รายงานวิจัยฉบับสมบูรณ์

โครงการวิจัย

“สิทธิในทรัพย์สินทางปัญญา: นัยยะทางทฤษฎีและวัฒนธรรม”

โดย

รองศาสตราจารย์ ดร. โสรัจจ์ หงศ์ลดารมภ์

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สัญญาเลขที่ BRG5380009

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สนับสนุนโดยสำนักงานกองทุนสนับสนุนการวิจัยและจุฬาลงกรณ์มหาวิทยาลัย
(ความเห็นในรายงานนี้เป็นของผู้วิจัย สกว. และจุฬาลงกรณ์มหาวิทยาลัยไม่จำเป็นต้องเห็นด้วยเสมอไป)

Abstract

The Project on “Intellectual Property Rights: Theoretical Foundations and Cultural Implications aims at investigating the theoretical foundations and cultural implications of intellectual property rights as they are being promulgated and enforced both in Europe and Asia, especially Thailand. It is designed to respond to the needs of both researchers and the business sector for better understanding of intellectual property rights, not merely at the level of implementation and the content of the regulations, but at the deeper one concerning philosophical and cultural backgrounds.

It is well known that intellectual property rights represent some of the world’s most difficult and challenging problems, not only economically but also theoretically. Recent events in Thailand greatly accentuate the need for an action that investigates how intellectual property rights (IPR’s) are perceived and conceived, as well as how IPR’s contribute (or hinder) the mutual trust and working relations in trades and other issues that have become so crucial to today’s globally interconnected economies. The recent controversies surrounding compulsory licensing of patented but needed pharmaceuticals point to the fact that an investigation that delves deeper into the theoretical and cultural underpinnings of the whole issue about IPR’s is sorely needed.

Another important area where IPR’s are of direct relevance is information and communication technology. Many disputes about IPR’s revolve around the technology, which has become widespread and has indeed transformed itself to the transparent medium with which human beings communicate and perform most of their activities. There is always a delicate balance to be found between respecting the people’s rights to use needed patented or copyrighted products on the one hand, and the needs and rights of the creators, manufacturers and patent holders to recoup their investment on the other. These arguments have been going on for as long as there is the IPR regime.

Finding a lasting solution to these problems, however, is not an easy task, especially within the context of Thai society where the culture has been one where to copy a text means to show respect toward it. Hence there is a need to investigate these matters fully in the project. Furthermore, the emergence of new movement such as open source movement shown in operating systems such as Linux and software such as Firefox, as well as collaborative online spaces such as Wiki, show strongly that there is resistance toward the current IPR regime. Hence the question then becomes: *What is the best and most effective model to manage intellectual content in such a way that is responsive to the traditions and cultures of localities?*

According to the research, the best way to manage IPR’s is to respect the local sensitivities of those who are affected by them. The research looks at the role that Buddhism can play and suggest that the concept of IPR’s itself as well as how it is justified should be examined and revised. Instead of grounding IPR’s on a liberal theory that focuses on individual persons and their autonomy, IPR’s should be based on interconnectivity of people. Since the work process that leads up to the intellectual property requires many contributions from various sectors, many of which are not included or recognized in the typical patent registration, the research proposes that this should be changed and the system of recognition and sharing should be more broadly based. Instead of grounding the IPR’s on individual autonomy, the rights should instead be grounded on the fact that everyone owes everything to one another.

เนื้อหางานวิจัย

Introduction

Intellectual property rights and their enforcement have become global. International and intercontinental trades have resulted in the notion of intellectual property rights, their legal underpinnings and systems of practices pervading practically every country all around the world. The notion of intellectual property and the claim to rights to it, however, are wrought with controversies. Those who defend the notion typically argue that intellectual property rights (IPR's) are necessary as an incentive for creative work and innovation which can be useful and beneficial to the world. What a claim to IPR's allows is a period where the rights holder is entitled to a monopoly of the use of the property and gains monetary returns from the monopoly. On the contrary, the regime of IPR's has engendered criticisms from many corners due to the very monopolistic nature in question. By holding the monopoly, the right holder can create an unjust situation where the patented product carries unusually high price in the market. In case where the product is a necessary one, such as life-saving medicine, this can create an imbalance where those who are in need of the medicine might not be able to afford it. The very monopolistic nature of claims to IPR's, then, can become a source of inequality and injustice.

