the processes (i.e. means) employed in an inquiry. As Hickman suggests in the description of producing a new work of art/craft;

“In the production of every successful artefact, which is to say in every stage of a successful inquiry, means and ends so interpenetrate that they can be sorted out only in retrospect. Every process of free art proves that the difference between means and ends is analytic, formal, not material and chronological.” (Hickman 1990. p.73)

Dewey proposes the term ‘the continuum of ends-means’ to emphasize the continuity of ends that are also means, means which are not neutral but active and have associated values, causes which are also effects.

For Dewey, the relationship between means and ends, (tools and intentions), is dynamic and reflexive, not uni-directional and straight forwardly causal.

This re-evaluation of the relationship between means and ends also challenges the conservative notion of value free or neutral means (i.e. technologies). In the rationalist view the ends are somehow fixed in advance which enables the development of criteria by which they can be judged. Therefore the ends can be argued to justify the means. Dewey’s thesis in which means and ends are inextricably linked, does not allow this type of categorical statement to be made.

“For means are not merely neutral ingredients of a plan: they have inherent values and disvalues...The choice of means, in short, enters into and qualifies the nature of the end.” (Scheffler 1974, pp. 230-231).

The use of a particular means (i.e. a tool) will not only effect the material outcome of a process, but also influence the individual’s thinking It will have an impact on the way one experiences the world. To some degree this effect can be related to the concept of *enframing* discussed within the critical characterisation.

Unlike conservatism and the Platonic tradition, being is not considered as an unknowable or essential concept (i.e. above and beyond the conditioning effects of the world). In the pragmatic view being is solidly grounded in the world of experiences, it is concerned with how we are in the world and ‘*being in a situation*’. Being is conditioned by our situation in the world, it is under continual change (i.e. we are constantly in a state of becoming). Therefore it is not a static or essential concept, but dynamic and conditional. Whereas the Platonic tradition is concerned with what stays the same in the face of change, pragmatism is concerned with things that change and how this occurs.

Summary of characteristics

To summarise the relevant pragmatic characterisations of technology:

Technologies are regarded **as tools or instruments** which can be either physical or mental (i.e. they can be physical tools, like hammers and chisels, or mental tools, like theories and systems of working).

The relationship between **means and ends** is **not** seen as linear and causative, but **dynamic and reflexive** (i.e. the end you originally may want to achieve is often changed or effected by the means by which you do it). Therefore the technology used becomes bound up with what is produced (i.e. what you use impacts on the nature of the final

outcome when making something).

Technologies are '**extensions of man**' (sic), and therefore can be considered part of us and we of them. (E.g. a hammer becomes an extension of the hand, a telephone extends are ability to talk over distances greater than we can shout; a voice extension.)

Because tools are considered as 'extensions of man', they have an impact on the users thinking and so change the user (or society). So as **we change the world, we in turn are changed**. Therefore this characterisation does **not** take a **non-ethical, amoral** stance to the employment of technologies. The use of technologies is bound up with our being and therefore must be integral to our ethical and moral decision making processes.

Pragmatism recognises that employing a particular **technology** on the one hand **extends** your ability to do something, but on the other **focuses** and so **restricts** you. Particular tools invariably select, amplify and reduce aspects of experience in various ways (E.g. a chisel extends your ability to carve wood, but it is a specialised tool and restricts your ability to pick things up.)

Craft and Pragmatism

If craft is considered as an activity in which the engagement with materials and processes plays a significant role in the creative development of work, and there is an integration of thinking and doing in the holistic activity of making, then connections between craft practice and pragmatism's inquiry centred philosophy begin to emerge.

Just as craft practitioners recognise the essential role of **practical investigation** within their practices, Dewey considers **doing** to be the basis for all new knowledge. Furthermore, pragmatism's challenging of the hierarchical privileging of theory over practice can be aligned with the holistic nature of craft in which thinking and doing are integrated into the practice of 'intelligent making'.

The concept of *ends-in-view* to describe the notion that results are rarely absolute and fixed in a process of enquiry compares closely to the process of '*designing through making*'. This process is another important feature of craft practices and can be used to differentiate them from more industrialised forms of production.

A crafts process can often be evolutionary and the final work being an expression of the making process, rather than the result of formally carrying out a fixed idea.

At the basic level of defining creativity I would argue that the pragmatic perspective encourages a more dynamic and reflexive view of the creative process. The conservative characterisation along with the platonic and romantic traditions believe that creativity is a mysterious essential phenomenon which resides in the head of an individual (often a male genius). The creative individual is considered to stand outside society or the everyday world, to be an observer with a unique view of the world. There is a linear process from the mysterious inception of an original idea within the mind of the individual to its manifestation through materials, processes and technologies to completed work which embodies this original idea (see Fig 1.)

