

Between citizen and consumer: multiplying the meanings of the “public understanding of science”

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This paper explores how the “public understanding of science” might be reconceptualized in light of the recent sociological treatments of consumption. I consider the implications that the rise of consumer culture and the increasing aesthetization of everyday life have for micro- and macro-sociological studies in the public understanding of science. In particular, I examine how consumer culture impacts upon the status of the “lay local” and the nature of citizenship as they relate to the public understanding of science and scientific literacy. Further, I explore how the discourses and techniques of public understanding of science studies might contribute to the formulation of the lay person as consumer. Finally, in light of these points, I formulate a number of research questions that might enable the development of the “public understanding of science.”

Introduction

The aim of this paper is to explore how the “public understanding of science” might be reconceptualized in light of a particular development in contemporary social theory. My purpose is thus to consider the implications that the putative transformation in the nature of being a “layperson” in the contemporary West has for studies of the public understanding of science. Specifically, the paper concerns the way that a complex of changes—such as the rise of consumer culture and the aesthetization of everyday life, the relation of the figure of the consumer to that of the citizen, the role of “subjectifying technologies” (such as questionnaires) in mediating this relation—impacts upon what it means to be a “member of the public” and upon what we might understand by the phrase “understanding science.”

On the one hand, I will examine how recent theorizing about consumer culture might affect the microsociological analysis of the public understanding of science, especially as it relates to local communities. On the other, I will address the way that the sociology of consumption might inform more macrosociological treatments of the public understanding of science (say, those studies concerned with changes in the authority of science in the eyes of a public that is increasingly aware of the ambiguous role of science in the production, and social construction, of, for example, environmental crises). These changes toward a “consumer culture” do not stand in opposition to, or in addition to, the local cultures of such communities as the sheepfarmers of Cumbria¹ or the residents of Carrington in Greater Manchester,² or broader, global, shifts towards a “risk society.”³ Instead, consumer culture is viewed as folding into these other “sites” and conditions in presumably complex, though,

as yet, relatively under-studied ways. In sum, while noting that there are a number of broad social and cultural transformations taking place, the purpose of the paper is to explore in a little detail the possible influences on the public understanding of science of just one such process, namely, the rise of consumer culture. In essence, then, I will outline a number of questions that might serve as the basis of a research program in the “public understanding of science” that can begin to encompass this recent social and cultural dynamic.

In what follows, I will firstly, and very briefly, provide an overview of some of the relevant critical studies of the public understanding of science. The aim is to identify issues that have, by and large, been neglected or elided by this tradition. For example, I will suggest that “community” is often romanticized in this literature. When one places “community” in the wider context of consumer culture, it becomes possible to see such notions as social identity and local knowledge in a radically new light. I will then review some of the treatments of consumer culture, in the process tentatively drawing out some of the implications of these for the ways in which publics come to apprehend science. A key point here is that the rise of consumer culture has major ramifications for the politics of the public understanding of science. Now, the subdiscipline of public understanding of science has been fundamentally concerned with the enfranchisement of the public (though the tacit models of citizenship and democracy differ markedly across researchers⁴). For example, increased scientific literacy is in some quarters equated with enhanced citizenship—a scientifically literate public can better contribute to policy making, for instance. Following some treatments of consumer culture, what happens, I ask, when citizen and consumer become conflated, or, at least, harder to differentiate? I further argue that, in some ways, methods such as the questionnaire that are deployed in the study of the public understanding of science can be said to contribute to this conflation. Finally, I will formulate—programmatically—a spectrum of research questions that flow from these concerns.

Studies in the public understanding of science

This paper can be situated within the field of public understanding of science, particularly those critical studies that have tended to focus on the understanding of “lay local publics.” These “constituencies” are regarded as possessing certain highly relevant knowledges and skills, which mediate and reflect local cultural conditions. Insofar as this tradition of research, following as it does the sociology of scientific knowledge, considers both scientific knowledge and lay knowledge to be in large part “local”—that is, derived from their respective local cultural conditions—it charts the clash of cultures between the expert and the lay.⁵ In other words, lay local knowledge is viewed as qualitatively different from that of scientific experts insofar as it does not share in certain key assumptions and practices that undergird the scientific enterprise.⁶ So, a small number of investigations have charted the ways in which these two groupings interact, and the problems that arise on either side as a result of their sometimes incommensurable cultural preconceptions and commitments. The point to note is that these “cultural preconceptions and commitments” are often local: they concern the (culturally embedded) understandings of local terrain or the relative trustworthiness of various local experts within the community, or the local understandings of the body.⁷