The controversies created by the use and enforcement of IPR's in various fields point to the need to explore the very foundation of the whole concept of IP itself. Thus what I would like to do in this paper is to investigate how Buddhist ethics regards the problem of intellectual property rights and what it has to say on the issue. The basic question for the paper is: How could the concept of IP be modified in order for it to become ethical? A related question is: How do the concepts available in Buddhism have a role to play in such modification? These are very complex questions, and all I can hope to accomplish in this paper is to provide a brief sketch or a general outline of what could be further developed as a theory based on Buddhist philosophy. I argue that the notion of compassion *(karuṇā)* is centrally important in an attempt to answer these questions. Compassion, as is well known, is the desire to alleviate someone of their suffering and the action needed to carry out the alleviation. Hence the holder of an IPR is said to be compassionate when she sees the sufferings borne by her fellow human beings and realizes that the intellectual property to which she is entitled can in fact alleviate those suffering and act out accordingly. And the reason why she should be compassionate rather than not is because this would be beneficial to everyone in the long run, including the right holder herself.

Buddhism and the Concept of Property Rights

It is well known that central to the teachings of the Buddha is the realization that in order to achieve the final goal of Liberation, the practitioner needs to learn how to eliminate ego grasping which is a key element in her wandering in *saṃsāra*. Ego grasping consists of taking things as 'me' and 'mine.' The two are always intertwined with each other. Without the me, there can be no mine, and vice versa. Thus from the perspective of the central teaching here it might seem that the Buddha has a negative attitude toward property. For property is always the 'mine' of somebody. It might seem that in order to achieve the goal of *nibbāna*, one has to relinquish all property, not taking anything as belonging to the me at all (since there is no taking anything as the me either).

However, the Buddha does not intend to start a social or a political revolution. To teach that one has to let go of one's property might seem on the surface a kind of teaching that advocates an anarchist regime that recognizes no personal property at all. Viewed in this perspective, the Buddha's teaching to his followers that one should abandon grasping of the me and the mine could be regarded as advocating a kind of utopian regime where everybody lives together peacefully without any conception of personal property rights. But the Buddha did not do such a thing. He advises his students to let go of the attachment to personal property, but nowhere does he advocate any change in the political and legal structure of the society he happens to find himself in. Furthermore, in the *Vinaya*, the second *Pārājika* rule says emphatically that monks who take what does not belong to them, costing more than 5 *māsakas*, will be expelled from the Order, never to return. We do not exactly know how much a *māsaka* is worth, but it is enough for a thief who steals a property worth more than that to be imprisoned, banished or executed. (*DK*) It is clear, then, that the Buddha does not wish to create any conflict between his congregation and the political authority in the area. Whatever is regarded as the law in an area, the monks have to follow it.

In order to get clearer about how Buddhists view personal property, the story behind the proclamation of this Defeat rule should be elaborated. The Buddha and his monks once stayed in Rājagraha, which was ruled by King Bimbisāra. A monk took away pieces of wood that were kept by the king for emergency purposes. When the king found out about this he enquired the monk and the latter said that the king once said that he gave away wood and water for the monks who followed the Buddha for their own use. The king was reminded that he indeed said such thing but then he said that what he meant was that the monks were free to make use of wood and water that was there in the forests, where no one claimed to be the owner. However, this was a very different matter when the monk took away pieces of wood which were specifically designated by the king as reserves for emergency uses. These pieces of wood certainly belonged to the

king. The king eventually did not punish the monk, since he himself was a follower of the Buddha. However, when the people of Rājagraha learned about the incident they started to reprimand the monk a good deal and they continued saying that the followers of the Buddha were not worthy of respect and of their status as *samaṇa*. When the Buddha found out about this, he asked one of his monks who used to be a judge before coming to the Order what was the lowest price of a piece of property which would incur the punishment of imprisonment, banishment, or death. The monk then answered the price was 5 *māsakas*. The Buddha then proclaimed that henceforth any monk who take as his own any piece of property worth more than 5 *māsakas* would be forever banished from the Order and defeated as a monk (*DK*).

