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The Production of Management Knowledge: Abuses and Prevention

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Abstract

In the past years we observed changes in the structures of knowledge production. The new mode of research expects intensive collaboration among multiple stakeholders in order to ensure the social relevance of knowledge. Such a development has led many theorists to question the epistemological status of findings, and the relevance of such studies, since this mode of research might transpire rather alarmingly to serve the interests of a small influential group. By discussing the two views, the paper sides with the argument that science has evolved into a closed, self-governed system; thus, any change in the governance of knowledge production puts at stake its status and role in society –which is to serve the 'public good'. In the same line of argument, it seconds that the ethical construction of knowledge has to become the scientists' main concern, who need to be conscious not only of positive, but also of negative implications of their findings. Finally, the paper concludes with a number of suggestions, which may contribute to the ethical construction of knowledge.

Introduction

The meaning of 'good research' has been contested so much by various research paradigms, as much as other stakeholders (business managers, policy-makers, etc), who have an interest in knowledge production. Lately, there is an increasing pressure for applied research, i.e. research with practical relevance that tends to be at odds with the notion of 'contribution to knowledge'. In management studies particularly, the domination of utilitarian research and its language of 'rationality and efficiency' have resulted in constructs and practices, which have been criticized in terms of their epistemological as well as social value; notably, many theorists have warned that through close collaborations with influential stakeholders, the social may easily become political.

There seems to be an incommensurability of paradigms in assessing the epistemological value of research and its moral implications, as well as a clash of stakeholders' interests in asserting what knowledge is needed. Eventually, the dominant articulation shall indicate the direction for research programmes. The governance of knowledge is a political question of utmost importance today more than ever, since the scientific community expands, and more groups participate in the process of

knowledge production. It is imperative that the development and effective implementation of new mechanisms tailored to control cases of research abuse take place in so far as scientific ethos proves insufficient.

This paper addresses this challenge by reflecting on the rules of knowledge production. It starts by introducing the purpose of science and the criteria to ascertain the truth-value of new scientific statements, and touches on the mechanisms that prevent the misappropriation of knowledge, i.e. scientific ethos and ethics. Science was set up as a self-governed system, and its mechanisms achieved to regulate the production of knowledge more or less satisfactorily. Then, the paper discusses the argument that social science should demonstrate not only its theoretical value, but also its social relevance, in order to justify the time and funds spent on it. This argument has changed the structures of knowledge production, and let multiple stakeholders participate in various stages of the scientific inquiry. This development created more openings for abusing the knowledge production process, and led many to question so much the epistemological value, as much as the social relevance of such knowledge. A number of occasions that management knowledge may be abused are identified here, while the nature of abuse is discussed. The paper goes on to stress the importance of keeping the governance of knowledge strictly to the scientific community, because it is the only group that has the knowledge, competences, and ethos for doing so. Finally, it argues for the importance of ethical knowledge construction and, following from this thesis, presents some interventions that may prevent knowledge abuse.

Science and knowledge production

Social sciences have historically been dominated by the 'hard' scientific discourse of natural sciences that lend them their purpose and sense of value. This tradition is reflected on positivistic research, and its principles of objectivity and value-free interpretation of facts. Accordingly, the purpose of science was set as the 'discovery' of pre-existing truths; this should be achieved by following a rigorous methodology, which would ascertain the distinction between right and wrong, true and false (Foucault, 1971; 1980). The emergence of various qualitative approaches in research questioned the epistemological grounds of this view, i.e. the existence of a single 'truth' or the possibility of discovering this. In any case, whether by discovering or by constructing knowledge, the purpose of science has always been tied with the pursuit of truth.

Once the purpose is clear, the question of how to distinguish a true from a false statement emerges. There appears to be a need for a process of legitimizing new statements as 'knowledge', together with the need to set criteria, against which new scientific statements would be assessed. Lyotard (1984) in discussing the pragmatics of scientific knowledge argued that the 'research game' has set clear and rigid rules for the participants; following from the purpose of science, each statement is assessed against its correspondence to truth, and it is the speaker's (i.e. the scientist who presents the statement) task a) to provide sufficient proof, and b) to be able to refute counter-statements. On the other hand, the listener needs to have similar competences, since by accepting the statement one has to be able, too, to perform the speaker's double task.