The danger here is that there is a possibility of romanticizing the “lay local.” That is to say, in reading some of these studies of local communities, one is often left with the impression that the “lay local” is the site of a happy common and coherent consent. The “lay local” as a whole comes to oppose the impositions of an insensitive or over-assertive

institutional science. This romanticization has at least two dimensions. On the one hand, the “lay local” can become a place devoid of internal conflicts—it is homogenized. On the other hand, and more important in the present context, the “lay local” comes to be viewed as a domain separated from wider cultural dynamics. With the exception of its problematic relation to science—the object of study—the “lay local” is “hermeticized” so that it stands alone and self-contained. Such “hermeticization” enables the root of disaffection with, and opposition to, science to be identified with the character of the particular “lay local” (manifested in, for example, local knowledge or social identity). However, in the process, the ways in which such disaffection and resistance are resourced by broader cultural dynamics which fold into the “lay local” are neglected.

For example, Wynne’s famous account of the way that sheepfarmers became disaffected with the scientists sent to monitor levels of ionizing radiation on the Cumbrian fells rests, in part, on assumptions about the tacit views the farmers had of their own expert, culturally embedded knowledge.⁸ From this study, it would appear that the farmers’ embeddedness in the “lay local” made it inevitable that they would react in the way they did. However, it could be argued that the high regard they had for their own lay expertise rested on a view of “having choice”—they had the luxury of choosing between different knowledges and knowledge systems (the scientific and the “lay local”). It is thus possible to argue that such a valuation of choice is partially grounded in broader dynamics concerning consumer society in which “citizenship” has increasingly come to be equated with the exercise of consumer choice. The farmers “chose” to dispute the findings and methods of the scientists and this “choosing” was enabled by empowerment wrought by the rise of consumer culture and the “authority of the consumer.” As such, they might well have “chosen” to accept the official scientific accounts of the condition of the fells. Now, irrespective of the merits of such an argument with respect to this specific case study, the key observation is that such changes (the rise of consumer culture) insofar as they reshape conceptions of self, discretion, rights, citizenship and so on, will have an impact upon the way that science is apprehended in the “lay local.” Indeed, the “lay local” is no longer so “local”—it is distributed, folded into a dispersed set of cultural and social (to name but two) networks and flows.⁹

Now, there have been accounts which take a more macrosociological perspective on the public response to science in the present phase of modernity. Most famous of these is, perhaps, Lyotard’s account of the end of the grand narrative of science.¹⁰ According to this, people have become disillusioned with science because it has failed to deliver its Enlightenment promise: gone is the commitment to the improvement of the human lot, both economic and political; all that remains is science as the technician-servant of industry. In contrast to Lyotard’s representation of a wholesale and coherent rejection of science, writers such as Bauman, Beck and Giddens have laid emphasis on the ambivalence of laypeople’s views of science. For these authors, the public both blames science for its part in the various crises and disasters and relies upon it to identify and solve these problems.¹¹

These accounts can be criticized for not fully appreciating the range of intellectual and technical uncertainties, and institutional disparities, that inhere in “science.”¹² But there is a more serious problem in the present context. In focusing upon the way in which the “lay public’s” view of science has altered, these accounts limit themselves to more or less explicit changes in the specific relation between lay publics and science—for example, the impacts of the portrayal of science’s controversial nature in the media. In contrast, there are changes in other domains of social and cultural life that can have an impact. If, for example, we take seriously what Keat, Abercrombie and Whiteley have called the “authority of the consumer,” then we can envisage scientific knowledge as a consumable—no more or less valuable than other consumables.¹³ No longer is it regarded solely in terms of its

instrumental value (what practical solutions does such expert knowledge offer?). No longer is it simply evaluated in terms of the form of its tacit representation—the “body language” as Wynne calls it¹⁴—of the institutions from which it is disseminated (is this knowledge presented in such a way that it disregards my local, situated knowledge and disrespects my local, situated identities?). Instead, publics also assess the ways in which science contributes to the expressive or stylistic dimensions of everyday life (how does this expert knowledge enable a subcultural identity—an identity that can be dispersed geographically and temporally—to be practiced?).

In the next sections I will consider a number of facets of consumption and consumer culture, with a view to explicating some of the implications that they have for studies in the public understanding of science.