The story shows clearly that the Buddha does accept the right to property. The right of King Bimbisāra to the wood is clearly recognized, and the monk who took away the wood was given strongest censure. Does this conflict with the teaching that one should let go of one's attachment to the mine? Following the law of the land and the wish of the political authority is one thing, and carrying on the mindset of non-attachment to physical things is another. So we can conclude from this episode that the Buddha does fully accept the right to property, at least when it comes to the property of people outside of the order. The Buddha does not want his Order to create rifts or conflicts with the surrounding community, a move that we always discern from him. However, when it comes to the Order itself, we know from the *Vinaya* rules that monks are not allowed to keep any personal possessions beyond the merest necessities.

Perhaps we can use the Buddha's acceptance of whatever law happens to prevail in the area where he and the monks reside as a basis for arguing that the Buddha does also accept intellectual property as a kind of property to be protected by the *Vinaya* rule, especially the Second *Pārājika* Rule being discussed here (or should coherently do so if he were acquainted of it). However, Ven. Pandita argues that theft of intellectual property does not breach the Second Rule because the owner of the property in question does not suffer any real loss through the illicit copying or unauthorized use of the protected copy or product (Pandita). Pandita argues that since any "loss" that results from a breach of IP protection mechanism is merely a potential one in that the owner does not stand to lose any physical property that she already has in her possession, the "loss" here does not count as a kind of loss that would incur a breach of the Second Defeat Rule. A merchant of software products, for example, would stand to gain a certain amount of money if a certain number of copies were sold. But if a part of those copies were illicitly downloaded without payment, then the merchant clearly loses some amount through the download. In this sense, according to Pandita, the loss would be a potential one in that the merchant does not already have this exact amount in hand in the first place (Pandita 601).

Pandita is interested in the question whether a violation of someone's IP rights constitutes a breach of the Vinaya rules. Is a monk who downloads a pirated copy of a movie for his personal consumption be guilty of stealing and thus is defeated as a monk? Pandita does not think so because downloading the movie only deprives the rights holder of *potential*, and not actual, gains. However, since each sale of a legal copy of the movie has to include an amount of royalty paid back to the rights holder, it seems that each instance of downloading a pirated copy of the movie would actually *deprive* the rights holder of their royalties. If we imagine further that the sole source of income for the rights holder is through these royalties, a certain number of downloading the pirated version would certainly make the rights holder poorer than he should be. In other words, downloading the pirated copies would be tantamount to cutting off a source of income that is available to him, and this could well be his only source. To make someone *actually* poorer in this way sounds very much like theft and a breach of the Second *Pārājika* Rule. When the Buddha discusses the case of the monk who stole the wood reserved by King Bimbisāra, he asked one of his disciples who used to be a senior judge to help him with information on what would be the normal legal procedure were the perpetrator not a member of the Order. When he learns about the law and the punishment he then proclaims the Rule in order that monks would not commit the same violation of the law again the future. This shows that the Buddha follows whatever law that prevails in the area. It is conceivable, then, that the law on IPR's being what it is now, the Buddha would also forbid monks to violate it. Pandita may be right that violating some parts of the IP law does not necessarily mean violating the *Vinaya* rule, but as long as IP law remains law of the land in which the monk resides, the monk has to follow it. The Buddha has clearly set a precedence in this regard.

In any case, the purpose of this present paper is not to investigate whether a violation of IPR's constitute a violation of any *Vinaya* rules or not. Instead the purpose is to analyze the very concept of intellectual property itself with an eye toward reforming or modifying it so as to be fully fair and beneficial to society.

Modifying the Concept of IP and the Role of Compassion

What we have learned from the previous section is that the Buddha does not abrogate the concept of property rights. Letting go of the attachment to the me and the mine does not lead to Buddhists abandoning the concept all together and turning into economic anarchists. The story that led to the proclamation of the Second Defeat Rule shows us that the Buddha did not want to create any conflict between his Order and the surrounding community as well as any kind of political authority that rules over the area. Extrapolating from the Buddha's time to ours, we see that the Buddhists should

also follow the law of the land regarding IPR's. However, this does not mean that we cannot use the insights from the Buddha's teaching to propose a change in the system of IPR's itself. What I propose is that the concept of compassion *(karuṇā)* can be applied to the proposed analysis so that the whole system of IPR's become more equitable and conducive to justice than it apparently is right now.

