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## Managing multiple masculinities in donor insemination: doctors configuring infertile men and sperm donors in Taiwan

Chia-Ling Wu

*Department of Sociology, National Taiwan University, Taipei, Taiwan*

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**Abstract** This article investigates how doctors configured infertile men and sperm donors in the development of donor insemination (DI) in Taiwan. In the initial stage (1950s–1970s) doctors adjusted clinical procedures to repair the deformed gender identities of infertile men. To expand DI in the late 1970s and early 1980s, doctors stressed the positive eugenics of DI by spotlighting the high intelligence of donors, playing down biological patrilineage and re-emphasising the contribution of men of higher rank in society. In the mid-1980s, when donors came to be seen as potential carriers of fatal diseases like acquired immune deficiency syndrome, doctors managed to associate risky donors with socially stigmatised men, and therefore perpetuate the conventional hierarchy of masculinities. As the intracytoplasmic sperm injection emerged in the early 1990s doctors quickly presented infertile men as universally longing for biological fatherhood and hence devalued DI in an attempt to augment paternal masculinity. These diverse configuration activities come together to create a socio-technical network of DI that most of the time perpetuates the reigning gender order, rather than destabilising it. I argue the importance of incorporating various types of participants in analysis to understand the changing dynamics of multiple masculinities along with the development of DI.

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**Keywords:** donor insemination, configuration, masculinity, infertility, Taiwan

### Introduction

Stimulated by the development of in vitro fertilisation (IVF) since the late 1970s, many feminist studies have examined the interplay between assisted reproductive technologies (ART or ARTs) and gender, though the conception of gender in relation to ART has only recently begun to incorporate the dimension of masculinity. Most earlier research focused on revealing the relationship between women's reproductive agency and the biomedical model of infertility treatment, critically complicating the beneficial image of technological innovation. But feminists have gradually realised that focusing mainly on women's bodies may reproduce the dominant patriarchal conception that associates reproduction predominantly with women (Annandale and Clark 1996, Carmeli and Birenbaum-Carmeli 1994). They recognise that men have been treated as the second sex in ART (Inhorn and Birenbaum-Carmeli 2008) and advocate researching male infertility technology and men's experiences of ART to enrich

the conceptualisation of gender and how gender is explicated through the use of ART (Daniels 2006, Inhorn 2004, 2006, Thompson 2005).

Drawing on these theoretical perspectives, this article investigates the co-construction of masculinity and assisted reproduction through the case of donor insemination (DI), 'the oldest and most widespread technique of assisted conception' (Haines and Daniels 1998: 173). The innovation of DI for human beings dates back to the late 19<sup>th</sup> century and became widespread in the second half of 20<sup>th</sup> century in some parts of the world (Marsh and Ronner 1996, Novaes 1998). In DI the sperm of donors other than a woman's husband or partner are injected into her vagina. DI remained one of the most successful ways to deal with serious male infertility before the emergence of intracytoplasmic sperm injection (ICSI) in the mid-1990s, 'the stunning recent advance in our capacity to overcome male infertility' (Cummins and Jéquier 1994: 1214). In some societies access to DI is not limited to heterosexual couples and has increasingly become a way for single women and lesbians to have children. Although in some places it is deemed illegal or not available due to poverty (World Health Organization 2002), more than 20,000 cycles of DI were performed in Europe in 2005 (European Society of Human Reproduction and Embryology 2009), and it is estimated that around 30,000 DI babies are born annually in the USA (Thompson 2005).

Feminists have recognised that DI both threatens and reinforces the patriarchal gender order (Spallone 1989). Some earlier feminists regarded DI as one of the 'tools of patriarchal domination' (McNeil 1990: 4), arguing that it increases women's burden through medical intervention and social stigma even though it is a response to male infertility. Others examined its threatening nature (*e.g.* Corea 1985), since DI requires disrupting the triangular association between sex, marriage and reproduction (Haines 1990). Much of the earlier feminist work on DI centres on heterosexual women, single women and lesbians, since DI is performed on the female body. Ironically, men as participants and the masculine culture of DI have only recently become a focus of theorisation by feminists.

The recent feminist literature on DI or on men and ART in general opens up a new understanding of how masculinities associate with male infertility treatment. Some scholars reveal how doctors and policy-makers adjust the image and procedures of DI to help safeguard threatened masculinities (Carmeli and Birenbaum-Carmeli 1994, 2000, Inhorn 2003, 2004, Tsuge 2005). Others follow infertile men's experiences and assess how they manage the 'technological stigma' (Inhorn 2004: 175) and exercise gender performative activity (Becker 2000, Thompson 2005). Another important topic of research follows sperm donors and the operation of sperm banks (Almeling 2007, Barney 2005, Daniels 2006, Moore 2007, Moore and Schmidt 1999), examining how masculinities emerge from various sperm providers' configurations of sperm banking and in turn produce a 'natural' ranking of men.<sup>1</sup> By studying either infertile men or sperm providers, these pioneering works together present the many layers of DI that often create what Daniels calls the 'paradox of reproductive masculinity' (Daniels 2006: 102–8); namely, the fact that DI weakens men's capacities by revealing their reproductive fragility, yet simultaneously strengthens the notion of ideal manhood through certain treatment procedures or donor selection criteria.