Consumption and stylization

Consumption is no longer seen to be a matter of consuming things simply because these enable the accomplishment of certain material ends or the performance of certain practical functions (e.g., a stove enables one to cook a meal, a car allows one to get from A to B more quickly, etc.). Rather, these ends or functions have become infinitely more complicated (certainly at the level of cultural analysis). Everyday life has become aestheticized (or stylized). That is to say, for some commentators everyday life is characterized by “the rapid flow of signs and images. . . . Consumer society. . . confronts people with dream-images which speak to desires and aestheticize and de-realize reality.”¹⁵ The upshot of this is that consumption is as much concerned with “attaining” images as material things. Goods are now used as if, as Celia Lury puts it, “they were works of art, images or signs, to be engaged with via processes of fantasy, play, daydreaming and image-making.”¹⁶

Now, this can also be linked to the specific ways that the process of consumption is modeled and “sold,” as it were. In this respect, Bourdieu calls attention to a new class faction—the new petite bourgeoisie engaged in the “cultural” professions, that is, “occupations involving presentation and representation (sales, marketing and advertising, PR, fashion, decoration. . .) and in all institutions providing symbolic goods and services. . . medical and social assistance (marriage guidance, sex therapy) and cultural production and organization (youth leaders, radio and television producers. . .).”¹⁷ Members of this faction have taken up styles of life entailing consumption that is eclectic, rapidly changing and conspicuous, enabling members to differentiate themselves symbolically and culturally. By virtue of its visibility, this class faction serves as a model group which fosters a similar lifestyle amongst other groupings.

Of course, as Lury comments, things are not as simple as this picture makes out.¹⁸ Such aestheticization or stylization, however prominent amongst those who routinely appear in the media, does not necessarily take a hold of, for want of a better term, “lay consumers.” Their own background (local culture, economic resources, political affiliation) will shape whether this mode of consumption is attainable, let alone desirable. Further, we need to be careful not to elevate this mode of consumption over others, or to generalize across different contexts: as Miller remarks, “We need to be sensitive to the possibility that consumption represents a kind of activity quite different in North China to Argentina, or for women as opposed to men, within a given reason.”¹⁹ That said, Miller is also willing to generalize, albeit circumspectly: recent changes, particularly rationalization in institutions and bureaucracies, means that many people no longer identify themselves “with institutions that produce and distribute goods and services. To that extent they increasingly see themselves as consumers as opposed to producers.” For Miller, identity has come to be mediated through acts of

consumption.

It is, however, important to note that this general, and very partial, outline of the culture of consumption does not necessarily presuppose some sort of opposition between the consumer and the person embedded in the “local.” As Miller argues, sociality (in the sense of on-going social inter-relations) can always be said to be concerned with material culture, with the production, exchange and consumption of goods.²⁰ Indeed, processes of consumption can ground sociality and the sense of community. One need only think of collective processes of consumption that characterize many subcultures to recognize this.²¹ The point to emphasize is that the concern with consumption does not deny the importance of the “lay local” as I have called it above. Rather, it should be seen as a dimension of it: on the one hand, consumption is a means by which the sociality of the lay local is practiced; on the other, the lay local shapes the meanings of the activity and “objects” (technologies, knowledges, images, etc.) of consumption. In this respect consumer culture is ambiguous. It can both empower certain lay local communities and subcultures, especially where these groupings subvert the dominant meanings of consumables (for example, where men’s suits are “refined” to the point that they signify a distinct identity, as in the case of the Mods). However, it can also tie those groups more firmly into the dominant networks of consumption (for example, into the product lines of multinationals like Nike). What, then, are the implications of this dimension of modern life for the public understanding of science? Let me tentatively suggest the following three scenarios.

Scientific knowledge itself as a consumable.

Scientific knowledge is always mediated—it never appears in some abstracted, value-free, purely “cognitive” form. As many researchers interested in the relation of science to the public have documented, scientific knowledge is always relayed through texts, pictures, people and institutions, in one context or another. Of course, from the perspective of the sociology of scientific knowledge, “relayed” is the wrong term here. Rather scientific knowledge is shaped through these various media, signs and representations. Thus researchers in science education have noted that science is always mediated by the culturally embedded tenets of educational practice, but also by the circumstances in which students find themselves.²² Scholars interested in media portrayals of science have argued that the relation of science to the media is highly complex: science is represented in the media as “pure,” but it is also fundamentally bound up in, and shaped by, political claims-making²³; science chronically generates controversial knowledge, yet is portrayed as able to overcome uncertainty through universal method²⁴; science is an enterprise quite independent of the media, yet scientific activity is also influenced by the media and the possibilities it offers for publicity and influence.²⁵ The obvious point to all this is that science as it enters the public realm signifies many things.

