The Cosmopolitization of Science[1]

Experience from Chinese Stem Cell Scientists

By Joy Yueyue Zhang

Abstract: It is commonly perceived that the 'globalization of science' may result in a 'Westernization of science'. In this paper, however, I use the case of stem cell science in China to demonstrate that developing countries are sometimes able to effectively shape the norms of global / local scientific exchange. Based on interviews with 38 stem cell scientists in six Chinese cities in early 2008, this paper elucidates Chinese scientists' outlook towards cross-border collaborations and the effects that the internationalization of science has had on everyday laboratory operations. Findings suggest that although there still exists an asymmetry of scientific influence, and in many aspects China is still 'catching-up' to the West, there is also a changing nature of communication beyond borders. One key aspect of recent international scientific development is the growing necessity for local stakeholders to acquire a global mindset and to compare, reflect and accommodate diverse interests. This is what I define as the 'cosmopolitization of science'. The study empirically examines the sociological and methodological implications of the cosmopolitization process and further develops Ulrich Beck's cosmopolitan theory by delineating four main features of the 'cosmopolitization of science': shared future benefits, passive ethicization, reflexive negotiation, and continuous performance.

Introduction

Much attention has been given to the globalization of science, such as the global sourcing of research expertise (Mannings et al. 2008), combating the inequality of health care (Horton 2006), the expansion of social choice (Giddens 1999), and the protection of public interests against scientific risks (Beck 1996 a, 1996 b). The growing reliance on collaborative efforts and the intensification of transnational communication in scientific development have seemingly made the world flat (Friedman 2005). Some have highlighted that 'the governance of technology has long extended beyond the borders of nation-states' (Whitman 2006: 398). Others have succinctly summarized the essence of contemporary scientific policy-making as 'think locally, act globally' (Wagner 2008). Yet behind this widely shared acknowledgement of the growing reliance on collaborative efforts and the intensification of transnational communication in scientific development, opinions vary on whether a global oversight on scientific conducts can be effectively and consistently exerted in the absence of an authoritative international institution. Central to this concern is the scepticism that a 'global' perspective on science may only promote a mode of communication that 'favour[s] the major players and do not give new entrants a chance' (Cohen 2006 [2007]). Many fear that the 'globalization of science' is no different from a 'Westernization of science'. As David Baltimore (2008), former President of the American Association for the Advancement of Science, has remarked 'Yes, the world is flatter, but it is still tipped in a Western and Northerly direction'.

In this paper I show that the development of stem cell science in China demonstrates the feasibility of less advantageous countries to acquire effective leverage in shaping the norms of global / local scientific exchange. Such leverage was gained not only through China's sci-

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entific achievements, but also through a changed outlook in transnational communication. At the onset of recent stem cell development, the ethos of 'gearing to Western standards (*yu guoji jiegui*)' was still central to China's governance on science. The first recommended draft for national stem cell guidelines (Ethical Committee of CHGC 2001) bears resemblance to the UK's Human Fertilization and Embryology Act (1999). A series of regulatory initiatives made by the Ministry of Health (MOH) and Ministry of Science and Technology (MOST) regarding stem cell research (MOH 2003; MOH / MOST 2003) offered little that was new or unique beyond reemphasising existing international principles. Despite China's many pioneering research initiatives and compliance to the global mainstream, the indifference in engaging in multi-layer cross-border dialogue has resulted in China's research being characterized as the '"Wild East" of biology' (Dennis 2002). In the years that followed, Chinese stakeholders started to realize that the best way to regain one's influence in a global discourse lays in not only being an open-minded listener, but in also taking the initiative to join the discourse and make one's voice heard. At the 8th World Congress of Bioethics held in Beijing, Chen Zhu (2006), the current Minister of Health, stated that national governance on biomedicine should achieve harmony but not homogeneity (*he'erbutong*) with the international community. A more noticeable change is a grass-roots level engagement with global communication. The awareness of global trends and different opinions from outside China has led scientists to re-examine and re-calibrate their research activities. Such reflection did not remain at a conceptual level but, as will be shown later in this paper, has been translated into actual individual responsiveness in abridging divergence and promoting mutual trust with their international peers. It is still premature at this point to tell to what extent and in what ways these new governance initiatives promote research. Yet ignorance of the emerging transformation of the governance approach would hamper us from conceptualizing what is really happening in scientific development.

Therefore, I borrow the term 'cosmopolitization' from Ulrich Beck (2000, 2004 [2006]: 72-73) and define the emerging reflexive mentality and multi-actor engagement in careful negotiations of acceptable limits and practices as the 'cosmopolitization of science'. More specifically, using China's stem cell research as a case study, this paper marks out four main features of a cosmopolitization process: a) shared future benefits, b) passive ethicization, c) reflexive negotiation and d) continuous performance.

Methodology and Structure

Data used in this paper forms one part of a larger study on China's governance of stem cell research funded by the Wellcome Trust. This research employs a Grounded Theory approach (Charmaz 2006: 130-1), in which data collection and social science literature reviews were repeatedly carried out at different stages of the study. During 2008, the author visited 22 stem cell research teams in six cities (Beijing, Tianjin, Shanghai, Hangzhou, Changsha, Guangzhou). Semi-structured interviews were conducted with 16 junior researchers with on average three years of working or training experience in Chinese research institutions, and 22 senior researchers with more than ten years experience. Interviews lasted on average one hour each and were all recorded and transcribed. Through detailed and repeated analysis of the data, the transcripts were then indexed into themes by identifying reoccurring concepts (Corbin / Strauss 1990).

In short, this research, as many previous nation-specific social studies of scientific practice (such as Cao / Suttemeier 2001; Sui / Sleeboom-Faulkner 2007), was carried out in a systematic manner, with the aim of building upon existing categories of social knowledge. Some influential examples of such studies are works by Laurence Schneider (2003) and Geoffrey Lloyd

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(2004), who have highlighted themes such as cultural reverence to science, and, respectively, societal emphasis on the instrumentality of science, as 'Chinese' characteristics.

Yet, as my research progressed, attempts to ascribe a phenomenon as exclusively 'Chinese' or of a 'national' characteristic seemed to be methodologically challenging.[2] National tags that once could be used to indicate incontrovertible and precise social 'boundaries', now seem to be arbitrary. In fact, 'Chinese' stem cell research is not so much an *exclusively* unique practice as it is a particular recipe of *inclusiveness*, in which scientists in China formed to address many concerns raised both at home and in other parts of the world. To comprehend how this inclusiveness has been initiated and nurtured, it is important to examine Chinese scientists' experience and their interpretation of the *conflicts, dynamics, and imperatives* that are embedded in the paradigm of the cosmopolitization of science.