Building on these pioneering findings, I trace how doctors in Taiwan have configured masculinity in the course of enrolling both infertile men and sperm donors as male participants in DI. The current literature tends to focus on either infertile men or sperm donors, seldom putting them together in the analysis. I argue the importance of incorporating different types of male participants at the same time in order to understand fully the changing dynamics of multiple masculinities along with the development of DI. As shown below, the social organisation of DI in Taiwan has kept doctors in the role of gatekeepers for a long time, providing them with the opportunity to deal with infertile men

and sperm donors at the same time. Thus, Taiwan is a useful case to explore how multiple masculinities are managed through following doctors' configuration activities in DI.

As a gender-controversial technology, how did DI become culturally feasible in Taiwan and what led to its expansion and decline? What were doctors' repertoires of masculinities in the different stages of DI? In answering these questions, this article joins other feminist projects on how hegemonic masculinity responds and adapts to the development and operation of male infertility technologies.

### **Masculine configurations and user configuration**

Connell (1995: 77) defines hegemonic masculinity as 'the configuration of gender practice which embodies the currently accepted answer to the problem of the legitimacy of patriarchy'. This concept recognises a plurality of masculinities and hierarchies of masculinities, thus revealing the power relationships between but also within gender(s). Rather than viewing masculinity as 'a fixed entity embedded in the body or personality traits of individuals', it holds that these multiple masculinities are relational and situational, 'accomplished in social action, and therefore, can differ according to the gender relations in a particular social setting' (Connell and Messerschmidt 2005: 834). Connell uses the word 'configuration' to capture the dynamic patterns of practices in hegemonic masculinity formation. These include mechanisms like establishing the hierarchy, producing the exemplars, responding to resistance and incorporating new elements to construct and reconstruct hegemonic masculinity through time (Connell and Messerschmidt 2005, Demetriou 2001, Moore 2002).

The field of science, technology and society studies (STS) offers another useful way to trace how DI and hegemonic masculinity interact and, in doing so, change (Inhorn and Birenbaum-Carmeli 2008). A significant lens for this work is the conceptualisation of configuration in STS literature, which views user configuration as a useful analytical tool in examining the social and cultural construction of technology (Akrich 1995, Oudshoorn 2003). Woolgar (1991: 59) treats the machine as a text and looks for the processes by which it configures its users – that is, 'defining the identity of putative users, and setting constraints upon their likely future action'. STS scholars have emphasised the diversity of configuring activities 'defining, enabling, constraining, representing, imposing and controlling' (Mackay *et al.* 2000: 752). The configuration approach reveals the integration of users into a new technology as early as the conception and design phases of an innovation. The concept of configuration includes both how user representation is materialised in the artefacts by designers (*e.g.* Oost 2003) and how new identities are articulated in order to enrol (or exclude) certain groups of users into the socio-technical network (*e.g.* Mackay *et al.* 2000, Oudshoorn 2003). Feminist STS scholars have further developed the concept of a gender script. Materially and culturally, designers both adjust technology to the gender order and articulate new gender identities when constructing a socio-technical network (Oudshoorn 2003).

Combining the conceptual insights of masculine configuration and user configuration, this article asks how doctors configured masculinities and male participants in the development of DI. The masculine literature has uncovered the mechanisms of hegemony. Visibility and censure are crucial strategies to make some masculinities hegemonic but others subordinate or marginal (Connell and Messerschmidt 2005). The extent to which designers can successfully cope with different users thus plays an important role in the destiny of a new technology (Akrich 1995). As Oudshoorn and Pinch (2003) stress:

The very act of identifying specific individuals or groups as users may facilitate or constrain the actual roles of specific groups of users in shaping the development and use of technology. (2003: 6)

Although we commonly call infertile men and sperm providers 'participants' and 'actors' instead of 'users', the literature of user configuration does provide a way to trace how doctors configure these important participants in the DI network.

The conception of a multiplicity of men and masculinities led me to employ the following analytical angles to fully grasp the configuring processes and reveal doctors' gender script of DI: (i) how doctors adjusted DI to gender order; (ii) how they articulate specific gender identities to enrol infertile men and sperm donors into the DI network; (iii) in using the above two strategies, how doctors spotlight or downplay specific types of male participants in particular contexts, in order to exalt or make invisible certain masculinities.

### **The case of Taiwan: a physician-dominated DI trajectory**

Taiwan started practising DI in the early 1950s. Obstetrician gynecologists (ob-gyns) at National Taiwan University (NTU) Hospital, the oldest and most prestigious hospital in Taiwan, wrote the first clinical report on DI in 1954, together with the issue of artificial insemination with a woman's husband's semen (AIH). For the first two decades after the introduction of DI in Taiwan, it was used only a few dozen times each year (Yu *et al.* 1994), though its visibility increased quickly. Popular health books translated from English or written by local doctors regularly presented DI as a possible treatment. DI remained a clinical procedure and medical domain without much controversy from religious, legal or social actors in Taiwan. By the early 1980s NTU Hospital and Taipei Veterans' General Hospital each reported more than 100 DI cases annually (Lee 1981). Doctors' clinical practices defined DI as a male infertility treatment and official regulation since the mid-1980s has limited access to DI to heterosexual couples, thus legally prohibiting DI from being a new way for single women and lesbians to achieve pregnancy (cf. Mamo 2007).