This implies that science is not valuable—or valued—*simply* because it enables certain practical actions. That is to say, it is not simply the use-value of scientific knowledge that makes it important for people. Of course, use-value is not even important for many scientists who in the practice of what they see as “pure research” place the emphasis upon the pursuit of knowledge “for its own sake.” However, “for its own sake” actually refers to a number of Western or enlightenment cultural values by which we value particular scholarly activities for their contribution to “Western civilization.” Needless to say, this picture can be criticized for removing from view the sorts of conditions, discourses, interests and so on that inform such a vision of “for its own sake.” However, in the present context, I want to suggest that scientific knowledge may also be valued in terms of the way it can be

consumed: the “for its own sake” comes to refer to the way that knowledge of some aspect of science can signify that one is a particular sort of person. If knowledge of the oeuvre of a particular film director is a form of consumption that can signify “a cultured person of a particular sort,” knowledge of new scientific findings, phenomena, controversies can serve a like purpose. To know about black holes, chaos theory, cold fusion, xenotransplantation, the “ear-mouse” and so on is to perform a particular identity.

In the context of the preceding discussion, such a “knowledgeability” does not necessarily link up to assimilating scientific principles, facts, procedures and so on. There is no necessary accumulation of knowledge that becomes foundational—a basis for further action. Rather, this knowledge is “transitory”—a passing pleasure that becomes quickly redundant, insofar as it is consumed and displayed as a set of images and texts that can easily be overtaken by others, say concerning the arts or politics or sport or fashion.

Scientists in the media: relations to the new class factions

Of course, part and parcel of the representation of science in the media is the representation of scientists. They too become images to be consumed and talked about in the display of identity. However, in the same way that the cultural professions mentioned above are not only consumed, but also serve as a model for consumption (or comportment, more generally), so too can scientists play the role of a “model” (over and above that of stereotype).

However, scientists stand in stark contrast to the cultural professions with their conspicuous turnover of styles. Indeed, scientists can almost be seen as a modernist antidote to this postmodern grouping. Where members of cultural professions are characterized by instability, scientists might be seen as embodying stability, a core of rationality and continuity. The point is that scientists-in-the-media are ambiguous. On the one hand they might be compared to aestheticizing “celebrities” and found wanting; on the other, they may be seen as islands of substantiality in an ocean of superficiality.

However, as we might suspect, things are no longer so simple: scientists-in-the-media are becoming ambiguous figures. For example, the iconic figure of Stephen Hawking might be said to embody this ambiguity. On the one hand, he is seen as a highly rational voice. Indeed, as Mialet brilliantly shows, what we are encouraged to see by admirers and (on occasion) by Hawking himself, is a pure mind that is in unmediated contact with the cosmos.²⁶ On the other, Hawking is a “star”—he appears on *Star Trek—The Next Generation*, he lectures at conferences on disability, he contributes to popular science programs. How do these scientists-in-the-media, with their shifting identities and multiple roles, relate to cultural professions? Might this fluidity of identity amongst certain scientists serve as a model for an accelerated turnover of identities and more feverish consumption?

Scientific knowledge as “informing” aestheticized consumption

Above, I have suggested that scientific knowledge may be an “object” of aestheticized consumption. However, this is not to deny that such knowledge can be used—can have use-value—in relation to decision-making when it comes to making consumer choices. That is to say, scientific knowledge can obviously inform whether to buy this or that commodity, engage this or that service. However, when such choices are guided by valuation of the aesthetics of a particular bit of material culture, then scientific knowledge becomes less valuable.

Choosing particular technological artifacts on the basis of their practical functionality

might require some understanding of science (e.g., in terms of their efficiency, power, safety, and so on). However, choices are also guided by aesthetics: as Lury suggests, design has become a sign of good taste—something which seems to have intensified in recent years.²⁷