The following discussion is divided into three sections. Section I demonstrates Chinese scientists' changing perspectives on transnational collaboration and how this has nurtured an emerging cosmopolitan outlook. It is argued that the cosmopolitization of science is based neither on self-interest nor on an ambiguous universal welfare, but on shared future benefits. Section II investigates how cosmopolitization, rather than standardization or seclusion, is realized. It identifies two main mechanisms that push forward the cosmopolitization process: passive ethicization and reflexive negotiation. The first part of Section II elucidates why the disputes over stem cell research in China are not based on an uneasiness from within Chinese culture, but rather are in response to ethical concerns first identified in foreign countries. This unintended but unavoidable diffusion of foreign values and beliefs expands and redefines one's knowledge of responsibility to others. Such is what I identify as passive ethicization. The second part of Section II examines Chinese scientists' reaction towards ethicization. It is demonstrated that in the absence of 'the' center of the world, all actors are 'a "center" among many' (Conley 2002), which enables a dialectical process in the internationalization of science. That is, different camps engage in reflexive negotiation to pacify rather than resolve differences (Appiah 2006: 69-85) and to harmonize rather than homogenize frameworks (Boesz / Lloyd 2008). To put it in an oversimplified way, the cosmopolitization of science is a no-center, multipolar, conversational process in which all configurations are temporary and subject to re-examination and renegotiation. One of the consequences is that international credibility has become a vital scientific capital in exerting one's influence. Hence, Section III analyzes, in the absence of scientific certainty, the 'image problem' China still has to deal with, if it wishes to become a reputable scientific power. It concludes that the cosmopolitization process has altered scientists' cognition of their behavior by demanding incessant presence and continuous performance within 'a world public' (Beck 2000).

In short, this paper demonstrates four features of the cosmopolitization of science: a) shared future benefits, b) passive ethicization, c) reflexive negotiation and d) continuous performance. The conclusion further outlines the sociological and methodological implications of the cosmopolitization process, namely how cosmopolitization is itself both a *descriptive* and a *prescriptive* term in comprehending our collective interrelatedness and why there is an imperative to shift from methodological nationalism to methodological cosmopolitanism (Beck 2004 [2006]: 24-33, 81-83).

2 For extended discussion on this point, see Zhang J.Y. (2010): The Regulation of China's Stem Cell Research in the Context of Cosmopolitanization, Doctoral Thesis, London School of Economics and Political Science, pp. 25-27.

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Section I: Communication Imperatives and the Nurturing of a Cosmopolitan Outlook

1.1 Changing Perceptions of the Importance of Communication

Communication has always been an essential part of scientific progress. Yet, according to many Chinese researchers interviewed, idea exchanges and collaboration with others have increasingly become less of an option but more of an 'imperative'. One fundamental reason is that, as the range of scientific research expands, the growing diversity of research topics has encouraged an increased division of expertise. Stem cell research in general requires special knowledge from a number of disciplines, such as molecular, cellular and developmental biology, tissue engineering, immunology, genetics, transplantation biology and clinical medicine. Several respondents (Scientist17, 22, 30, 35) noted that at the onset of stem cell development in the late 1990 s, many Chinese labs still held an old mentality in which self-reliance on all basic laboratory practices, such as developing one's own stem cell lines, was considered essential. However over the last decade, scientists gradually altered their perception on the need to seek assistance from others. One professor based in Peking University recalled that, in their early research initiatives in 2000, conducting research 'independently' was valued higher than international networking:

> *'It was very hard at the beginning, because we spent a lot of energy on preparatory research…Although we each have our own field of expertise, none of us really knew how to culture a cell line… We thought collaboration with others by using their ready-established cell lines, but thought it may be too troublesome...It may be easier to work on our own. Plus, we were a big center, you'd expect [we do everything on our own] right?… At that time [year 2000], internationally speaking I believe I was among those early starters in this area. But then a foreign lab working on similar topic already published their findings in Cell Biology while our lab spent two years trying to figure out how to culture cells. See, I thought I was leading the field at the beginning of our research, but it turned out that I became a follower. I think it was because the other lab…had ready established coordination among different expertise, such as people who can provide cell lines, who can conduct research, who can record data, analyse statistics, etc.' (Scientist14)*

Scientist14's account of the Chinese research culture ten years ago suggested an ethos of constructing a self-sufficient center providing all-around research support. The perception of collaboration or communication with other groups with complementary expertise was mostly optional, in some cases, even 'troublesome'. They believed 'it may be easier to work on [their] own' and they felt it was the norm, or was 'expected', that a big center should act on their own. Yet Scientist14's own experience indicated that such a research strategy was too costly. Despite being an early starter on a highly original project, Scientist07 lagged behind her international peers because her group spent 'almost two years' in establishing a cell line, a phase that could have been easily saved if they were more attentive towards collaborations.

By the time of my fieldwork in 2008, there seemed to be a shift in this self-reliance mentality. Not only had Scientist14's group, as learnt from their early experience, put more effort in branching out their collaborative networks both home and abroad, but this new perception towards communication could be seen from other research teams I visited as well. One such example was a group from the main provincial research center in Zhejiang University. This group focused on the application of stem cells in tendon / ligament tissue engineering and imported their embryonic stem cell line from abroad.

> *'It is much easier to import ready-established stem cell from abroad from foreign countries than deriving the cell lines on our own, as this requires a different type of expertise... The process is really simple. You know who has it [the research animal] from academic publi-*

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> *cations, you don't need to know them or meet them, you just email the lab. You tell them you are doing such and such a research and ask for their permission to use this animal and how much they cost...[It] saves you time and provides more reliable research results. That's how everybody does it now.' (Scientist26)*

Another professor at Spinal Cord Injury Research Center in Sun Yat-Sen University shared a similar opinion:

> *'Nationally speaking, our team is among the tops…We've tried to mark research animals ourselves, using trans-genetic technique. But we are not specialized on this [particular technique]…[Yet] internationally, there are groups in other countries that are better in inserting markers onto research animals. So we just import these animals from them. Why not? It's a very practical issue. If one wants to secure one's research status, or to further increase one's influence, there is only one way to achieve that: reaching out [to others] and inviting [others] in.' (Scientist07)*

In contrast to Scientist14's rejection of the external sourcing of stem cell lines, Scientist26 deemed importing materials from foreign countries as 'much easier' than working on one's own and more essential in providing 'reliable research result'. Scientist07 pointed out more clearly that such expertise exchange and cooperation was a 'very practical issue'. They 'tried' to mark their own animals but could not produce consistent data. Taking into consideration the scale and competitiveness of contemporary research, it was in vain to struggle for achieving expertise in every single aspect of research. Better resources were brought on board with mutual agreement. According to Scientist07, scientific research was not just about how much one group knew or was competent to achieve, but about how one could best yield results utilizing international resources and sharing others' expertise. 'If one want[ed] to secure one's research status, or to further increase one's influence', one needed to learn to coordinate with others. In comparison to Scientist14's accounts of collaboration as 'optional' and 'troublesome', it seemed a new 'norm' had risen out of current stem cell research in China. To some extent, one could argue that communication became not merely an option, but a social *condition* for scientific research.