Clearly then, the role of the scientific community in legitimizing knowledge is exclusive, since only its members have the competences (knowledge and training) to perform these tasks, and it is widely accepted that its consensus over a statement is a sign of truth. This 'exclusive right' over determining the truth has attributed scientists an exceptional status in any society, where scientific knowledge is treasured. Foucault (1980) goes further on to explaining the social consequences of the knowledge production process, i.e. how scientific statements have a normalizing effect upon phenomena and practices by imposing distinctions between true/false, good/bad; in other words, by creating regimes of truth. This disciplinary power, which lies outside any sovereign power and law, acquires legitimacy from precisely its purpose of inquiry, i.e the 'will to truth'. In return, power recompenses the 'speakers of truth' by institutionalizing, professionalizing, and rewarding this pursuit. The scientists' contribution of truth-statements reserves a special status for them in the scientific community, and moral (and other) rewards.

Criteria for evaluating scientific knowledge

But what is valuable contribution for the scientific community? The statement under examination needs to demonstrate two features: originality and insight (Aaltio, 2009). Originality entails the element of novelty, and practically means that the statement compares with previous contributions (theories or empirical studies) and suggests something new. This feature also acts as a safety valve against fraud: it is the speaker's responsibility to demonstrate the originality of the statement, and by extension, the listener who accepts the statement commits to this position. In other words, originality sets the grounds for the development of a scientific ethos, since the listeners put at stake their status if agree with a fraudulent statement. As far as insight is concerned, the new statement needs to add something new to the body of knowledge. This may mean that it explains more accurately the phenomenon under study (it captures better its complexity, or it has better predictive power, etc), or that it does what previous theories do, but in a simpler way.

The means available to the speaker to ascertain the two features is the scientific method, which also acts as rhetorical device. The scientific method ensures the necessary rigour that should characterize any research project by specifying a process to follow, tools to use, and precautions to take, while designing and conducting a piece of research. The speaker has to convince the

audience about the reliability and validity of findings by explicating the steps followed and by justifying the choices made throughout the study. By demonstrating rigour in the research process the new statement gains credibility.

Truth and rigour are fundamental principles guiding the wider scientific community when assessing new statements; however what is actually meant by these terms is articulated differently within each epistemological paradigm, and these articulations evolve through time (Kieser and Leiner, 2009). The scientific method, even though developed within a positivistic paradigm to denote a specific methodology and research method (i.e. that of experiment and survey), it may also mean a thorough methodology, which can substantially vary across epistemological paradigms. The specific criteria of reliability and validity, which are adequate to evaluate quantitative findings, are progressively replaced by other criteria developed within each paradigm, adequate to evaluate their statements by remaining committed to the principles of truth and rigour. Kieser and Leiner (2009) argue that this situation makes the evaluation of new knowledge even more complex, since new statements are not assessed with the same criteria.

Governance of Knowledge: scientific ethos and ethics

Evidently the scientific community is a 'closed system', which relies strictly upon its members' contributions and consensus for its sustenance. As Lyotard (1984) suggests, the research game needs equals, and 'equals' must be produced through education and training; the novice researchers not only acquire knowledge of a specific cognitive field and develop research competencies, but they also learn the rules of the research game and develop the necessary scientific ethos, which will serve the purpose of science. Ethos means shared values, beliefs, and attitude; in other words, a deep-rooted code of conduct. The scientific ethos has historically been developed around the core values of truth, originality, and rigour. Merton (1973 in David, 2004, p. 573) has famously articulated its features as: communalism, universalism, disinterestedness, originality, and skepticism; these consist the touchstone of 'open science', as the latter was institutionalized as early as Renaissance. 'Open science' here means that allegedly anyone could pursue a career as equal member of the scientific community, and that the research results –i.e. new knowledge- and methods used should be disclosed the soonest to the public.