We can suggest that such aesthetic judgment operates in relation to the choosing of services such as, for example, alternative therapies. The New Age movement not only signals a moral and political shift. According to Ross, a key attraction for users of New Age therapies and techniques lies in the willingness of practitioners to render them accessible and transparent.²⁸ There is a dimension of communitarianism which makes the expert knowledge on which these services are based more open-textured so that users can contribute to the production of knowledge. Such communitarianism—or what Maffesoli would call sociality—entails, at least in part, an aesthetic dimension.²⁹ However, the New Age is also a marketplace in which expertise needs to be protected if livings are to be made.³⁰ Such expertise is conferred through the monopoly of both practical skills and the aesthetic/social skills. These latter skills are concerned with comporting oneself (as a practitioner) in a way attractive to patients/clients. As such, the dialogical process of treatment is a moment not only of (apparent) empowerment of the patient/client, it is also an aesthetic moment of pleasure. While this is regarded by practitioners as part of the treatment,³¹ it is also part of the “design.” The point is that within New Age medicine, “design” and “knowledge” are intertwined, and this may be one of the reasons that these techniques are so attractive. Now, if consumption is guided by an aesthetic concern with “design,” then expert scientific knowledge *per se* seems to be of limited relevance. That is to say, given the traditional separation between fact and value (including aesthetic value) within science, it becomes difficult to see how scientific knowledge can enter into aestheticized consumption.

Having noted this, however, it seems that changes may be afoot. In some instances, it might well be the case that scientific knowledge informs certain aestheticized consumer choices in some domains. For example, the appeal of recombinant human growth hormone for parents of small, ordinary children, as Turner has noted, may lie in the aesthetic qualities (tallness, for example) that their children will attain.³² The choice of such techniques will, in part, be informed by expert assessments of the risks and efficacy associated with them. As such, scientific knowledge may become, especially with the rise of new biotechnologies, increasingly relevant to aestheticized consumption (perhaps most relevant here are the recent arguments over cloning, genetic engineering and the production of “designer babies”).

Aestheticized consumption does not, of course, preclude a concern with the utility of products. As we shall see in the next section, scientific knowledge does inform such utilitarian consumption. However, as we shall also see, this might be at the “cost” of contributing to the elevation of the consumer over and above the citizen.

Consumption and citizenship

As is well known, scientists’ concern with the public’s (lack of) understanding of science is often explicitly linked to the capacities of members of the public to act as citizens. For example, the Royal Society’s influential report on the public understanding of science, in noting that “scientific literacy is becoming an essential requirement of everyday life,” is oriented toward the specific policy of encouraging and nurturing democratic participation.³³ Given that so much political decision-making is based on science, “for individual citizens, to participate in a democratic society”³⁴ it becomes “important that individual citizens, as well as decision-makers, recognize and understand the scientific aspects of public issues.”³⁵

Now, such an equation between “scientific literacy” and “enfranchisement” can be criticized on a number of counts. For example, it neglects other forms of democratic

participation and expert knowledge which are “situated”—or rather, which do not make such strong claims to universality. Further, it elides the possibility that accredited scientific knowledge and procedures, when transported into new contexts, become uncertain.³⁶ However, in the context of a discussion about the role of the consumer, another nexus of issues arises in which scientific literacy and citizenship are partly mediated through consumption. In the process, as argued above, the “lay local” is no longer only a site of the practice of situated knowledge and local democracy—rather, it becomes a point at which the relations between accredited scientific knowledge, situated knowledge, local democracy and national (and transnational—however, see below) citizenship are played out through the processes of consumption.

Recently, the division between the “citizen” and the “consumer” has been subject to close scrutiny. One important account (again, I make no claim whatsoever to an exhaustive review of this literature) points to the pre-eminence of the “New Right” and the attendant advocacy of the rights, choices and decisions of the “customer.” The enhanced standing of the figure of the “customer” is manifested in the way that a number of domains which were hitherto regarded as lying outside the market (for example, the public services) are now regarded in terms of how they cater to the “consumer.”³⁷ This has been partly responsible for the blurring of the boundaries between “citizen” and “consumer.” Saunders, for example, argues that to possess the financial resources to consume, in what he refers to as a privatized mode, leads to the “experience of controlling one’s immediate life and environment (which) fosters a degree of confidence and self-esteem. . . which appears crucial as the foundation for a lively and cooperative civil society.”³⁸ Now, it could be argued that this version of the relation between consumption and citizenship does not properly address how such rights and choices are themselves socially constituted. For instance, can the fulfillment of “needs” or “wants” which are in some sense “inauthentic”—say, partly driven by commercial interests—really comprise an exercise of citizenship? Of course, what counts as “authentic” is always a matter of great contention, and there are innumerable criteria by which to judge this.³⁹ The main point is that Saunders’ is but one version of the inter-weavings of consumer and citizen. As Gabriel and Lang document, there are very many different ways in which the relation between consumer and citizen can be articulated, from consumer/citizens “voting” with their purchasing choices to making concerted efforts to influence policymaking with regard to the production of certain consumables (such as genetically modified foodstuffs).⁴⁰ In sum, then, it seems to be becoming increasingly problematic to separate out—to keep distinct—the practices of citizenship from those of consumption.