In short, Chinese scientists interviewed delineated a changed perception towards communication. External communication became a prerequisite for scientists to ensure their research were consistent and efficient. Establishing multi-level partnership was no longer an *optional strategy* that added bonus to the team, but had become an *inevitable fact*. The discussions above suggested, in parallel to the shifted perception on the importance of communication, that there was also a change in how communication was being carried out. Communication was once considered somewhat 'troublesome'. A decade later, as put forward by Scientist07, 'reaching out [to others]' and 'inviting [others] in' was considered the 'only way' to achieve research competitiveness. To comprehend how such changes took place and how Chinese scientists attained their goals among collective achievements, one needs to examine how scientists re-situate themselves among others. This leads to the discussion in the following section.

1.2 The Fading of Imagined Authority and the Recognition of Shared Future Benefits

One of the most succinct descriptions of the changed communicative attitude among scientists in China was put forward by one professor in Zhejiang University School of Medicine:

> *'It used to be like this: before [in the 1980s to early 1990s], whenever there is a foreign researcher, be it a distinguished professor, a lecturer, or just a research fellow, comes to visit, all university administrators came out to welcome him. At that time, you feel really proud, because it is just very symbolic of how China has shifted [from self-closed society] to opening to the wide world. Then [in the 1990s], it seems pathetic, since sometimes it*

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> *seems as if our only goal is just to make visitors happy, satisfy their needs, so as to attract more visitors... When others doubt our results, we'd go apologize without thinking, even when we've done nothing wrong! … Now, we have learnt a much more reasonable attitude towards foreign visitors: we still very much welcome anyone to come and visit. But we are [not only making visitors feel welcomed, but also] more attentive in promoting our own interests. We now have many more foreign visitors. We are more conscious on what we want to receive and how... Nobody hosts the tenet or the best practice of science… Things should be built on mutual benefits.' (Scientist16, original emphasis)*

Two points are worth highlighting in Scientist16's account. The first is how Chinese scientists (re)conceptualized the relation between 'China' and the 'international community' as scientific exchange developed. At the beginning of China's reform and opening-up policy, Chinese universities reckoned that the best insurance for research advancement was to be connected with the outside world. What made Chinese scientists 'really proud' was the symbolism of how 'international experience', as something 'higher' than national experience, would benefit China. Chinese institutions sought effortlessly for the approval from their Western counterparts: 'make visitors happy, satisfy their needs, so as to attract more visitors'. It seemed that communication with the outside world itself had intrinsic value. However, as scientific research and governance evolved, such approval-seeking communication became no longer effective, and seemed 'pathetic'. Chinese scientists started to realize the once assumed foreign / Western authority was nothing but 'imaginary'. Whereas before Chinese scientists were ready to give apologies whenever scepticism arose from more developed countries, Chinese scientists have come to realize that 'nobody hosts *the* tenet or *the best* practice of science'. The imagined international community no longer possesses imagined supremacy. Researchers came to understand that the international community was not a podium, but rather a round table where in-depth cross-border dialogue was what promotes advancement.

Scientist16 was not alone in denoting a re-conceptualization of 'China' and 'International' through transnational research exchange. Another professor who was coordinating two international collaborative projects and was the reviewer for several international journals, pointed out the flaws in conventional comparisons between 'China' and 'foreign countries':

> *'We [scientists in China] used to always speak of how "foreign countries (guowai)" do research, but the situation varies greatly among the "foreigns". One direct example is reviewing papers for international journals. Not all "foreigns" are at the same level or follow the same interests. One can't just say how China compares to others. It depends on which "foreign" one is talking about.' (Scientist04)*

Scientist04 echoed Scientist16's view that in comprehending world research practice, one should not frame one's view exclusively by existing national borders, such as demarcating 'China' from the 'foreigns', for the diversities within these categories may be as great as divergence between them. Rather, the boundaries that demarcate the sameness and differences among various groups could only be drawn regarding the specific situation. Or in Scientist04's words, 'it depend[ed] on which "foreign" one [wa]s talking about'. Not only senior researchers, but also junior researchers noted the importance of a constant alertness for alternative ways of framing a 'context'.

> *'Many news report [on life science] frequently mention China this, China that. But one has to realize, news headlines are designed to be catchy and to attract your attention… One needs to judge facts by taking account of a larger context and see how it fits into its specific circumstances… Even experimental therapies, which may be ethically problematic, but you may have different judgement on different clinical cases…It's true that China has things to*

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> *be improved. But many phenomena are not just Chinese. They are the same in and outside China.' (Scientist09)*

Scientist09 pointed out that to label a scientific occurrence with the 'China' tag might be convenient or even 'catchy', but the national locality of an incident provides only one of many ways of framing one's analysis. On the one hand, even disputable research conduct may be justified in a local context. On the other hand, however 'many phenomena [were] not just Chinese, they [were] the same in and outside China'. Local incidents may bear universal characters beyond geographic borders; meanwhile common practice may encounter local particularities.

These blurred boundaries between 'China' and '*guowai*' (foreign countries) and the emphasis on reframing one's outlook on the basis of both 'taking account of a larger context' and 'specific circumstances' lead to a second point. That is, the absence of authoritarian guidance fostered reflexive initiatives from individual participants. According to the interviewees, Chinese institutions have become more 'attentive' and 'conscious' in developing transnational schemes to promote local interests. With such deliberations, Chinese scientists have gained a prominent stance in attracting 'many more foreign visitors'. As rightly pointed out by Scientist16, dialogical exchange was not sustained by unilateral approval-seeking but by respecting 'mutual benefits'. The shift from a self-sufficient approval-seeking mentality to a dialogical communicative approach was also indicated by one professor at the Chinese Academy of Medical Sciences:

> *'I think before, most Chinese researchers start with "bare hands" (baishou-qijia). You start with basic equipment, and accomplish breakthrough by your very own hard work and independent thinking… Now things are different. Say I talk about my ideas with others all the time, even very premature proposals. What I am afraid of is not others knowing what and how I am doing with my research, on the contrary, I am afraid of others not knowing them! If nobody knows what I am up to, how can they give me useful suggestions? I may lose potential partners, possible opportunities… Much of the best ideas were born out of discussions, debates, even dispute.' (Scientist 01)*

As pointed out by this respondent, scientists walked off the 'bare hands' approach and into a wider realm of interaction. What was most appealing to Scientist 01 was not the mere fact of exchange of thoughts and data, but was the prospect of having 'potential partners', 'possible opportunities' and inspiration of new ideas. Communication was not just about trading existing information, but had become more of a constructive process in which *future* research perspectives emerge. Furthermore, Scientist 01 highlighted the fact that 'much of the best ideas were born out of discussions, debates, even dispute'. Conversation was neither to persuade others nor to be persuaded by others, but to create an environment where actors in discussion could learn from each other's differences (Appiah 2006: xv).