Whereas in some countries the establishment of sperm banks and increasing regulation from the state gradually led to new actors (commercial bank managers, sperm physicians or governmental regulative agencies) coming to share the mediating task of doctors, in Taiwan doctors remained the primary mediators for bringing together relevant social actors (women, infertile men and sperm providers) in operating DI. First of all, ob-gyns from leading Taiwanese teaching hospitals started establishing sperm banks in 1981 and they remained the managers of sperm banks. Second, Ethical Guidelines for Practising ARTs were stipulated in Taiwan in 1986, a year after the birth of the first Taiwanese 'test-tube baby', which tended to strengthen the dominant role of ob-gyn-based infertility specialists in operating IVF and DI. The Guidelines prohibited the commercial use of semen and eggs, thus excluding the possibility of commercial sperm banks in Taiwan. In addition, the Guidelines, as well as the Regulations Governing ARTs stipulated in 1994, stated that only infertility specialists from certified ART institutions could perform DI and store and provide sperm. This regulation, strongly lobbied for by the Taiwanese Society for Reproductive Medicine (TSRM), excluded some other potential gatekeepers, such as medical technologists, from managing DI procedures. Consequently, through certification procedures and legal regulation, ob-gyn-based infertility specialists secured their professional dominance in DI and remain the only medical personnel qualified to select semen providers and practise DI at the same time.

Thus, in Taiwan – as in Israel (Carmeli and Birenbaum-Carmeli 2000) and Japan (Tsuge 2005) to some degree – it is doctors who shape the trajectory of DI more than do commercial sperm banks, as in the USA (Moore 2007), other types of infertility specialists, as in France (Novaes 1998), religious beliefs, as in the Muslim world (Inhorn 2003, 2006), or the state, as in the UK (Barney 2005). Therefore, following the way in which doctors in Taiwan manage DI can best disclose the mutual construction of multiple masculinities and DI.

The DI trajectory in Taiwan has declined precipitously over the last two decades. Today, more than 70 ART centres are qualified to practise ART. In 2007, although nearly 8000 IVF cycles were performed, including almost 4000 ICSI, only 16 cycles of DI were performed (Republic of China [ROC] Department of Health 2000–2009). Taiwan may have the lowest number of DI cycles among countries where DI is legal.

### Data and methods

Data for the following analysis include archives, participant observation and in-depth interviews. Retrospectively, I conducted multi-sited ethnography (Marcus 1995, Rapp 1999). Combing both archival data and fieldwork, I traced doctors' various configuration activities in their clinical practices, academic research, professional organisational activities, lobbying, public education and contact with the media. I collected relevant medical journals, popular health books, newspapers, government documents, donor application forms and website information from sperm banks, ART centres and TSRM. This collection grew to include 35 relevant journal articles on DI in Taiwan, 570 news reports from the *United Daily News* dataset, using 'DI' and 'sperm bank' as the keywords, 18 popular health books mentioning DI and 22 governmental reports on DI and ART.

Fieldwork carried out in 2000–2001 and 2006–2008 helped me analyse doctors' configuration activities in the clinics and hospitals. In 2000 and 2001 I started a research project on the development of ART in Taiwan and began my early observation of DI. At that time the major data came from my fieldwork at the ART centre located in the medical centre in Taipei where my research assistant and I stayed in the clinic and the lab at least 1 day a week for 4 months. I visited other ART centres and formally interviewed 14 ART specialists and technicians. Although DI was only a part of the big picture of ART in Taiwan, this research project did prompt me to explore the specific gender politics of DI (Wu 2002). From 2006 to 2008 I carried out a new study on DI, triggered by my new research interest in masculinities and ART. I visited seven ART centres, including five sperm banks, located in the different regions of Taiwan. I interviewed 11 doctors (all TSRM members except one, who is an ob-gyn) and three technicians. With the exception of an interview with one director of an ART centre, I taped and fully transcribed all interviews, giving all participants pseudonyms. To remedy the lack of observing face-to-face interactions between doctors, sperm providers and infertile men, I asked these doctors to describe their practices in detail. I attended conferences and continuing education programmes held by TSRM in which DI issues were involved. In 2009 I gave a continuing education talk to about 50 infertility specialists about my research findings on the gender politics of ART and they gave me very useful feedback.

It would be ideal if the data could incorporate both infertile men and sperm providers so that I could analyse how they responded to the doctors' gender scripts. However, in practice it is difficult to find both categories of men due to the anonymity of sperm donation and the small number of DI applications. In the earlier study, I did interview five infertile men, one of whom happened to have had the experience of donating sperm as a graduate student in the

1980s. When I interviewed male doctors in the recent DI project I asked whether they themselves had donated sperm when they were young. Nevertheless, it is a limitation of this project that it lacks the voices of those 'moral pioneers' (Inhorn 2006: 106) who took DI as an option, to further examine why and how specific doctors' configuration strategies worked.