One implication of the above is that if political influence comes to be partly mediated by consumer choice, then the role played by “scientific literacy” becomes less clear. Certainly, it can contribute in some cases. For example, some level of scientific understanding is necessary if one wants to practice “green consumption.” Or rather, some level of trust in an expert constituency (whether that be scientists attached to industry, government or non-government organizations) is a key component in the “ecological” (or medical) valuation of particular products. But, as we have seen above, there are other dimensions to consumer choice. We have already mentioned aesthetic dimensions, but there are also ethical (e.g., uses of ingredients derived from, or tested upon, animals) and political (e.g., fair trade policy, trade union recognition), as well as economic (price). The point is that with the possible increase in the “authority of the consumer,” doing politics through consumption is guided by many considerations that draw on many different sorts of knowledges that cannot be brought exclusively under the rubric of science. Furthermore, these considerations cannot be simply situated in the lay local, for they reflect affiliations, more or less durable, to such distributed social configurations as new social movements⁴¹ or neo-tribes.⁴²

At the very least, the foregoing suggests that critical studies of the public understanding of science need to address such questions as: How is scientific knowledge “folded into”—even ranked within—a series of other knowledges concerned with politics, aesthetics, ethics? How is trust distributed across a variety of (perceived) expert bodies, and in what ways does this trust “drift,” coalesce or dissipate? How is the “authority of the consumer” (with its attendant deployment of different knowledges) related to the authority of the (traditional) citizen, the sub-politics of the member of new social movements,⁴³ and the authority of the member of the lay local community?

Making the public

Let us take a moment to reflect here. The above focus upon the consumer perhaps suggests an overly rational model of the lay public. While the sorts of knowledges outlined in the foregoing do contribute to the making of decisions, their valuation will reflect, as also noted, certain types of “belongingness,” that is, certain types of self-identity.⁴⁴ Such identities are not simply derived from the lay local, but, unsurprising given the general argument of this paper, are constituted through broader cultural, social and institutional dynamics. The “nature of the public” is mediated by, amongst many others, the discourses and techniques of the social sciences. These, I will suggest, can reflect broader shifts in the conceptualization of the public—from citizens to consumers, for example.

Now, clearly concepts of what the “public” is have evolved over history. For example, Chaney has traced how, over the course of the early modern period, there was a transition from the spectacular society in which spectacle, drama, and theatricality was part of the very fabric of the public’s sociality, to a society of the spectacle in which spectacle comes to be presented to a public, now an audience.⁴⁵ Interestingly, this account maps onto the suggestion made above that the public consumes science for pleasure. In this case, science would be consumed as spectacle, a drama. A parallel story, though in a very different context, is told by Shapin.⁴⁶ The differentiation between science and public has been a massive historical achievement and not the result of the evolution of science into an increasingly more esoteric, mathematized, complex enterprise that has progressively excluded the public. Throughout history there have been challenges which problematized the increasing mathematization in science (for example, as with Paracelsus and his followers). The removal of science and its objects of study from the messiness of everyday life was seen by the Paracelsans to produce defective knowledge—true knowledge would, in contrast, be found amongst artisans with practical experience of particular phenomena: miners, farmers, breeders. Whereas at one point the “lay” was a part of science, now it has been thoroughly exorcised—the public’s role being one of providing support for science. (As we have noted above, these challenges are on-going.)

My main concern here, however, is to explore how the public and its relation to science is represented, and fed back to the public. This representation, the social scientific discourses and techniques by which it is derived and disseminated, is not innocent. Following Hacking, we can state “that numerous kinds of human beings and human acts come into being hand in hand with our invention of the categories labeling them.”⁴⁷ The ways in which the “member of the lay public” is formulated, categorized, conceptualized and so on have effects, for “making up people changes the space of possibilities for personhood.”⁴⁸

In relation to the discussion of the consumer-citizen, this figure is itself a representation that contributes to the making of the “lay public” and the delimitation of spaces of possibility for (lay) personhood. Thus, we can note with Nikolas Rose that “all shades of political opinion now agree that citizens *should* be active and not passive, that democratic government

must engage the self-activating capacities of individuals.”⁴⁹

This figure of the “active political subject” is constituted through regulatory, heterogeneous, and distributed “subjectifying technologies.” As Rose elaborates:

Our century has added the mass media of communication, with their pedagogies through documentary and soap opera; opinion polls and other devices that provide reciprocal links between authorities and subjects; the regulation of life-styles through advertising, marketing and the world of goods; *and* the experts of subjectivity. These (subjectifying) technologies. . . have made it possible to govern in an “advanced liberal” way, providing a plethora of indirect mechanisms that can translate the goals of political, social and economic authorities into the choices and commitments of individuals.”⁵⁰

Studies of public understanding inevitably have recourse to these subjectifying technologies. This is not a criticism *per se*. According to Rose’s account, such technologies (and the institutions in which they embedded) are the key—indeed, predominant—sources in the making of people in advanced liberal democracies. Even notions such as resistance, freedom, democracy, and so on are bound up with these technologies. The main point here is that the discourse and techniques of the social sciences, as applied in the public understanding of science, whether they be in the form of questionnaires or ethnographic studies, (re)produce particular versions of the “lay public.” They are parts of a circuit or nexus of activities that feeds back to the “public” visions of itself.

Above, I noted how critical microsociological studies in the public understanding of science incorporated a particular vision of the lay public. As I have suggested elsewhere, this sort of analysis often champions the “lay local,” valorizing situated knowledge by locating it in local culture itself seen to be a “good thing.”⁵¹ However, for Mouzelis this privileging of the local is not unproblematic: the “local,” as we have noted above, need not be that local. A lay community need not be so unified or coherent—communities have their share of internal political maneuverings too.⁵² The subjectifying technologies entailed in such social scientific research (e.g., semi-structured interviews, focus groups, participant observation, ethnography) can, therefore, be said to “make” a particular sort of public. For example, as suggested above, the work of scholars such as Brian Wynne can be said to promote a particular sort of layperson, say, equipped with culturally grounded practical skills, an appreciation of scientific uncertainty, and concerned with particular (communitarian) forms of relations of power.

Of course, this same point applies to that more “orthodox” technique in the public understanding of science—the survey questionnaire. This “subjectifying technology” has been criticized on many counts. For example, it rests on the assumption of a deficit model wherein laypeople are assumed to be lacking in scientific knowledge or literacy⁵³; and, further, it cannot accommodate the many meanings of “don’t know” responses.⁵⁴ In relation to the making of laypeople, such technologies promote a version of the public that, at base, desires enfranchisement within a liberal democracy, but is hampered in this by virtue of its limited scientific literacy. However, there are also other characteristics of the lay public that are beginning to be “articulated” through these research tools, characteristics that concern consumption. For example, Davison, Barns, and Schibeci⁵⁵ and Hill and Michael⁵⁶ have noted that in relation to the questionnaire surveys of the public understanding of, and attitudes toward, biotechnology, there has been an increasing focus upon the layperson as consumer. Ironically, then, these social science subjectifying technologies may be contributing to the “making of persons” not simply as citizens but also as consumers. We might further speculate that such shifts in research orientation may comprise a tacit

response to the increasing centrality of the consumer and consumer culture, and to the conflation between citizen and consumer.

Concluding remarks

In this paper, I have attempted to identify a feature of being a “lay person” neglected by both microsociological and survey approaches to the public understanding of science. In focusing upon the broader cultural phenomena of the rise of consumer culture, the aestheticization and stylization of everyday life, the authority of the consumer, and the conflation of consumer and citizen, the aim has been to broaden the scope of what it means to study the public understanding of science. To explore the relations between “science” and “public” is, I have suggested, to remain sensitive to, and analytically incorporate, other dimensions of social and cultural life that, so to speak, escape our present understanding of the “lay local.”

Throughout this paper I have stressed that my account of the dimension of consumption is superficial at best. There are many issues, facets, perspectives that I have not addressed—a more nuanced treatment would include a conceptual analysis of “the consumer.” Suffice it to note in the present context that we must exercise circumspection over our use of such notions as consumer, consumer culture and so on. At the very least, we must avoid fetishizing these; we should not, ironically, transform ourselves into uncritical academic consumers of “consumption.” In contrast to consumption, then, I could have placed the emphasis on globalization,⁵⁷ the evolution of political ecology,⁵⁸ or the (re)trenchment of (neo-) tribalism,⁵⁹ to name but three other purported changes to modern Western societies. These could have been used to raise similar issues for studies in the public understanding of science. Furthermore, these changes are not separate from consumer culture—they should be viewed as “folding” into it in complex ways. “Consumption,” therefore, should not be privileged over these other social and cultural changes—it is how these all impact upon the public understanding of science that is of ultimate interest. Having made this point, we should also note that in focusing upon consumption, I have treated this as distinct from scientific knowledge and its institutions. A more subtle analysis will have to detail the complex reciprocal relations between science and consumption (and globalization, etc.). For example, science can become part of the tourist gaze (e.g., at technological heritage sites),⁶⁰ but it also shapes what it means to be a tourist or consumer by enabling, albeit potentially, certain modes of travel, communication, medical provision, environmental protection or sustainability, and so on. The point is that science and the public understanding of science “work back upon” consumer culture in complex ways. The dialectical relations between these will likewise need to be explored.