The most prevalent theory of IP is a utilitarian one. That is, IP is justified because it is deemed to be a necessary factor in securing desired results that would not obtain if the system of IP were not in place to protect them.[1] The reason usually given in support of IPR's is that they need to be there in order to provide incentives to the would be innovators and to protect their investments and the fruits of their effort. A criticism of this kind of theory is that it is difficult to distinguish clearly who the real innovator is. Since modern technology has become enormously complex and involves a large number of collaborators who may live in different countries all around the world, the innovation that is patentable today is very much an effort of a very large group. In this case it is difficult to pinpoint who is responsible for the idea that leads to the innovation to be patented. One possibility of course is to grant the right to the resulting IP to the organization or the corporation that manages the work of the whole group. This is certainly what is being done routinely. The right is granted to the organization or the corporation as if they were a single entity, and it is justified, according to the utilitarian theory, by referring to the consequences or the results that would arise due to the enforcement of the IP regime. Instead of saying that the individual would benefit from the fruits of his or her effort, the reality is that it is the corporation that benefits from the fruits of *their* effort.

The effort of the corporations, then, may involve thousands of people working all around the globe. Someone within the corporation may conceive of a new idea and then the idea is tested and examined and prototypes made within the compound of the corporation. But is it really the case that everything involving the conceiving and testing of the new product occur exactly within the confine of the corporation? Even if the corporation keeps its product development a closely guarded secret, the fact of the

1 In fact there are other theories of IP, the most important one after the Utilitiarian Theory being the deontological one. The basic idea behind the Deontological Theory is that IPR's are *rights*, and as such they inherently belong to individuals by virtue of their being rational and autonomous. There is not enough space in this paper to criticize the concept of IP rights within this theory, but any Buddhist critique of a theory that emphasizes the role of IPR's as rights would be to point out that the right to IP is an acquired right; that is, one is not born with these rights, but they occur to an individual as a consequence of the latter's doing something such as inventing a new drug that can be patented. Here the general contour of the Buddhist critique I am offering in the paper can be applied. In doing something that results in an entitlement of an IP right, the innovator has to enlist the help of a web of interconnected factors, which should be treated fairly through the benefits enjoyed by the IP protection. For a defense of the Deontological Theory, see Merges; for a collection of essays dealing with the philosophy of IP, see a volume edited by Lever. A summary of all the major theories of IP can be found in Fisher.

matter is that it is always possible, and in principle actually necessary, that outside influences have a role to play. The prototype product may be tested with some members of the public outside of the corporation; the corporation itself has to interact with outside factors in various ways. The way of first one who conceives of the idea which led to the prototype may get her inspiration from interacting with the outside world, probably the world of her family at home. These interactions are on the surface mundane ones and usually are not given much thought to. However, the principle of IP according to the utilitarian theory is that the IP is there in order to protect the returns that would accrue as a result of the innovation. In short the idea is to give credits to all to whom the credits are due. But how exactly are we to measure to whom the credits are due and how much? The innovator first conceives of an idea through talking with a small child, who proposes an innocent idea which the innovator catches on and develop into a full blown blueprint. How much credit should the child receive? A pharmaceutical company develops a new molecular compound of a drug that could save millions of lives. The idea behind the molecule comes from a chemical found in a plant in a rain forest in a developing country. How much credit should the developing country receive? And the plant itself might be recommended to the innovator by natives living inside the forest. How much credit should they receive too? Nothing lives in a vacuum, and this is especially the case in today's world where everything seems to be always interconnected through social media and communication technologies. Ideas float around at the speed of light everywhere.

The idea I am pushing forward is of course that it is difficult to pinpoint exactly who exactly are the ones to whom the credit is due. If the *raison d'être* of IPR's is to protect the return of investment and to provide incentives, then the protection should be broad enough to cover the child, the developing country, and the natives too. And as this web of interconnection and interdependence goes on, the credit needs to be allocated fairly across the whole network. It is true that the corporation is the one who invests the money to develop and market the product, but even the money here comes from investors who may have bought the shares of the company in the stock market. From their perspectives the investors are clearly outsiders to the company. But they too have stakes in the company and the developed product. The money comes from the investors, the idea comes from all kinds of interaction that the innovators has with all kinds of contexts, the drug molecule comes from a native plant in a rain forest, the web can continue. The idea I am proposing is thus a simple one. The return that is promised by the IP regime has to be broad enough to cover all this network.