Overall, I interviewed, observed, examined archival data and attended health conferences. Since doctors' configuration activities occur at different sites I followed these activities through different methods. The tracing of threads from different sites and different sources helped me effectively examine and compare doctors' configuration processes.

### **Introducing DI and repairing deformed masculinity**

The pioneering doctors who introduced DI in Taiwan in the 1950s quickly realised its potential threat to infertile men and the need to address this if this new technology were to be a success. Most of the elements needed to offer DI were already present at NTU Hospital: doctors, expertise, equipment, infertility clinics and even sperm donors, who were mostly medical students and interns. The crucial actors that ob-gyns felt needed to be enrolled in the DI network were infertile couples or, to be precise, infertile husbands. Although it is the woman who must go through all the clinical procedures for DI, it was the infertile husband whom doctors needed to win over. Preventing DI's potential destabilisation of hegemonic masculinity thus became a major focus of these doctors' work.

Doctors in Taiwan adjusted their clinical procedures and offered conceptual clarification in order to prevent infertile men from feeling that their gender identities were threatened. Doctors saw DI as problematic vis-à-vis the principle of patriarchal descent, which emphasises a husband's genetic lineage. In a popular women's health book published in the 1970s one doctor observed that:

the most disturbing part of DI lay in the husband's psychological response; even though the child was borne by his wife, he was unwilling to recognize or accept the child (Chan 1976: 66).

The absence of the husband's 'blood' (genetic linkage) in this baby-making process became an important issue that doctors had to address in clinical practice. The priority during male infertility treatment was that as long as AIH still worked, 'naturally, it is more appropriate to use husband's semen', as one doctor advised in *Marriage and Health* (Hsieh 1980: 134). For this reason, DI was viewed as the choice of last resort early on in Taiwan (Chuang 1966: 103).

When DI was used in the 1950s and 1960s, doctors tried to diminish the visibility of donors through various procedures. To obscure the biological origin of the baby, doctors mixed donors' semen with husbands' semen. In an age when DNA analysis for biological origin was not available, mixing semen helped blur the identity of the biological father and thus functioned as a 'comforting device' for many infertile men (Dr C, interview 2006). Those in medical circles also agreed that sperm donors should remain anonymous (Chan 1976: 66). As Haines (1990: 169) points out, this policy prevented donors from being viewed as family members in some way, and thus avoided 'risking a distortion of the family structure and ideology'.

In addition to anonymity, doctors in Taiwan tried their best to find an appropriate match between donors and husbands (see also Hargreaves 2006: 269). Blood type was the basic matching criterion, since this was the only scientific clue at the time for tracing a genetic

connection. However, doctors also emphasised that ‘the race and the figure of the donor must be similar to those of the patient’s husband; it is best if the personality and temperament are also quite similar’ (Wu *et al.* 1954: 32). One doctor I interviewed told me that in the 1960s and 1970s he selected donors from among their medical students based on such criteria:

If the husband looked like a gentle, bookish man, I would find a bookish student as donor; if the husband looks boorish, then I would find someone who looked like he came from the countryside. (Dr L, interview 2001)

To a lesser extent, doctors in the early period believed that DI also threatened the patriarchal link between sex and marriage; namely, the idea that childbirth ought to occur only through heterosexual intercourse within marriage. Doctors had to explain that DI did not in any way indicate that a husband had been ‘betrayed’. In one of the earliest published clinical reports, NTU Hospital doctors stressed that DI ‘is not involved with erotic sex, the patient does not have any physical relationship with the donor, and thus it absolutely cannot be seen as adultery’ (Wu *et al.* 1954: 32).

My data show that during this early period from the 1950s to the 1970s, doctors in Taiwan did not attempt to redefine masculinity or create a new gender identity that would not take into account the traditional values (of filial piety, the importance of the family and so on) expressed in the saying, ‘blood is thicker than water’. Instead, to introduce DI, doctors in Taiwan modified clinical procedures (*e.g.* by mixing donors’ semen with husbands’ semen). At least in the introductory stage of this radical new technology this was a strategy of least resistance. However, once DI stabilised, doctors in Taiwan started a different configuring activity in order to expand the use of DI.

### **Spotlighting the high intelligence of sperm donors**

Sperm banks became a new part of DI in Taiwan in the 1980s, allowing for expanded use of the technique. Taipei Veterans’ General Hospital established its first sperm bank in 1981, almost two decades later than the pioneering banks in Japan and the USA (Daniels and Golden 2004). Several other medical institutions, mostly also university-affiliated teaching hospitals, quickly followed. As a latecomer, Taiwan skipped the technological uncertainty of early freezing techniques and used the well-established liquid nitrogen method from the outset. With such a stable freezing technique, medical institutions in Taiwan started openly soliciting sperm donations from the general public in order to increase the ‘savings’ of each sperm bank (Anonymous 1981). Doctors viewed sperm banks as a way to strengthen the socio-technical network of DI. Soliciting donations from donors other than medical students and residents would increase the visibility of DI as well as expand the sources of donated semen (Dr C, interview 2006). It is estimated that DI cycles were administered to more than 300 women in 1981–1982, possibly the highest in DI history in Taiwan (Yu *et al.* 1994).