The core-features of scientific ethos turned scientific knowledge into a public good, and the scientific community a reliable worker of truth in the service of society. The topic of inquiry would be decided by the individual researcher based on own personal interests, and validated by the community for its scientific merit and potential contribution to knowledge. Publications and conferences have traditionally been the channels for communicating research results with the peers and the public. Furthermore, once a statement is published, one can assume that it has the consensus of the scientific community as a truth-statement, and that it makes a significant contribution to knowledge. These new statements are open for challenge to any member of the scientific community in the process of advancing knowledge, without this consisting a personal offence to the speaker (David, 2004).

It was mentioned above that, the selection of a research topic is the individual's free choice, and should comply with the feature of 'disinterestedness'. However, it is a common place nowadays that the 'inquiry into truth' cannot be value-free. Any inquiry, from the moment a topic is selected, is already loaded with the researchers' preferences, their views of what is significant to research, and how the research results should be used. All these 'choices' are to a great extent pre-constructed by the epistemological paradigm wherein each researcher works. The 'objectivity' of science has remained an archetype, which forms research ethics rather than an actuality. The view on ethics here goes beyond the actual implications upon research participants (i.e. to ensure that no harm was done to participants, their fully informed consent was acquired, their privacy was protected, and no deception occurred throughout the study). It is argued that the standard code of ethics does not prevent effectively knowledge abuse, since it leaves room for politics to invade the production of knowledge. The suggested view extends back to the researchers' own presuppositions and beliefs regarding the ends of knowledge production.

Again, it turns out that each paradigm regulates the conduct of research according to the values they hold and the research agendas they suggest. Indeed, many alternative research paradigms, e.g. critical, feminist, post-structural, have attacked openings of conventional paradigms for an amoral science, and claimed that since the researchers' values are always part of any inquiry, then these should be carefully considered when the methodology and findings are explained (Payne, 2000). Some go a step further to suggest that since science has the power to create regimes of truth, then it is an obligation towards society to conduct inquiry with a solid moral base (Brief, 2000; Selzinick, 2000; Alcadipani & Hodgson, 2009)

It appears then that science was developed as self-governed system: scientific ethos and research ethics are the mechanisms to regulate the conduct of inquiry into truth. Their core-features, as described above, set and secure the standards and rules for the governance of knowledge production: the scientific community decides upon what knowledge is needed, and also decides over what is valuable new knowledge. The findings are disclosed to the public once the process is concluded, i.e. once the scientific community agrees over the truth-value of a statement. Evidently, these mechanisms were devised internally by the scientific community, and rely precisely on the members, i.e. on their education (novice researchers trained by senior members) and later

on their integrity, for its success –even though many have commented that the mechanisms are not always very effective, since cases of misconduct are not unusual (David, 2004; Payne, 2000; Heller, 1986).

Science here is described as an 'open / closed system'; it is open in the sense that anyone can allegedly pursue a career and become a member of the community, and also open in the sense that truth-statement should be immediately disclosed to the public, together with the methods used. On the other hand, the actual production of knowledge and its governance has always been an exclusive right of the scientific community. The governance of knowledge is a critical question, since it actually decides what is true/false, right/wrong, and essentially prescribes the direction of progress in society. However, such a 'closed' system, as the one described above, has frequently been called 'Ivory Tower'; scientists have been criticized for being isolated from the actual concerns of society that eventually funds these 'blue sky research' activities. As a result, nowadays, there is an increasing pressure on scientists to consider the 'social relevance' of their inquiries.

A new principle: Social Relevance

Social research can be undertaken for a variety of objectives. It can be conducted as 'basic' research, where the orientation is primarily intellectual and explanatory, and the aim is to increase our understanding about an emergent or changing phenomenon. As discussed above, researchers define the question according to own interests and values, and the scientific community is responsible for validating the research outcomes. The value of findings is assessed against criteria set by the scientific community; if successfully validated, then the researcher reaps moral rewards, i.e. recognition by peers, and develops further her/his career. This mode of inquiry has been the first and prevalent in all research fields. What is important here for the scientific community is the contribution to knowledge.