In short, the obliteration of a single global authority and the recognition of limited local strength, together nurtured an outlook which consists of 'an everyday, historically alert, reflexive awareness of ambivalences in a milieu of blurring differentiations and cultural contradictions' (Beck 2004 [2006]: 3).

1.3 The Basis of a Cosmopolitan Outlook: A Summary

It is important to note that transnational communication in scientific communities is not new. Of course, China is *still* ardent on its open door policy. Western experience and foreign investment are *still* highly valued by Chinese institutions to help promote their progress. International networking is *still* crucial in elevating researchers' professional reputations. Yet *within* this consistent open attitude, there has been a shift in how Chinese institutions envisage

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the international community. I identify such changes as constituting a 'cosmopolitan outlook', as this term captures the following three points that are highlighted in interviewees' narratives.

Firstly, cross-border communication is a *social condition* of contemporary scientific research, not an option. For Chinese scientists, international collaboration is no longer part of a political movement (as in the 1980 s), nor mainly to acquire prestige (as in the 1990 s). Seeking assistance, resource exchange and establishing complementary partnership has become an *integral* part of research activities. While a decade ago, collaborating with other teams may seem more burdensome than working on one's own, my findings suggest that currently a reversed practice seems to have become the norm. That is to say, to attain their own research aims, scientists are in frequent contact and coordination with 'physically distant and often invisible others' (Conley 2002). The growing awareness of the interdependence among individual groups has made communication beyond borders not a choice but a requirement.

Secondly, the international space has become less of a 'lecture hall' and more of a 'round table', which offers a seat to any participant who is willing to improve mutual benefits with mutual respect for values. For less advantageous countries, such as China, the recognition of the once assumed foreign / Western authority as nothing but 'imaginary' is especially important. This promotes reflexivity among social actors and encourages an action-oriented approach that contributes to the way social activities (such as conducting research) are perceived, assessed and changed (Lee 2006). Chinese stakeholders do not presume there is *a* best canon to monitor research practice. Rather they exhibit a 'reflexive' initiative of what Latour (2003: 36) calls the 'heightened awareness' of how it is 'impossible' to attain 'full control' cross the diversity of social circumstances. The mechanism of how such reflexivity shapes scientific practice will be further elucidated in Section II.

Thirdly, complementary collaboration itself generates scientific capital. As pointed out by the interviewees, communication is not only important to exhibit what has been achieved (Scientist16), to '*secure one's research status'* (Scientist14, 07), but also to sustain one's lead in the field (Scientist07, 26), '*to further increase one's influence'* (Scientist14), to seize '*potential partners, possible opportunities'* (Scientist01). Establishing partnerships is not merely sharing existing resources from each party, but rather establishing future research advantages through mutual learning and intellectual stimulation. To put it in another way, the interrelatedness among social actors is not confined by traditional social boundaries (such as institutional, regional, national) or previous collective memory (such as shared training background, cultural commitment), but is based on *shared future benefits.* As will be further discussed in Section III, with the growing awareness of the absence of a global authority and the emphasis on shared future benefits, there has been an increasing diversity of social actors that function as the principal participants in contributing and promoting cross-border affairs.

In short, the changed perception towards the importance of communication and a re-conceptualization of 'China' and 'International' indicated by the interviewees suggests an emerging cosmopolitan outlook. That is, it sees dialogical endeavours with others as a social condition, recognizes mutual respect of values and orients social actions towards securing shared future benefits. These are only a few, albeit important, features of the cosmopolitization of science. The next section demonstrates how the emerging cosmopolitan outlook enables productive and flexible multilateral collaboration.

Section II: Passive Ethicization and Reflexive Negotiation

As scientists from diverse social contexts come together knowing that their future benefits are better achieved through collective endeavours, it follows that, in order to achieve a cooperative agenda that is agreeable to all parties at stake, actors must start out from shared knowledge of

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each other's circumstances. China, for instance, has to adapt its regulatory policy to global norms so as to facilitate its intercommunication with other international actors.[3] At one level, with a pragmatic attitude towards science and in the absence of religious objections, stem cell research does not evoke the same disputes in China as it has initiated in the West. Yet at another level, ethical policy in China is at a premium, not only because of its domestic concern on ensuring social welfare, but also because of the globalization of research. One example is that originally, research on embryos would not invoke much anxiety in China, as it is a country with no equivalent to Christian debates over the status of the human embryo. However, currently, no stem cell conference in China would omit such a debate. International collaboration promotes good scientific practice as well as encouraging the dissemination of ethical concerns. This is what I termed as the process of ethicization. By ethicization, I mean the institutionalization of a societal issue. Such institutionalization leads to the encouragement and requirement that scientists and other stakeholders (such as policy makers and patients) take into consideration a specific concern whilst reflecting on their practice and outcome.

While ethicization maps out the concerns, it is only through further dialogues that multilateral directives and cooperation schemes can be derived. The process for each party to explain, defend, promote and reconcile their own interests in relation to foreign concerns is what I term the process of negotiation. By negotiation, I mean the dialogue among different parties with explicit objectives to settle disputes and bargain for each party's advantage. Negotiation doesn't necessaraly end with agreement, but it is a genuine attempt to craft a scheme which satisfies various interests.

Of course, ethicization and negotiation are two interwoven procedures. As communication progresses, these two consequential actions appear in turn: initial awareness of a difference (initial ethicization) leads to a first attempt of negotiation, which guides stakeholders to an expanded level of mutual knowledge (second ethicization) which generates a second round of self-reflection and negotiation and so on. It is difficult if not impossible to draw a clear line of where ethicization ends and where negotiation begins. Yet the importance of distinguishing these two procedures is the same as distinguishing how we recognize our responsibility towards others and how we realize the rights we are entitled to. I argue that not only are ethicization and negotiation the two courses of actions that push cosmopolitization forward, but that ethicization is passive, and negotiation is reflexive. Each of these features is examined below.