At this stage doctors began to focus less on issues of masculinity for infertile men and more on the qualifications of sperm donors. Clinical procedures like mixing donors’ and husbands’ semen were no longer practised, and the issue of ‘adultery’ was no longer discussed. As stated previously, since the very beginning of DI in Taiwan, most donors had been medical students, interns or young resident doctors, who were given a small compensation fee. This fact – previously unknown to the general population – was revealed to the media only in the late 1970s. In press conferences about sperm banks, advice books for infertile couples and

newspaper columns, doctors began to openly announce that the major sources of donations were medical students and doctors in training. A local soap opera shown in 1981 had a story line involving a medical student donor and the recipient of his sperm, reflecting how widespread this knowledge had become. Taiwan was certainly not unique in using medical students as the major source of donations: a US survey in the mid-1970s showed that 80 per cent of doctors used medical students or hospital residents as the sources of sperm for DI (Curie-Cohen *et al.* 1979). However, whereas US doctors had recognised this as 'eugenics in practice' as early as the 1930s (Daniels and Golden 2004: 9), Taiwanese doctors presented DI as positive eugenics only after the initial controversy around biological fatherhood and adultery was settled.

Doctors in Taiwan had used the discourse of positive eugenics since the late 1970s to highlight the advantage of DI, emphasising the possible social improvements to human heredity rather than the possible improvements to physical health. Doctors openly asserted the higher quality of DI-born children in terms of intelligence. For example, Dr You-Chiung Lin of Taipei Veterans General Hospital explicitly told the media in 1980 that 'the donors' IQ is quite high' (Pan 1980). After practising DI for 20 years, Dr Tzu-Yao Lee of NTU Hospital wrote a popular advice book on infertility treatment and stressed that the DI children he knew personally had shown excellent academic performance in college (Lee 1981: 172).

Taiwan was not alone in emphasising the high quality of DI children. The British medical literature reports some survey data on the intellectual abilities as well as the physical characteristics of DI babies (Daniels and Haines 1998). The Chinese translation of an English-language health book explicitly states that, according to a survey, the average IQ of DI babies was 110.7, higher than that of 'ordinary children' (Anonymous [1978] 1984). The idea of positive eugenics through DI also travelled from western countries to Taiwan; for example, the so-called Genius Sperm Bank, established in the USA in the late 1970s (Corea 1985: 24–7), which claimed to recruit the semen of Nobel Prize winners, was given extensive news coverage in Taiwan.

By highlighting medical interns and residents as sperm donors, doctors in Taiwan managed to position DI not as something that undermined the procreative capacity generally assumed to be part and parcel of ideal masculinity, but as something that offered a new possibility for genetic enhancement. It is thus not surprising that some women began demanding donors not simply from medical schools but from the most prestigious medical school (Dr C, interview 2006). Doctors are a particularly potent cultural ideal of manhood in the historical context of Taiwan. Medicine was one of the few professions that the colonial government of Japan (1895–1945) allowed the colonised Taiwanese to pursue, and only men could attend medical school during the colonial period (Lo 2002). Doctors continued to enjoy the highest prestige in Taiwan even after the Pacific War. In the 1970s they were ranked as one of the most respected professions in Taiwan (Tsai and Chiu 1991). Medical schools continued to require the highest scores on the national entrance exams for university and medicine continued to be a male-dominated profession: before the 1990s more than 90 per cent of Taiwanese doctors were male (Cheng 1997). In other countries the preferences of sperm banks show that ideal manhood can include being tall, being good-looking, 'going to Harvard' or having a certain racial or ethnic background (Moore and Schmidt 1999), but in Taiwan 'medical doctor' stands out as one of the most esteemed of all social characteristics for a man. By spotlighting future doctors as donors, Taiwanese doctors therefore made DI not only culturally feasible but culturally desirable.



### Maintaining positive eugenics

Although doctors had configured medical interns and residents as the ideal donors, the establishment of sperm banks in the 1980s inevitably involved donors from other walks of life as well. In response, doctors actively served as gatekeepers in order to maintain the idea of positive eugenics as a benefit of DI. Doctors used three major strategies to control sperm donors.

Firstly, they established 'objective' social requirements, emphasising education in particular. Although government regulations to check for a donor's blood type, race, and health history were established only in 1986, as the owners and executive directors of sperm banks, doctors often added the prerequisite of a high school diploma (in the 1980s) or a degree from a 4-year university (since the 1990s). During my interview with Dr M, he expressed his strong belief in the importance of the educational requirement:

The Department of Health does not set the criteria on education, but we have our own philosophy. Doctors should be responsible for the quality of human society, and doing procreation is different from running a factory. If the newborn has low quality, this will be harmful for the society. Certainly a college graduate alone does not guarantee an offspring of good quality, but at least that should be the basic requirement. (Dr M, interview 2007)

Dr S also required donors in his ART centre to have at least a 4-year university education. If not, he said, he would even 'lie to them that their sperm was not qualified to discourage them' (Dr S, interview 2007).