Alternatively, research can be conducted with the objective to resolve a practical problem. The value of this type of research is assessed against its social relevance, i.e. whether it successfully resolves a problem of the end user. Interestingly, the evaluation of research still remains within the ranks of the scientific community: the researcher has to explicate the social contribution of the inquiry and findings, and the peers approve it or not. However, if successfully validated the researcher does not gain any rewards. The necessary criterion for developing a research career is always the contribution to knowledge and the number of scientific publications. As expected then, under this mode of inquiry social relevance is not a top priority in researchers' agendas. Furthermore, the scientific community has always perceived the outcomes of applied research with suspicion in terms of their epistemological value.

Nevertheless, given the financial cost and the material and moral rewards it brings the actors involved, there is an increasing pressure for research to account for the resources it requires, and more specifically for research to demonstrate its value for society. This may be a consequent of the proliferation of research funds available by non-academic institutions, e.g. E.U., corporations, private and public organizations, which expect tangible and immediate outcomes, and decide the allocation on the grounds of 'social relevance' of the proposed project. It should be stressed here that each institution articulates 'social relevance' differently, according to own interests. At the same time, the funds for basic research in many countries shrink, and for some social fields hardly exist. This puts pressure on researchers to direct their inquiries towards a specified and limited set of questions that are suitable to investigate within the constraints of applied research.

Management research

For management studies things are 'stickier' than other fields; it took time for management researchers to distance themselves from their 'clients' interests and assert the academic value of their inquiries (Wright and Wright, 2002; Whitley, 1984). Yet, the dominant utilitarian discourse constructs a view of the business world, where firms are 'rational' organizations that strive towards 'excellence', 'progress' and 'improved performance'. These assumptions represent the organization as a coherent whole that can and should be controlled by the managers' unquestioned authority, and with the support of technologies, which intend to overcome deviant behaviour and achieve optimum performance. Research from this respect is widely shaped by managers' understanding of the problem, and its objective is to change or improve current practices, ultimately by supporting managerial interests (Whitley, 1984; Brief, 2000; Wright and Wright, 2002).

Critics (Alvesson and Willmott, 1992; Wright and Wright, 2002) have argued that this research approach focuses on managers, whilst attributes a neutral and 'objectified' role to other organizational stakeholders (employees, shareholders, local communities, etc), who presumably simply follow or react to managers' decisions. Wright and Wright (2002) point out that this research stream resulted in a number of 'social charms' such as 'civility', 'collegiality', 'team player', targeted to improve social interactions and increase organizational efficiency, whilst they ignore the employees' needs and expectations. The authors continue that these studies essentially lack social relevance, precisely because they fail to address the needs of the most relevant audience, i.e. the employees, who are primarily affected by research implications. On the other hand, it is interesting that managers too perceive this type of research as low in relevance (Brief, 2000; Huff, 2000). Even though unclear as to what

managers actually expect, Brief (2000) believes that this is good news for management research, since managerial bias is lessened by managers not buying into this type of inquiry.

The new production of management knowledge

Clearly, management research is practice-oriented and its evaluation can no longer be assessed strictly in a 'scientific vacuum'. However, the pressure to link the scientific community with other stakeholders is highly debatable (Freeman, 1994; Brief, 2000). On one hand, supporters of 'science only' mode of research doubt the epistemological value of knowledge guided by the lay audience. On the other hand, opponents acknowledge that there is no value-free knowledge, hence research is always guided either by the researcher or the scientific community, if not by the public interest, and they insist that social research should be able to demonstrate its sound ethical grounds.

In knowledge societies, the issue is not a matter of choice any longer; the pressures for socially relevant knowledge and for collaborations between academia and other stakeholders, i.e. mode B production of knowledge (Gibbons et al. 1994) has already transformed traditional research structures and subjects (Asimakou, 2009). One can observe that there are increasingly funds for research programmes available from private institutions and corporations. Especially corporations increasingly found private research centres and corporate universities, and pursue collaborations and alliances with academia. The programmes are determined according to the interests of the funders, and the aim is the production of commercial knowledge, i.e. exploitable knowledge with potentials for immediate returns. Furthermore, an increasing part of the population is educated to a higher academic level, hence they develop an understanding of science and methodology (Asimakou, 2009; Alvesson, 1993). The boundaries of the academic community expand, and the relations between scientists and professionals are renegotiated, since they all fit in the articulation of the knowledge worker.