However, even in the wake of such modesty and complication, it is still possible to make some suggestions about the sorts of questions and strategies that public understanding of science research might adopt if it is to come to terms with the cultural shifts I have documented in this paper. Again, the three suggestions that follow cannot, by any stretch of the imagination, be considered exhaustive.

- (a) If we take the “aestheticization of everyday life” seriously when exploring the public understanding of science, we must begin to chart the ways in which scientific knowledge is consumed for pleasure and the expression of identity. Part of this would be a consideration of how, if at all, scientific knowledge is combined with other knowledges (e.g., New Age) and cultural artifacts (e.g., entertainments). Contrary to Holton,⁶¹ we do not need to assume that scientific knowledge cannot cohabit with other sorts of “anti-scientific” knowledge where what is important is the eclectic consumption of numerous

knowledges.

- (b) How do the knowledges and cultural artefacts derived from “experts” and “popularizers” feed into the (re)production of local culture and situated knowledge? Part of this array of expert knowledges is social scientific knowledge, including that which purports to measure of the “public understanding of science.” How do questionnaire, survey, and microsociological accounts “make the lay public”? Now certainly we can accept, following Rose, that social scientific techniques can shape members of the lay public: they can serve in ordering the ways in which laypeople comport themselves in relation to expert knowledge and institutions. But the “results” of these techniques, especially representations of what the lay public is, disseminated through the media, can become a resource by which lay people articulate who and what they are. In other words, drawing on Giddens’s notion of the double hermeneutic, we can take it that the products of an academic discipline diffuse into the lay world. As Giddens himself puts it: “The concepts that sociological observers invent are ‘second order’ concepts in so far as they presume certain conceptual capabilities on the part of actors to whose conduct they refer. But it is in the nature of social science that these can become ‘first order’ concepts by being appropriated within social life itself. . .”⁶² We need to ask how laypeople take on board or dispute the representations of themselves as “scientifically illiterate” or as “consumers.”
- (c) The uses of scientific knowledge and literacy are not simply instrumental but expressive of self-identity, group membership, and political affiliation. This suggests, as Wynne has argued, that depending upon the nature of such social embeddedness, accredited scientific knowledge will not always be viewed as certain, unproblematic.⁶³ However, such embeddedness also reflects other concerns—political, ethical, economic (as well as aesthetic). With the “authority of the consumer,” laypeople’s use of science to inform consumer choice will be partial, or, more accurately, one element amongst a series of other expert knowledges. Studies in the public understanding of science thus need to begin to address how the value attributed to, as well as the knowledge of, “science” is mediated by the “authority of the consumer.” If there has been a certain enhancement of autonomy, if only as consumers, then laypeople now have the “luxury” of “picking and choosing” the sorts of criteria by which to assess the value of consumables. In this respect, if citizenship is realized in part through consumption, then increasing scientific literacy does not necessarily (re-)enfranchise. The question for students of the public understanding of science now becomes, where, and what sort, of scientific knowledge is sought and for what purposes? How do different criteria for the value of this or that material object or service serve in the opening up, or closing down, of uncertainties in scientific knowledge?

The point of all these questions is to broaden the intellectual horizons of studies in the public understanding of science. At the very most, they comprise a few pointers in the development of an expanded research program. The shape of this is still to be determined, for the questions as posed are not easy to operationalize. What is certain is that this project will be interdisciplinary, drawing upon not only sociology, but also anthropology, media studies, cultural studies, history and social theory, to name but a few. The range of methods will be equally diverse: ethnography and participant observation, textual analysis, interviewing and focus groups, diary-keeping and oral history analysis. If the prospect of such a program is daunting, my hope is that is also exciting, or, at the very least, an intriguing spur towards research which aims, one day, to place the “public understanding of science” closer to the heart of the social sciences, and vice versa.

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