Secondly, doctors refused some donors based on their own personal criteria. Dr C told me how he had refused to allow some 'money-driven villains' to donate their sperm. And Mr Z, the owner of a sperm bank in the 1980s, revealed that he felt disgusted that 'even the ugly-looking construction worker who fixed the door of our clinic dared ask to donate', and thus refused donors with this kind of low occupational status (Mr Z, interview 2006).

Thirdly, doctors continued to actively recruit as donors only medical students or other ideal men (Chan 1995). In 1994 one medical university circulated more than a thousand posters on campus to solicit donors, though only one man applied (Kuo 1994). As Taiwan's industrialisation moved from manufacturing to advanced technology, engineers from Hsin-Chu Science Park emerged as the new ideal men and became the new target population for sperm banks beginning in the late 1990s (Kuo 1999).

Through these strategies, doctors acted as surrogate fathers (Daniels and Golden 2004) in actively configuring ideal sperm donors and thus doing their part to maintain positive eugenics. They constructed a social ranking of men by evaluating donors mainly based on men's social characters. However, as the acquired immune deficiency syndrome (AIDS) crisis of the mid-1980s transformed DI, doctors began configuring donors in a different direction.

### Donors as 'risky men'?

Beginning in the mid-1980s, the international medical community confronted the transmission of infectious diseases like AIDS and hepatitis B through donated semen (Centers for Disease Control 1985, Mascola and Guinan 1986). In particular, the AIDS crisis transformed DI into a risky technology, changing the DI landscape dramatically. The case of an Australian woman who contracted human immunodeficiency virus (HIV) from DI (Stewart *et al.* 1985) was widely reported in Taiwan. The impact was manifest in various

ways – among them, the closing of the sperm bank in Taipei Veterans' General Hospital between 1984 and 1986. In the epoch of AIDS donors could be risky men rather than ideal men who functioned to further positive eugenics.

In response, doctors quickly adopted a 'technosemen' strategy for selecting donors and managing the uncertainty of disease transmission. Schmidt and Moore (1998) define technosemen as a 'new and improved bodily product' that relies on semen analysis (such as sperm counts, morphology and motility testing) and also on disease-testing for sexually transmitted diseases, HIV, and others. It was the disease-testing aspect of technosemen that was introduced into DI procedures as a means of reconfiguring sperm donors. In the past, only fresh semen had been used for DI, so a medical examination was not strictly required. Medical interns and doctors in training – the major sources of donated sperm – were implicitly perceived as helping guarantee the purity and health of semen. But when the sperm bank in Taipei Veterans General Hospital reopened in 1986 with newly introduced international standards, its clinical procedures required quarantining semen for 6 months to overcome the incubation window period of the HIV virus. As the list of risk-associated diseases grew, the number of items tested also increased. No matter how high his IQ, every donor now had to go through the same screening test.

To guarantee that this reconfiguration was upheld in practice doctors asked for government regulations to reinforce technosemen in every medical institution through law enforcement. The Regulations Governing ARTs stipulated in 1994 called for the screening of prospective donors, including obtaining their family, general and mental health histories and testing for infectious diseases that could harm the principle of eugenics and the general health of DI users. Before and after the stipulation of the 1994 Regulations, doctors represented certain types of deviant men as being risky donors and called for government supervision to restrain them from participating in DI. Doctors offered unconfirmed information to the media, saying that some DI clinics still used fresh sperm from donors, creating the risk of spreading disease. Doctors, later echoed by policy-makers, often portrayed 'professional', money-driven, fresh-semen donors as the prototype of trouble-makers (Anonymous 1986, 1991, Li 1988). They worried that the illegal commercial use of fresh sperm meant that it failed to undergo thorough sperm analysis. Betel nut stand sellers and taxi drivers were the most frequently mentioned problematic professional donors, possibly due to their mobility which permitted them to answer the calls of clinics for new supplies of sperm. Chewing betel nuts has been stigmatised as the vulgar behaviour of the lower class in Taiwan, and its stand owners have the image of being vulgar businessmen. Taxi drivers' social status is also low in terms of occupational prestige. Although hardly offering solid evidence for this judgement, doctors associated professional donors of fresh sperm with socially stigmatised men and then argued that the government should regulate 'underground' practices by stipulating and enforcing the Regulations Governing ARTs.

In delineating the boundary between the safe and the dangerous, configuration activities such as representing and constraining differentiate men from one another. Technosemen manages the biological risk. Further linking the biological risk to social risk, doctors' configuration strategies during this period devalued men of Taiwan's lower socio-economic class, not for their supposedly low IQs but for their supposedly higher probability of carrying diseases in the first place.

By the mid-1990s donors had become more and more difficult to recruit. It seems that potential sperm providers did not want to follow the new requirements of complicated physical exams even though generous compensation fees were offered upon completion of the screening procedures. In addition, some doctors, claiming that some risk was impossible to manage, found it difficult to promise that DI would have risk-free donors. One doctor told

me that she objected to DI and refused to practise it because 'you never know what kind of disease a person can have to pass to the next generation' (Dr D, interview 2007). In the age of new genetics, the issue of increasing genetic risks incurred by DI thus seems to give doctors another rationale for rejecting the use of DI. Given the absence of donors and the reluctance of doctors, the DI network could hardly be sustained. With the emergence of a competing male infertility treatment – ICSI – doctors' configuration of infertile men was again transformed to deal with the DI crisis.