If collaborations are the new mode for knowledge production, then the critical question that arises is the governance of the process. I have discussed how in traditional scientific research decisions about what is knowledge and who is to decide this are kept strictly within the ranks of the scientific community, which is regulated by scientific ethos and ethics. In the new mode of research increasingly the decision on what is worth knowing, as well as the legitimization of new knowledge (here judged on the criteria of cost-benefit) slips away from the boundaries of the scientific community and is undertaken by the sponsors.

This is a most significant change, since the knowledge each society pursues directs its progress and development; however, it is striking the lack of an effective mechanism to control the new production of knowledge, since solely scientific ethos is not sufficient any longer in a game where multiple stakeholders are involved and have the power to influence and even take decisions. The decision of what is knowledge and who legitimizes this decision is a political question, which must be carefully considered since academia is engaged in more intensive collaborations with knowledge stakeholders.

Abuses of Management Knowledge

Apart from the crucial decision of what to research which impacts on the direction of research programmes, and regardless of the type of collaboration, there is a number of occasions that the value of the produced knowledge, be it its academic rigour or its social relevance, may be harmed by the nature of the interaction between the scientific community and the participants.

Especially for management research, where the materialization of research depends heavily upon managers to provide access or data, this strong link between researchers and managers poses new threats to the epistemological value of the inquiry. In reality, the researcher faces the dilemma: to investigate problems and tailor the research proposal to the managers' needs, putting at stake the principle of social relevance of the project, since managers do not represent the whole population of the organizations. By letting managers formulate research, the 'social' becomes evidently 'political'. However, if the researcher complies, then s/he receives easily access, data, and often funding; if not, then s/he might struggle to get some gates open. The assumption that managers are only interested in trouble-shooting projects has led much of management research towards this route, whereas other forms of collaboration, such as 'building bridges between researcher and user', 'researcher-client equality', 'client-professional exploration' suggested for social science (Heller, 1986) are less often considered. This situation evidently presents a threat to the value –so much the epistemological, as much as the social relevance- of the produced knowledge, since research questions, and sometimes results too, are tailored to the clients' satisfaction. Clearly the problem is not collaboration itself, but the degree of control that the researchers are willing to give away.

Rigorous knowledge is 'abused' not only by its lay audience, who presumably are more interested in the applications and the status gained by being involved in a research project than in knowledge *per se*, but also by the same students who investigate the field. History and sociology of knowledge have demonstrated many cases of misappropriation or fraud by the researchers involved in a project (Broad and Wade, 1985; Heller, 1986; David, 2004). The pressure for research results, and the material and moral rewards gained from new 'radical' theories and innovative applications have led many researchers to careless

interpretations or even manipulation of results (Payne, 2000). Unfortunately, both social and natural sciences can present numerous deviant cases, which suggests that solely scientific ethics is not a sufficient control mechanism.

A threat to the social relevance of knowledge stems out of the scientists' difficulty to translate their research and findings in a comprehensible language, i.e. a language free from scientific jargon. It is a common criticism that scientists and lay audience speak two different languages (Kelemen & Bansal, 2002; Kieser & Leiner, 2009), which is largely the cause for the gap between academic rigour and relevance. Scientists use highly abstract concepts and their way of thinking is based on clear reasoning and rational justification; on the other hand, the decision-making in the organizational world is highly intuitive, and progressively the language of management is dominated by the cost-benefits logic, which cannot always capture the complexity of organizational phenomena. Many theorists (Kelemen &Bansal, 2002; Huff, 2000) believe that the close collaboration between the two camps will eventually bridge the gap, and will produce rigorous and relevant knowledge. On the opposite, Kieser & Leiner (2009) hold that the gap is unbridgeable; academia and society play two different language games; however the existence of the gap is not necessarily an evil, since it can stimulate further research.