2.1 Passive Ethicization

As transnational investment, global transfer of natural resources and cross-border personnel exchange are becoming common practices,. Subjects that need to be regulated, namely the 'concerns', have become infectious. The necessity to facilitate cooperation has resulted in the request for increased compatibility of local frameworks with that of the potential partners. Consequently, ethics is no longer a segmented social aspect rooted solely in a specific cultural milieu. The perception of research priorities is shaped as much by national factors as it is by debates in the global scientific and bioethical communities.

On visiting a regional headquarters of the China Hematopoietic Stem Cell Data Bank, the director told me how her awareness on ethical issues was expanded by visiting Western stem

3 In relation to stem cell research, China's participation in global regulatory initiatives in the past decade includes the Guidelines on Ethics in Medical Genetics (WHO 1998); the Universal Declaration on the Human Genome and Human Rights (UNESCO 1997), the Helsinki Declaration on Ethical Principles for Medical Research Involving Human Subjects (WMA 2000), the Human Embryo Research and International Solidarity and Cooperation the Human Embryo and Cooperation (UNESCO IBC 2001) and the Universal Declaration on Bioethics and Human Rights (UNESCO 2005). China also supported the United Nation's ban on human cloning for reproductive purpose.

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cell banks. In the original planning of their office space, people walked in and were first welcomed by a whole wall of glass panelled covered shelves, with hundreds of binders holding donor data. She explained as follows:

> *'It wasn't considered an ethical issue. It was an aesthetic issue. Plus, it is difficult to persuade people donating blood stem cell in China (because traditionally blood is considered as essence of vitality). I thought a whole wall display of the data books behind the glass panel is a magnificent display of our hard work. It would boost up morale… But during my visit to stem cell donor data banks in the US, I didn't see any data collection shelves through my whole trip. I asked them why. They told me data books are stored in limit-access rooms to project patients' privacy. Then I realized: Ah! The display of shelves is an ethical issue.' (Scientist23, original emphasis).*

If Scientist23 had not been committed to facilitating Chinese stem cell bank development with reference to global experience, she might have never considered the arrangement of data books as a matter of ethics. While in the US, arrangement of data books implied protection of patients' confidentiality and professional accountability, in China, it was originally perceived as an '*aesthetic issue'*.The trip to America made her think from an alternative perspective: office space arrangement not only mattered to staff members, but also had wider implications to stem cell donors, patients and medical practitioners. The original purpose of Scientist23's visit was the technical details of operating a stem cell bank, such as the acquirement, storage and shipment of stem cell lines. The consequence of the exposure to foreign practice, however, unexpectedly extended the range of ethical-related issues that China's stem cell banks acknowledge.

The process of ethicization not only may turn former non-ethical issues into ethical concerns, but also stipulates a re-evaluation of existing judgements. One immediate example is the understanding on the usage of surplus embryos in the gynaecology department of the Third Affiliated Hospital of Peking University. When the department first started stem cell research several years ago, using surplus embryos from IVF (in vitro fertilization) patients who successfully gave birth to a baby was not seen as ethically 'problematic'. It was not only because of the different cultural values attached to an embryo, but also because of the fact that with the one-child policy in China, there was a rare chance for surplus embryos ever to be used. 'If it was anything', as Scientist18 recalled, 'it was regarded as an endeavour to recycle medical waste, with the potential to benefit everybody'. It wasn't until the gynaecology department sought partnership and publications in the West that such conduct was recognized as questionable.

Chinese researchers are keen on participating in a global discussion of stem cell advancement. Yet once Chinese scientists step out of national boundaries and want to contribute to the global knowledge of stem cells, their research conduct and behaviours are also subject to international scrutiny. Within the context of Chinese society, surplus embryos are in effect 'medical waste'. But in the eyes of others, such liberal usage of surplus embryos may mean disrespect to human dignity, abuse of professional power, or exploitation of the female body. Stem cell scientists around the world share the same objective to improve life quality, yet opinions vary greatly in how this objective should be met. The different attitude towards the usage of surplus embryos is one example of what Kwane Appiah (2006: 78) concludes that most disputes arise not because of 'clashing conceptions of "the good". On the contrary, conflict arises most often when two peoples have identified the same thing as good'. Besides a mutual enrichment of both local and global scientific knowledge, Chinese scientists also receive uninvited censures on their research activities. Compared to many other countries, surplus embryos are still widely accessible to researchers in China. But a more comprehensive informed consent procedure for donors has also been put in place in response to global calls to promote ethical governance.

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There is no textbook answer to the complete set of ethical issues stem cell bank administrators or stem cell scientists should be aware of. Instead, what stakeholders have at hand is a growing list of items they need to take into consideration. This list expands as the stakeholders' communicative circle expands. Through this process of ethicization, the cosmopolitization of science broadens and redefines our knowledge of responsibility to others: former non-ethical issues are being recognized as ethical concerns; existing assessments are supplemented with new interpretations.

In a cosmopolitan world, 'various cultures and regions of the world are proceeding along various routes to various ideas of modernity' (Beck 2000). Ethicization is the process to map out such variety and make different parts of the world society aware of such diversity. To add others' concerns onto one's own list of apprehension is not an intended or wanted experience. Yet no productive conversation can be maintained without such acknowledgement. In this sense, ethicization is passive. However it is worth highlighting that ethicization only accomplishes *awareness-raising* among international actors. The ethicization process itself does not impose order on local circumstances. It is up to each participant to take the initiative in comparing, reflecting, criticizing, understanding and accommodating rival perspectives. That is to say, passive ethicization lays out the premise of a cosmopolitan dialogue while reflexive negotiation sets the cosmopolitan agenda.

2.2 Reflexive Negotiation

In the absence of agreed criteria or rules regarding the resolution of differences, negotiation is at the heart of upholding a steady progress of transnational cooperation. The features and functions of reflexive negotiation can best be perceived through a comparison between China's past and present tactics in stem cell regulation.

The early stage of China's stem cell development was highlighted by the international debates on the hybrid embryo created by Chinese scientists Chen Xigu and Sheng Huizhen. On 7 September 2001, China's highest media authority, the *People's Daily,* reported scientist Chen Xigu's research on creating the world's first human-rabbit hybrid embryo[4] and praised it as 'a big step forward in research on human embryonic stem cell and clone technique' (Zhang / Chen 2001). Yet, at that time, the scientific uncertainty and ethical issues on stem cell research were subject to a heated discussion in the West (see Borger 2001; Highfield 2001). Thus, when Chen's sudden success appeared in the news, it became 'the most controversial case at that time' (UNESCO 2008) and soon received much scepticism worldwide (Abbott / Cyranoski 2001).