Fig. 1

In contrast the pragmatic notion of creativity is bound up in the world of activity and inquiry. Rather than a linear process in which the processes and technologies are passive conduits through which creativity flows, they are active elements within the dynamic creative process. This model of creativity involves a cyclical process in which the intentions of an individual (i.e. *ends-in-view* not fixed goals) are used as a starting point in a process of creating something original. Through the interaction with materials, processes and technologies these initial intentions are modified and developed, and are then used to drive further activity until a final outcome is reached (see Fig. 2). Creative individuals are therefore not considered to stand apart from the world, but are caught up in it and creativity emerges through an interaction with it.

Fig. 2

The Use of Computer Technologies within Craft Practices.

Finally I want to briefly look at the significance of makers employing computer technologies.

From the critical perspective espoused by Heidegger and Fry the use of CAD/CAM technologies can be seen as an anathema to craft practice. Not only do these systems attempt to embody skills within themselves and so create 'dead labour'. But furthermore they *enframe* a users being into a mechanised and systematised mode of revealing which limits the possibility of more authentic poetic way of being. Through divorcing the hand from the direct manipulation of materials, the craftsman literally loses touch with the world. From this perspective there is no role for such technologies within craft practice and their use should be actively discouraged.

There are undoubtedly issues concerning the loss of direct manipulation of materials. The breaking of the continuous feedback loop provided by the sense of touch has been highlighted by Dormer (1997), Johnson (1997) and others as a challenge to one of the defining features of craft. For them the 'handmade' object embodies a particular type of knowledge born from direct personal engagement with materials which is unique to craft practices. Although Johnson argues that craft is an important means of sustaining the 'literacy of touch', she recognises that 'touch' as a concept can be considered beyond immediate physical contact. She states:

“...-by understanding more fully global touch, reach-touch and imagined touch, we may find a more fruitful way to locate and articulate crafts in relation to information technology. This relationship might not be an oppositional one, but more interdependent.” (Johnson 1997, p.298)

I would also suggest that the experience gained by craftspeople is not all tacit and bound up with physical practice. Knowledge gained through practice can also be made explicit

and used to guide the development of future work. Because this knowledge is not tacit it can be transferred from one type of technological mediation to another. Therefore some of the experience gained using 'traditional' technologies can be fruitfully employed to guide the use of digital technologies. This is not to argue that existing craft skills are being replaced by the use of digital technologies, but that too much emphasis can be given to the role of tacit knowledge within craft practices and the role of other less embodied ways of knowing played down.

Heidegger's concept of *enframing* is important in its impact on modern technologies on their users. However, *enframing* as a dangerous restricter, which limits possibilities for original 'revealing' (e.g. being creative in the making of something original), I find more questionable. From the pragmatic perspective we affect tools, and tools affect us. Both physically and mentally they are transformative. This effect can be considered as a restriction. However, as McCullough (1996) and Ihde (1979) suggest, technologies can equally well be considered as a means of focusing. Focusing actively engenders a particular way of *being-in-the-world*, however I believe it can be empowering and liberating rather than necessarily restrictive. New methods of working instigate new ways of thinking and doing, which facilitates the production of original new works, which if successful, embody the new methods and technologies employed.

Craftspeople tend not to use computer technologies to replace existing skills or mimic the nature of pre-existing modes of production, they are used to extend their practices in order to create works that were previously impossible or impracticable to make or even consider. (N.B. the use of these technologies changes the way you think about making as well as your physical practice, it is not just a case of using a technology to functionally provide a new means of doing something.)

This approach to employing digital technologies may provide a way of making a distinction between industrialised production and craft which is not based on the degree to which objects are 'handmade'. In the context of industrial manufacturing, where CAD/CAM technologies were developed, Fry's argument about the creation of 'dead labour' through the embodiment of traditional skills into mechanised systems is more convincing. CAD/CAM technologies are developed and employed to increase efficiency and speed up product development times. Whereas craftspeople tend to **extend** their practices through using CAD/CAM technologies, industry often **replaces** engineering, modelling and moulding skills with CAD/CAM systems (although it must be noted that one set of 'traditional' skills can be replaced with a new set based on using digital technologies). Modes of production are rarely embodied within the industry's final products and technologies generally considered from the conservative perspective as a functional means to a predefined end, rather than means of engagement which opens up new creative potentials and provides a unique way of *being-in-the-world*.

Conclusion

I hope to have shown the significance of the way in which we discuss technologies and the need to reflect on the terms we commonly employ when considering this field of activity.

If we choose to regard technologies from the conservative perspective then we must accept a view which privileges theory over practice, which down grades practical forms of knowledge (e.g. craft knowledge). Furthermore it disregards the role which engagement with materials and technologies plays within the creative process. It encourages a functional consideration of technologies which gives no consideration to their role in framing the way in which we experience to world.