Finally, a last threat to knowledge emanates from the same object of management research, i.e. significant organizational issues of which people have an experiential understanding and they often hold strong views about. Heller (1986) talks about Do-It-Yourself-Social-Science, and the case is definitely applicable in the managerial context, where managers feel that they know more about the problem than an academic researcher with the stigma of a theorist, i.e. the lack of practical insights. As result, scientific work becomes even more detached from the lay audience, who believe that a practitioner is more adequate to deal with an organizational problem.

A new governance of knowledge

The new mode of knowledge production magnifies and perplexes an already difficult problem, i.e the governance of knowledge. The intensification of research, the new emerging collaborations with multiple non-academic stakeholders, and the expansion of the community of 'knowledge workers' beyond the boundaries of the academic community challenge the existing mechanisms of preventing the abuse of knowledge, and raise questions as to how to ensure that knowledge remains a public good.

The paper so far has stressed the dangers for the scientific and social value of knowledge when giving away the control of the process to stakeholders beyond the scientific community; collaborations with large corporations, where their political interests from the inquiry are evident, are perceived with suspicion by the public, and may result in permanently harming their trust in science. Clearly then, the governance of knowledge has to remain with the scientific community, whilst any research which allows influences by non-members should be questioned on its ethical grounds.

Science has been set up as a self-governed system. However, the proliferation of research from different research paradigms, the complexity of collaborations with multiple stakeholders, together with the standing failures of the current control mechanisms ask for refining the current or even devising new ways for ensuring that the principles of truth and social relevance are genuinely met. To amend the perceived weaknesses, various suggestions were made (Wright and Wright, 2002; Freeman, 2002; Brief, 2000; Selznick, 2000), which widely spring from a plea for ethical knowledge construction, and transcend paradigmatic differences; reflexivity, addressing under-represented stakeholders interests, multi-paradigmatic dialogue, and education of knowledge workers are discussed below.

Reflexivity

Many theorists agree on the need to adopt a reflexive view on research (Alcadipani and Hodgson, 2009; Marshall and Rossman, 1995). Reflexivity asks the researcher to expose own presuppositions and values, the choice of methods, and writing style, and make explicit how these affect the study, and under which conditions the findings hold true. Furthermore, the researcher should discuss the ethical implications of the inquiry, i.e. how the findings are expected to affect the stakeholders' lives (not only the participants as the code of ethics prescribes).

Reflexivity has become a popular suggestion especially by off-the-mainstream researchers; however, it is not free of problems. Critics of the concept point out the difficulty in applying it and they ask how it is possible to break away of and question own presuppositions. This act would expect a degree of detachment and introspection quite impossible for a human to achieve and communicate to others (Rehn, 2009; Freeman, 2002). Other critics point out the dangers of reflexivity for the status of science in society (Payne, 2000); the legitimization of knowledge relies largely on a discourse of certainty and objectivity, which leave no room for doubt to the public. On the other hand, reflexivity implies a deconstruction of the process of inquiry, which essentially undermines the rhetoric of knowledge construction, and the principles of rigour and truth.

Under-represented stakeholders' interests

A second suggestion, which follows from the claim for reflexivity, is the researcher to question the actual social implications of findings. As discussed above, conventional research, under the pretext of objectivity ends up serving the interests of the influential managerial group, whereas other significant stakeholders are silenced. Many theorists (Brief, 2000; Wright & Wright, 2002) invite researchers to be clear about whom their work actually serves; by appealing to the dangers of an amoral science, they emphasize the responsibilities of the scientific community to society at large. This suggestion asserts the empowerment of weak and absent voices, and is driven by the ideal of democracy. According to this view, reality is socially constructed and research should aim to bring into play alternative versions of it (Freeman, 1994; Wright and Wright, 2002).