The first turn of 'national' opinion came a few days after the *People's Daily* described Chen's findings as a 'big step forward' in stem cell research, Chinese media's portray of this research dramatically changed to 'blasphemes human dignity' and 'an assault on bioethics' (You / Zhang 2001). Chen's research was terminated. What was more, on 16 October 2001, Chinese National Human Genome Center at Shanghai (CHGC) issued the „Ethical Guideline on Human Embryonic Stem Cell Research (Recommended Draft)" (Ethical Committee of CHGC 2001). In Article 14 of the Recommended Draft, all hybrid embryonic research, including fusion of human somatic cell with animal gametes (such as Chen's research), were banned regardless of the circumstances.

A second turn of opinion appeared in the following year when hybrid embryo research was more accepted by the scientific mainstream on condition that human-animal hybrid embryos

4 In Chen's research, a skin cell nucleus from a seven year old boy was transferred into a rabbit's denucleated egg and successfully created 109 hybrid embryos.

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remained for research purposes only and not for reproductive reasons. A corresponding regulatory relaxant in China was shown in the final national Ethical Guidelines for Research on Human Embryonic Stem Cells (MOH / MOST 2003), in which, unlike the 'total ban' approach of the Recommended Draft, research such as injecting a human somatic cell into an animal egg to create embryos up to 14-days was allowed.

However, a third turn of opinion took place when Sheng Huizhen, Chief Scientist of the National Key Basic Science R&D Program, published her research on human-rabbit hybrid embryos in *Cell Research* (Chen et al. 2003). This was the first time such research was published in a peer-reviewed journal. According to *Nature*, Sheng's research received a number of praises from the international scientific community (Dennis 2003). But there was also opposition to such research, as many scientists had their reservations (Mandavilli 2006; Fox 2007: 340). To be sure, Sheng didn't receive as overwhelming criticism as Chen did two years before. Still two years after the *Cell Research* publication, at the end of the 973 Program, Sheng's contract with Shanghai Second Medical University (now the Shanghai Jiaotong University, School of Medicine) was not renewed.

This internationalization of science at the early phase of China's stem cell development is *not* an example of the cosmopolitization of science. To be sure, there was an ethicization process, as international opinions posed evident influence on China's domestic regulation of stem cell research. Yet Chinese stakeholders' attitudes towards international scepticism were minimally reflexive. The Chinese regulatory stance seemed to shift with the opinions of Western countries. Despite Sheng's publication and the issuance of national *Guidelines*, to avoid further global censure, both Chen and Sheng's research were subsequently suspended. To some extent, the regulatory approach seemed to be 'productive' at the time, as it removed international scepticism on China regarding this specific practice. Yet Chinese stakeholders' efforts in *listening* to Western concerns, *following* Western opinions, and *avoiding* confrontations contributed little in promoting an international understanding of research practice in China, let alone addressing a deeper global ambiguity towards China's research credentials.

With strengthened transnational exchange in recent years, Chinese researchers at home and abroad started to become aware that passive assimilation to international criticism was not enough to ensure that Chinese research was fully appreciated and supported by the world society. It dawned on Chinese stakeholders that the cosmopolitization of science was not about how well one assimilated to foreign practice nor about how one should be left undisturbed in one's own way, but about how well one was accommodated by others on the basis of mutual appreciations.

Consequently, growing efforts were shown among Chinese stakeholders in explaining, defending and adjusting Chinese perspectives amid diverse interpretations of stem cell research. One such example was that in March 2006, on reporting a conference held in the UK, and in discussion of improving research collaboration protocols, Jim Giles (2006: 9) listed several countries' governing approaches towards stem cells. Among them, China was described as 'lack[ing] clear national policies, with different institutes following different rules'. On reading this article, five most prominent Chinese scientists and one bioethicist decided to together write a response:

> *'Sir – As scientists and ethicists who care about stem-cell research in China, we disagree with the statement in your news story "Panel clarifies stem-cell rules" (Nature 440, 9; 2006) that "China lacks clear national policies, with different institutes following different rules"...In fact, China's government has issued several guidelines to regulate human stem-cell research...It is true that national policies on human stem-cell research in China are not laws. With some further improvement, however, we think they are adequate, as nearly*

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> *all scientific research in China relies on government funding… Infringements are a matter of law enforcement against unapproved medical practices, as in any lawful and civilized country, and should not be viewed as unethical examples of human stem-cell research in China.' (Cheng et al. 2006: 992)*

In contrast to the earlier communicative manner characterized by simple compliance with Western criticism or avoidance of disagreement in Chinese stakeholders' response to hybrid embryo research, this 2006 correspondence was more critical and involved more substantial attempts to abridge different opinions. It resembled more of a process of negotiation than mere justification of the Chinese situation. The authors first clearly stated they 'disagree[d]' with the earlier depiction of China stem cell research in Giles' article. But they also acknowledged Western scepticism by admitting that 'it is true that national policies on human stem-cell research in China are not laws' and China's regulations needed 'further improvement'. What made this communicative initiative especially constructive was that the scientists defended their view of Chinese regulation as 'adequate' by elucidating existing policies and highlighting the context of specific funding mechanisms. That is the two national guidelines issued in 2003 and the fact that „nearly all scientific research in China relies on government funding". Furthermore, they re-evaluated the criticisms that deflated the Chinese position, namely scientific infringements. The existence of wrongful conduct was not unique to China. In fact, the need to combat misconduct had universal appeal. Thus, the end of the letter offered a point where future resolution between China with the rest of the world could be constructed. Through negotiation, destructive conflicts of interest can be turned into a constructive force in abridging information gaps, building coalitions, promoting legitimacy and expanding choices (Fisher et al. 1991; Albin 2008).

This internationalization process, which not only consists of one-way ethicization but *also* incorporates a more substantial communicative effort in reaching out and harmonizing different views, is what I deem as the cosmopolitization process. The publication of this correspondence in *Nature* is indicative in several perspectives. Firstly, it is useful to be reminded that Giles' article was not a China-focused commentary, but rather a China-related reportage. Yet the six Chinese authors took the initiative in voicing out their different view. Not only were they keen on communicating their opinion, but they also acted quickly by having a response ready in the April 20th issue of *Nature.* To some extent, one could argue that this indicated an increasing responsiveness from Chinese individuals. Secondly, unlike semi-institutional and governmental actions that handled the hybrid embryo dispute, the six Chinese authors, albeit highly influential, came together to publish the letter as individuals. This is important. As will be further pointed out in the next section, with the increasing transnational communications, individual stakeholders have become increasingly aware of their leverage in reshaping China's scientific image rather than relying on governmental actions. Thirdly, it is worth highlighting that the letter was not a simple acceptance of another's claim, in which China's particularity was undermined, nor a mere justification of the Chinese situation, in which the concerns of others were overlooked. The correspondence letter rather resembled a shift from 'global monologue' towards a 'cosmopolitan conversation' (Appiah 2006), in which different sides' opinions were acknowledged and reflected upon.