If a Heideggerian critical perspective is taken then we must accept that technological mediation defines our very being and that it is intrinsic to how we are in the world. Furthermore, that modern technologies have become so pervasive that our being is defined by their ordering of the world in a particular way that restricts other less rigid and more poetic possibilities of being, and so the potential to create art/craft.

Craft must be considered principally as way of being which defines itself in opposition to modern technological culture and forms of production. This restricts the professional craftsman to a practice which must, to some degree, stand apart from the contemporary culture, rather than be integrated into it. This utopian concept of craft works well as an evening class antidote to the alienation of modern urban life. However, it is less helpful for the professional craftsman working within modern culture and attempting to develop strategies for making a living.

Taking the pragmatic perspective opens up more fruitful ways of thinking about technological engagement, craft, creativity and CAD/CAM. There is a recognition that mediating technologies have an impact on the way we perceive the world and that they are not ethically or functionally neutral. However, pragmatism does not make any significant distinctions between 'traditional' tools and modern technologies, they all both extend capabilities while also restricting and focusing them. Pragmatism's recognition that theory and practice are bound together in the process of gaining new knowledge through active inquiry (i.e. 'doing'), provides an argument for the worth of holistic activities such as craft. In addition the notion of creativity being grounded in engagement with materials and technologies (an active process) rather than a mysterious mental phenomenon provides a model in which the processes of doing are not merely the carrying out of predefined creative ideas, but play an essential role in the development of original new works.

From this perspective the use of CAD/CAM within craft practices is not ruled out as a dangerous encroachment of technologies which will systematise traditional skills and *enframe* a user's being and so restrict the potential for the production of any form of 'true art'. However, neither does it regard CAD/CAM as just another way of making something, a functional means to an end. It is a perspective which encourages us to reflect on the way in which the technologies we employ change our perception of the world. There are significant issues surrounding CAD/CAM's use within practices where the concept of 'the handmade' is both economically and philosophically important.

However, I would still maintain that such technologies in combination with more traditional tools and processes, can be used to extend the practices of craftspeople and facilitate new ways of thinking and doing and so create original new works.

References

- Chandler, D (1995), Technology or Media Determinism, HYPERLINK <http://www.aber.ac.uk/~dgc/tecdet.html> www.aber.ac.uk/~dgc/tecdet.html.
- Coyne, R (1995), Designing Information Technology in the Post-modern Age: From Method to Metaphor, MIT press, Cambridge, Massachusetts.
- Dewey, John (1916), Democracy an Education: An Introduction to The Philosophy of Education, Free Press, New York.
- Dormer, P (1997), Introduction to 'The Challenge of Technology', in The Culture of Craft; status and future, Manchester Uni Press, Manchester.
- Fry, T (1992), Green hands Against Dead Knowledge, in Craft in Society; An Anthology of Perspectives, Ed. Ioannou, N, Freemantle Arts Centre Press, Western Australia. pp. 254-265.
- Hickman, L.A (1990), John Dewey's Pragmatic Technology, The Indiana Series in the Philosophy of Technology, Indiana University Press, Bloomington and Indianapolis.
- Ihde, D (1979), Technics and Praxis, Boston Studies in the Philosophy of Science, Vol. 24, Dardrecht Reidel.
- Johnson, P (1997), Out of Touch: The Meaning of Making in the Digital Age, in Obscure Objects of Desire: Reviewing the Crafts in the Twentieth Century, conference papers, Ed. Tanya Harrod, Crafts Council Publication, London.
- Krell, D.F (Editor) (1993), Martin Heidegger, Basic Writings, Routledge Kegan & Paul, London.
- McCullough, M (1996), Digital Craft: The Practised Digital Hand, MIT Press, Cambridge, Massachusetts.
- Scheffler, I (1974), Four Pragmatists: A Critical Introduction to Pierce, James. Mead and Dewey, Routledge Kegan & Paul, London.

Other Reading

Chandler, D (1996), Engagement with Media: Shaping and Being Shaped, HYPERLINK <http://www.aber.ac.uk/~dgc/determ.html> www.aber.ac.uk/~dgc/determ.html.

McLuhan, M (1964), Understanding Media: The Extensions of Man, Routledge & Kegan Paul Ltd., London.

Rothenberg, D (1993), Hand's End: Technology and the Limits of Nature, University of California Press, London.

Roy, R & Cross, N (1975), Man-Made Futures: Units 2 and 3 Technology and Society, Open University Press, Milton Keynes.

Techné is one the roots of the word technology. It was used to describe the implementation of practical skills with an element of reason (i.e. intelligent making).

Poiesis is the ancient Greek term for the poetic. However it needs to be understood as having a far broader usage than the poetic has today. "The term is utilised to refer to productive activities, whether those of the shipbuilder or the poet, was *poiesis* or *techné*." (Hickman 1990 p.108)