In a first glance, this view bears the problems of reflexivity, since it neglects that researchers are actively involved in the constructions of these alternative versions, and they can never get rid of their own presuppositions, while they are voicing the 'weak' alternatives. An alternative to the ideal of democracy is Deetz's (1992) suggestion that research should break through fixed forms of subjectivity via constructing new discourses. On a similar note, some theorists (Rehn, 2009; Alvesson and Sköldberg, 2000) agree with a mature concept of reflexivity, which asks the researcher to question speaking subjects, discourses, roles and power relations, which eventually leads the research to break away from the frame of reference and look at what it is not capable of saying; in other words, research should identify and go beyond the limitations of the language game that forms it.

Serving multiple stakeholders also means that the researcher is responsible for the findings to reach these groups. Current distributions channels target practitioners, i.e. influential groups who have access to new knowledge, the educational background to understand it, and the means to use it for their own benefit. The question that needs to occupy the researcher who chooses to serve multiple, and especially non-represented groups, is how to reach them, and communicate the findings.

Multi-paradigmatic dialogue

This third suggestion acknowledges the incommensurability of research paradigms; however, it proposes that dialogue across paradigms is not impossible; quite the opposite, it should be pursued since it opens up opportunities for learning from each other. Payne (2000) suggests that researchers should be aware not only of positive impact of their findings, but also of negative implications, which most of the times are hidden behind the veil of neutrality and objectivity; for instance, research conventions such as categorizations, measurements, and consensus forcing methods have been questioned on ethical grounds. Admitting that reflexivity, i.e. realizing own presuppositions and biases, may be hard to achieve, many authors suggest that researchers may become aware of their paradigm limitations by accepting criticisms and suggestions from other paradigms.

Accepting criticism regarding the moral grounds of an inquiry is admittedly difficult, especially when it concerns experienced researchers trained to believe in the objectivity of science. Most of researchers never had the opportunity to reflect upon own presuppositions, since it was never expected anything similar; furthermore, they may lack the communication skills or the attitude to engage in such a dialogue. It is necessary then, to revise the education system that develops researchers, in order to realize this possibility, and overcome moral incommensurability.

Education of knowledge workers

This last suggestion, i.e. the revision of the education system is relevant not only for the development of academics, but also of knowledge workers. I have mentioned above how in our times the scientific community expands and a greater part of the population is trained up to a higher academic level – even to a PhD level – without necessarily pursuing a career as active researchers. These 'knowledge workers' have a good understanding of science and methodology, and due to the pressures for collaborations with academia, may found themselves involved in a scientific inquiry. Having bred this group of people with the scientific values and ethos through their course of education could help develop a shared understanding and appreciation of scientific ethics, and potentially control the pressures for misappropriation of knowledge produced through these collaborations.

Conclusion

The new mode of knowledge production, by inviting collaborations between multiple stakeholders allows many non-academic participants to have an active role in the research game; these new partners have an understanding of science and methodology; however, they often lack an appreciation of research ethics. In this context, the scientific and social value of knowledge is threatened so much by its lay audience, who have the power (education, funds, status, etc) to influence research and findings, as much as by the same scientists, who do not stay committed to the principles of truth and social relevance, and do not realize their power in constructing regimes of truth, and hence realities. The danger of giving away the control of the production of knowledge presents an actual threat for the scientific community, that risks to lose the trust of the public. The governance of

knowledge needs to stay within the ranks of the scientific community, in order to prevent turning knowledge from a public to a commercial good.

The need for new control mechanisms that would prevent knowledge abuse is apparent, since solely the rules of the research game is not sufficient. However, it seems that there is no alternative, but the continuous refinement of sound ethics in the academic community (Wright and Wright, 2002; Freeman, 2002; Brief, 2000; Selznick, 2000). Reflexivity could provide one way of examining not simply the findings of research, but most importantly, the consequences of results for the wider society. A second suggestion would be the desirable open dialogue across paradigms, which could control cases of misappropriation. Also, the consideration of negative implications for multiple stakeholders, and the education on scientific values and ethics of novice researchers and other knowledge workers could be effective interventions, which aim to develop a shared appreciation of scientific ethos.

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