The distinction and relatedness between ethicization and negotiation can be made clear with the following comparison: it is the awareness of *dependence* on others that initiates passive ethicization, while it is the awareness of *interdependence* among the individual and others that propels reflexive negotiation. Negotiation is built upon ethicization. That is, cognizance of other's concern lays the foundation of a dialogue among diverse or even rival camps. But it is only through negotiation that cosmopolitization can be pushed forwards. Such negotiation is

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reflexive, as it calls for a committed re-examination of one's own circumstances, contemplation of the approaches of others, and working out options for mutual gain.

2.3 Summary

In a cosmopolitanism mindset, individual independence and local welfare are not achieved through an 'either / or' segregation (that is, exclusion of others and overriding the alternatives), but through a 'both / and logic of inclusive differentiation' (Beck 2004 [2006]: 4). The social fulfilment of such an outlook is the cosmopolitization process. More specifically, as this section points out, it is through passive ethicization and reflexive negotiation that local diversity and contextual differences are recognized, respected and appreciated.

The cosmopolitization of science has brought with it the dissemination of values, ideas, and customs. It unavoidably challenges local norms, questions existing frameworks, and contests traditional criterions. As ethicization constructs a shared platform for productive dialogues, social actors have no choice in opting out of this process. That is why I termed it *passive ethicization*. However, the function of the international community has shifted from assimilation-seeking to awareness-raising. On occasions, the cosmopolitization of science does transform local non-ethical issues into ethical concerns, or convert formerly acceptable into inappropriate conduct. But such local transition is not complete by receiving an 'all-embracing, one-size-fits-all global solution' (OECD 2007). It is carried out through negotiations with respect to the different political systems, social structures and cultural traditions of each side.

Of course, as noted at the beginning of this paper, China, as many developing countries, is far from exerting the same influence over issues as their Western counterparts. In the development of stem cell research, China has imported many Western standards, such as ethical guidelines, funding policies, and professional assessment systems. As indicated in the Introduction, this cosmopolitan scientific world still seems to be 'tipped in a Western and Northerly direction' (Baltimore 2008). It would, of course, be naive to assume that the cosmopolitization of science, when extending seats at the negotiation table to all, would automatically grant each participant with equal stance. Yet, it would be equally wrong to turn a blind eye to the emerging negotiation possibility for the less advantageous participants.

Section III: Continuous Performance

So far, this paper has discussed two questions regarding the cosmopolitization of science. Firstly, it has addressed the nature of a cosmopolitan foundation. That is, with the recognition of local limits and the erosion of an imagined global authority, the scientific world has become cosmopolitanized on the basis of shared future interests. Secondly, it has outlined two procedures that function in tandem to propel the progress of a better integrated world scientific society: a) passive ethicization, which maps out the divergence among actors, and b) reflexive negotiation, which takes conflicting viewpoints as the point of departure for a more constructive dialogue. When, in the absence of binding criteria, scientists come together seeking support on a variety of topics, two questions naturally follow: what would then be the most important factor in influencing how one's scientific findings are being received? And how would this shape scientific practice?

During fieldwork, Chinese scientists indicate that China still has an 'image' problem to attend to. China's historical reliance on its 'weapon of mass production' (Navarro 2007) together with the still prevailing perception that Chinese students are better in 'memorizing and reproducing knowledge rather than developing one's own initiative' (Hennig 2008), have casted a shadow of distrust over China's sincerity and its actual potential to advance basic research.

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Poor legal enforcement and commercialization of untested treatments (Sui / Sleenboom-Faulkner 2007; Qiu 2007) have overshadowed all clinical research in China.

With the specialization of science and absence of internationally accepted objective standards, the international community's assessment of Chinese scientists' work is derived from an accumulative evaluation of historical accomplishment and group perception. Thus, professional credibility has become important research capital. Yet, the cosmopolitization of science has also shown a consequential shift of the establishment of such professional credentials. The solution to promote a 'collective image' lays not so much in a top-down well-organized approach, but rather relies on continuous efforts from a diversity of social actors.

When *Science* published an article in 2006 commenting that 'spates of misconduct' were hindering Chinese research progress (Xin 2006), one Chinese journal responded 'if such criticism happened 10 years ago, Chinese may see it as full of prejudice and ill intentions' for it ignored the honest mainstream in China. But in recent years, Chinese started to take it as a realistic warning because a damaged reputation may greatly hamper scientific progress (Guo 2006: 18). One research fellow in Peking University echoed a similar theme:

> *'I think now it's an open world really. I wouldn't accuse others of having "bias" or anything. Because whatever you do and how you have done it, it's on the record, and other people make their own judgement on that. For publications, I do feel that submissions made from China may be treated differently from submissions made from the US… Our team leader always tells us to be extra careful in publishing results, so that all of our papers can sustain most detailed scrutiny… We are very cautious not to worsen our reputation.' (Scientist14)*

The consequences of cosmopolitization over scientific practice can be found in Scientist14's remark. For a start, the different standard she felt in publication was not perceived as a 'bias'. Rather she perceived it as 'an open world' situation, in which it was fairly reasonable that external judgements were made on the basis of one's historical behaviour. Thus, reputation became a valuable and accumulative research asset. It was also interesting to note that Scientist14 did not distant herself from the idea of 'collective credentials'. On the contrary, Scientist14 emphasized how her own research and the „bigger picture" (such as the world's perception of her team, her institution or the collective image of 'Chinese scientists') could mutually shape each other.

This grass-roots initiative can be seen from other interviewees. One example was from Scientist16 in South China. One month before our interview, he was invited to an international conference in Leeds. On the second day, one presentation was given by a UK orthopaedic surgeon who concluded with the remark that 'science may not come from the country with the biggest population'. Scientist16 told me that at that time, he had already delivered his keynote speech and was originally 'planning to have an easy time for the rest of the workshop and just listen to others talk':

> *'Yet after hearing the UK surgeon's remark, I felt I had to demonstrate to him what a Chinese scholar is like nowadays. Thus, during free discussion session, I decided to be very active. Whenever he shares his experiences, I share mine too. And I show to him my sincerity in communicating with him, the depth of knowledge I command, and the breadth of experience I have. Later, one participant told me, wow, you definitely earned extra respect for the Chinese.' (Scientist16)*

What I want to highlight here is not the fact that Scientist16 was critical of the British surgeon's remark, nor the constructive response he took in demonstrating his 'sincerity', 'depth of knowledge' and 'breadth of experience'. What needs our attention is how the *recognition* of difference of opinion has been translated into individual *action*. Despite Scientist16's original plan

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to relax after his keynote speech, on encountering a general scepticism towards Chinese research competence, Scientist16 felt he 'had to' make an effort in communicating to others 'what a Chinese scholar is like nowadays'. In other words, it was the awareness of others' view (in this case, the UK surgeon's remark) that made Scientist16 'decide to be very active'. Scientist16 felt he was able to make a difference in others' perception of China's collective image through his individual performance. And he did, as fellow participants applauded him for 'earn[ing] extra respect for the Chinese'.