### **Patrilineage as the ideal masculinity**

In 1992, Palermo *et al.* (1992) published a two-page report in *The Lancet* on the successful pregnancy of four women through ICSI. ICSI consists of an innovative insemination procedure: a single sperm is selected and injected into the cytoplasm of an egg with a microinjection technique. ICSI held out new hope to a man who had few or no sperm that his partner could nevertheless conceive using his own genetic material. Two years later, ob-gyns in Taiwan started ICSI for severe male infertility cases (Chen *et al.* 1996, Chiang and Liu 1997). In 1995 Dr Chi-Hong Liu, who later served as the president of TSRM, was quoted in the media as saying that 90 per cent of male infertility problems would be solved by ICSI (P-Y. Lu 1996). Originally designed for severe cases of male infertility or for failed IVF due to male factors, the criteria for using ICSI quickly expanded to other kinds of infertility (Chen *et al.* 2000).

Although doctors who ran sperm banks did not give up completely on increasing their donor pools the pioneering doctors of ICSI began to work on reconfiguring infertile men in order to move them from DI to ICSI. Whereas the importance of 'blood' had been downplayed in the 1980s, doctors who promoted ICSI now re-emphasised biological fatherhood as a specific contribution of ICSI. Infertile men were thus brought into the spotlight again, and it was their masculine identity in terms of paternity that was stressed. In a review article on ART in Taiwan, Dr Liu (2000) claimed that to 'maintain one's genetic inheritance is of fundamental importance for human beings'. Doctors I interviewed regarded a technique that guarantees one's own genetic inheritance as more desirable and thus supported ICSI strongly. Through such a reconfiguration of infertile men, DI became a much less desirable choice than ICSI. Infertile couples also seemed to subscribe quickly to this gender script. Doctors observed that infertile couples prefer ICSI to DI because 'they can have children who are biologically their own' (L-L. Lu 1996). Doctors I interviewed recalled no case of choosing DI when the infertile man qualified for ICSI. At the same time, with the less and less active promotion of sperm donation most sperm banks went bankrupt. DI now faces near demise in Taiwan (see Figure 1).

However, the almost universal replacement of DI with ICSI in Taiwan further traps some marginalised masculinities. For example, men with azoospermia (no sperm) may no longer have the option of DI when dealing with this serious male infertility problem. One doctor vividly described to me how a man with azoospermia and chromosome abnormality came to his clinic to ask for DI:

He was diagnosed with a serious azoospermia problem two years ago. And then he disappeared. He was struggling with whether he would try the surgery of testicular sperm extraction to increase the chance of getting any sperm to do ICSI. The surgery is painful and the chance of getting any sperm is low. He must have felt frustrated. He came back to discuss with me the possibility of DI. I explained the legal procedures and clinical processes

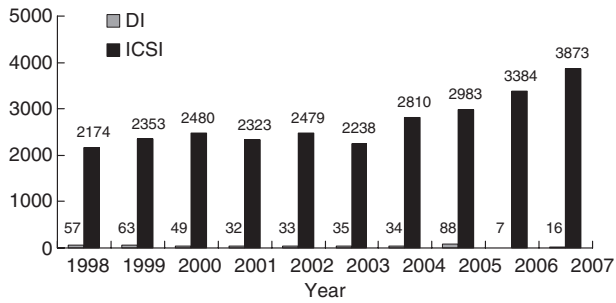


Figure 1 Donor insemination (DI) and intracytoplasmic sperm injection (ICSI) cycles in Taiwan, 1998–2007. (Source: ROC Department of Health 2000–2009)

to him. Because the current regulation requires that close relatives like cousins cannot be the donors, plus our centre does not have a sperm bank, it's difficult to run DI. As far I know, no sperm banks are available in Taiwan today except for some underground ones. (Dr H, interview 2008)

Thus, although ICSI fulfills the need for biological fatherhood for some infertile men, the need for DI of other men, such as Dr H's patient, can hardly be met in Taiwan today. In addition, ICSI is at least two to three times more expensive than DI and neither procedure is covered by the National Health Insurance in Taiwan. The unavailability of DI deprives some low-income infertile couples of a cheaper option and thus facilitates socioeconomically stratified reproduction (Inhorn and Birenbaum-Carmeli 2008). By replacing DI with ICSI, doctors have chosen to highlight infertile men as ICSI's main users and to exalt traditional patrilineage as the ideal masculinity, thus reproducing the hierarchy of men along the lines of virility and class.

## Conclusion

This article offers an analytical approach to capturing the gender script of DI: multiple configuration activities associated with multiple masculinities. At least three configuration strategies were traced to reveal the gender scripts of doctors during DI development: (i) selecting a certain type of participant to configure, (ii) adjusting technology to the reigning gender order and (iii) articulating specific gender identities (see Table 1). In the case of Taiwan these diverse configurations come together to create a socio-technical network of DI that perpetuates (rather than destabilises) the reigning gender order most of the time.