The fact that an individual researcher felt one should and could contribute to the reshaping and modification of how scientific practices were perceived and evaluated was also exhibited in other interviewees' experience, such as one professor based in Tianjin, in Northern China:

> *'A few months before I was about to negotiate a collaboration proposal with a German institute, there was a really bad reportage on Der Spiegel. In it, Chinese scientists were portrayed as always stealing technologies from foreign collaborators rather than conducting genuine research. They also quoted some Confucius saying as if to say we traditionally value copying others. I was very uncomfortable with this article. It is a popular news media you know. Everybody reads it in Germany. I went to Germany and stayed there for a month to discuss collaboration with the professor there. My first action was to inform him of what we do here in Tianjin [where the respondent is based] and how we conduct research. I needed to make them understand that we do not steal knowledge as the media portrayed, nor do other Chinese. If you support such an idea, I won't collaborate with you. We spent a whole month on establishing mutual understanding and mutual trust.' (Scientist06)*

Again, the knowledge of others' opinions (the reportage in *Der Spiegel*) led to adjustment in Scientist06's original collaborative plan. He was about to negotiate a proposal with a German institute, but the characterization of Chinese researchers as 'technology thieves' in a local publication, *Der Spiegel,* made him 'very uncomfortable'. Thus, instead of going straight into discussion of collaborative details, Scientist06's 'first action' was to achieve 'mutual understanding and mutual trust', by communicating to his potential German partners 'what' and 'how' research were being done in *Tianjin*. The point was not just how Scientist06 received and evaluated Western views, but how Scientist06 was keen on 'mak[ing]' German colleagues 'understand' his understanding of situations in China.

In summary, the new social paradigm emerging from the cosmopolitization of science underlines the '*continuous performance'* of each actor as central to scientific behaviour. At one level, continuous performance means incessant presentation over a long period of time. One can no longer make a single campaign then retreat to a private space. Establishing one's professional credentials not only calls for diligence at home but also requires continuous outreach in the international arena. It is only through one's constant presence that one's ability can be perceived in a fair way by others. At another level, continuous performance also implies concurrent actions from all levels of an identified group. When global dialogues are becoming multi-tiered and wide-ranging, the world's perception of Chinese research is no longer limited to a few top-level representatives or officially organized initiatives. To some extent, cosmopolitization has flattened a world of hierarchical communities to a world of individuals. Every researcher's conduct carries individual, institutional, regional and global implications at once.

Conclusion

The contribution of this study to current debates on global scientific advancement is two-fold. Firstly, the experience of Chinese stem cell scientists demonstrates the possibility as well as the feasibility of less advantageous countries to acquire effective leverage in shaping the norm of global / local scientific exchange. The emerging social condition, as exemplified by China,

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in which social actors decipher new rules of scientific practice by constantly comparing, justifying, criticising, accommodating and adapting one's action amongst a diversity of international perspectives, is what I define as the 'cosmopolitization of science'. More specifically, experiences from respondents have highlighted four features of the cosmopolitization process that differentiate it from previous internationalization experiences.

- **Shared future benefits:** The objective of increasing international collaboration while safeguarding one's own particularities is not new. What is new, however, is how developing countries, such as China, realize such an objective. Findings in this study accord with what Mohamed Hassan (2007), executive director of the Academy of Sciences for the Developing World, pointed out: The erosion of monopoly has created 'a multipolar world of science'. Consequently, a transnational coalition is founded not on a 'one world culture', but on the basis of dialogue among 'diverse but practicing' world members (Conley 2002). Scientific partnership is built on mutual recognition of benefits and mutual consent on how such benefits are to be pursued. Furthermore, as elucidated by scientists interviewed, collaboration is not simply trading existing intellectual resources, but is aimed at generating new research capital. In other words, cosmopolitization is not about consuming the present but about the construction of a prospect.
- **Passive ethicization**: *Ethicization* stands for *a process of awareness-raising*. Its function is to map out the social, legal, political and financial concerns that potential collaborators should take into consideration. It is different from national ethical propaganda or organizational ethical education which aims at unifying or revolutionizing the public's ethical perspective, as it embraces no specific moral objectives. As the obligatory attentiveness and responsiveness towards others' concerns is unintended, ethicization is passive.
- **Reflexive negotiation**: While ethicization originates from the recognition of the dependence on others, negotiation is rooted in the acknowledgement of the interdependence between the local and the global. The negotiation initiative advances mutual tolerance, justifies the legitimacy of local agendas, and generates new alternatives for joint efforts. It is through reflexive negotiation that 'difference' becomes a constructive rather than a debilitating force.
- **Continuous performance**: In the absence of universal benchmarks, establishing global credentials becomes ever more important as social capital in international communications. Establishing such credentials demands continuous efforts, which not only means incessant performances over time, but also signifying the link between a collective image and a grass-roots endeavour.

The sociological connotation of 'cosmopolitanism' is the reflexive attitude of consolidating individual prospective benefits with that of others' and with the awareness of the interdependence of world actors. The cosmopolitization process is the social fulfilment of such an outlook. As exemplified by China's stem cell research, cosmopolitization is both the social condition in which contemporary scientific progress is taking place, and the social imperative that researchers must acknowledge in order to secure future advantage. Thus, the term 'cosmopolitization' is both *descriptive* and *prescriptive*.

A second aspect worth highlighting is that this new sociological paradigm also has methodological implications. As the social boundaries among institutions are becoming blurred, flexible, and open to continuous adaptation, the 'foreigner-native' duality marked by methodological nationalism 'no longer adequately reflects reality' (Beck 2004 [2006]: 26). The social milieu exhibited in this study reminds me not of a national 'container', of which the boundaries are clear and inflexible, but of the classic desktop toy PinPressions, in which thousands of sliding metal pins (individual social actors) within a rectangular frame (national borders) forms a three-dimensional sculpture (social setting) that is open to 'on the spot' (contextualized) remodelling whenever objects (specific issues) are pressed onto them. Country-specific rese-

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arch, such as this study, is not banal, as long as one is not fixated on the 'rectangular frame' itself, but is studying the variations and relations of the thousands of individual pins in order to capture a particular phase of social setting (the sculpture).

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