Firstly, doctors chose to focus on a certain type of man in a specific context, in order to shape DI as something that was culturally feasible and even desirable. At the initial stage, it was infertile men whom doctors were most concerned with. With the establishment of sperm banks it was young medical doctors as donors and, later, 'risky men', whom doctors chose to highlight (see the column 'Men whom doctors focus on configuring' in Table 1).

Secondly, doctors adjusted technology – the most used configuration strategy in this case – to either blur the threat of DI to biological fatherhood or to strengthen the idea of positive eugenics. The activities of adjusting DI procedures to exalt or make invisible a certain masculinity ranged from mixing donors' and husbands' sperm in the early years of DI to selecting socially esteemed men (e.g. doctors and engineers) as donors, using technosemen in

Table 1 Doctors' configuration strategies at different donor insemination (DI) development stages

<i>Crucial change of DI</i>	<i>Masculinity at issue</i>	<i>Configuring strategies</i>		
		<i>Men whom doctors focus on configuring</i>	<i>Adjusting technology to gender order</i>	<i>Articulating specific gender identities</i>
Introduction of DI (since 1950s)	Deprivation of biological fatherhood	Infertile husbands	Mixing donors' and husbands' sperm, anonymity of donors, selecting matching donors	NA
Expansion of DI with establishment of sperm banks (since 1981)	Achieving positive eugenics through male donors of higher social standing,	Donors as medical students and interns	Setting criteria of donors to guarantee positive eugenics	Men of higher social standing bring better offspring through DI
AIDS crisis, stipulating governmental regulation (since mid-1980s)	Risky men transmitting diseases	Donors as general public	Technosemen, setting social requirements for donation	NA
Introduction of ICSI (since 1995)	Patrilineage	Infertile husbands	Discouraging DI, promoting ICSI	Importance of biological fatherhood through ICSI

Note: AIDS, acquired immune deficiency syndrome; ICSI, intracytoplasmic sperm injection; NA, not applicable.

the AIDS crisis and even abandoning DI after ICSI emerged (see the column 'Adjusting technology to gender order' in Table 1).

By contrast, doctors seldom articulated any new or subversive gender identities for men as their configuring strategy. When doctors needed to mobilise certain gender identities to lead DI in a specific direction they often selected conventional ones (see the column 'Articulating specific gender identities' in Table 1). For example, the ideology of biological fatherhood – the crucial problem that doctors needed to fix when introducing DI – was the very ideology that another group of doctors mobilised decades later when they sought to replace DI with ICSI. Whereas Oudshoorn (2003: 232) argues that the making of some controversial reproductive technology, such as the male pill, requires 'a destabilization of conventionalized performances of gender identities', doctors in Taiwan did not need to create unconventional gender identities to make DI work in a certain direction.

This article further suggests taking two important contexts into consideration when we examine configuration activities. One is historical. I argue for the method of tracing technological systems from their introduction to their demise in order to fully capture the transformations and diversity of configurations. The configuration activities that doctors used to introduce, promote, respond to crisis and reject DI were obviously varied. The current configuration literature seldom goes beyond the innovation stage; when it does, it rarely goes as far as a technological system's decline and death. Tracing the entire trajectory helps capture all the dynamic and contextual aspects of configuration. The contrasts and even contradictions of doctors' configuration activities during the innovation, renovation and renunciation of DI dramatise how context shaped their strategies in developing male infertility treatments without much challenge to the hegemonic gender order.

The other context is societal. Taiwan's specific context is important to explaining how doctors were able to zero in on gender scripts that would least weaken the hegemonic masculinity in Taiwan and finally bring about the near demise of DI there. Taiwan's prohibition on commercial sperm banks and the relatively late regulation of donors led to the dominance of doctors in the development of DI in Taiwan. As the leading actors in shaping DI, it was doctors who managed multiple masculinities through diverse configuration activities. This type of social organisation of DI gave doctors an additional configuring tool; namely, choosing whether to configure infertile men or sperm donors at any given stage of shaping DI. When ICSI emerged doctors quickly emphasised its advantage in helping infertile husbands achieve biological fatherhood and presented DI as culturally less appealing, eventually disrupting the DI network that remained in Taiwan.

The consequence of such configuration activities is astonishing: DI is legal in Taiwan but it is hardly, if at all, practised. The near demise of DI means that men with azoospermia and couples who prefer DI to ICSI for financial reasons or to reduce women's health risk during treatment no longer have this relatively cheap and easy ART as one possible option. Far from challenging the reigning gender order, the trajectory of DI configuration in Taiwan has gradually strengthened the traditional hierarchy of men, expelled marginalised masculinities and restricted some men who suffer from infertility from accessing this oldest technique of assisted conception.

*Address for correspondence: Chia-Ling Wu, Department of Sociology, National Taiwan University, Section 4, Roosevelt Road, Taipei 106, Taiwan*  
*e-mail: clwu@ntu.edu.tw*

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## Note

1 Daniels (1998) argues that 'provider' is a better term than 'donor' because the practice often involves monetary payment. I use 'provider' in some parts of this article but still use 'donor' most of the time because the term *juan* ('donate' in Chinese) is commonly used by doctors, the general public and policy-makers in Taiwan.

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