We can see the Buddhist insight behind the proposal I am making here. The idea is that of interconnectivity or interdependence (or dependent origination). The discovery which leads to the patented product would not have been possible if not for the help and input from various sources from outside of the corporation or the

laboratory in which the scientist is working. The utilitarian theory says that the entitlement to IP rights is justified because the innovator has expended a lot of effort into the research and development of the product, and the IP rights are there to guarantee that the innovator is entitled to a fair return of the investment. This atmosphere creates an incentive that stimulates further research and discovery. However, this view is predicated on the idea that it is the innovator alone that is responsible for the product and the associating intellectual property. But if what I am proposing is tenable, that there is indeed a web of interconnected factors that are actually necessary in the process of research and development, then factors within the web too have to be taken care of when it comes to the reward that results from the patent. In the case of the drug discovery based on a native medicinal plant, at least the natives who live in the area where the plant is found needs to be compensated in one way or another, not merely as someone on the outside who happens to sit on the right plant, but as a stakeholder who has been involved with the process of research and development from the beginning. This would ensure that the fruits of the patent be beneficially and justly shared. Furthermore, there are other factors. The political authority that has jurisdiction over the forest in which the right plant is found is also an indispensable player in this process, and they have to have a share in the fruits also. And since everything is connected with everything else, to limit the fruits of the research to the innovator alone does not seem to be enough. The process leading to the discovery of the patented product always involves a number of other contextual factors, and without those factors the discovery would not have been possible. Thus, the question as to who owns the resulting intellectual property should be broadened. Not only does the innovator and the company he works for possess the entitlement to the intellectual property, but the property should in some sense belong to the whole networks of interconnection. The upshot is that benefits accrued through the use of the patented product should be shared among all the nodes within the network too.

The recognition of the necessary role of the web of interconnection here is an expression of compassion. It is a recognition that one is always connected with others, that the very fact that there is oneself is only because of the existence of others, and vice versa. When one realizes that one is actually "one and the same" with others around oneself, one feels that any interests that one takes to belong to oneself extend to all others too. In short, the recognition of who is actually oneself expands to include other people and other things too. What results is that the egoistic self—the 'me' and the 'mine'—is dissolved into the realization that what is 'this' or 'that' actually depends on their relations with others, so much so that any 'this', 'that', or 'other' depends for their being on these relations. This is known as the Doctrine of Emptiness *(suññatā)*, which in fact is coextensive with the Doctrine of Dependent Origination *(paṭiccasamutpāda)* or Interdependence *(idappaccayatā)*.

Buddhist philosophers would be immediately reminded of Nāgārjuna's view that the two Doctrines are actually one and the same, or at least coextensive with each other. This is corroborated by *Kaccānagotta Sutta* in the Pāli Tipitaka where the Buddha states that Emptiness and Interdependence are one and the same. In a nutshell, the view is this: Suppose we pay attention to a particular object, say this coffee mug that I am now having before me. The mug sits on a table on which I am typing this paper. It has certain shape, size, color and pattern. Without the table the mug would fall to the ground and shattered. Without the color pigments that make up the various colors on it, no pattern would be possible; without the clay used to mold the mug, the mug would not have been possible either. Furthermore, one could imagine the purpose for which the mug was manufactured. Perhaps it was made in a factory along with millions of other mugs, its shape and size depending on the mold that is used in the factory, and the process of producing it also involves use of energy, which comes from electric power, which was generated from a power plant some distance away using hydro-electric power, and so on. One can then certainly imagine the source of the hydro-electric power to the sun and the wind, as well as the technology used to harness that energy into usable electric power. The web is actually endless. The point is that all these nodes in the web are necessary for there being the particular mug that I have before me now; they are all responsible for its existence. As the mug is an arbitrary object I just happen to choose to talk about, it can stand for any object whatsoever. Thus any object at all stands in a web of relation in the same way as the mug here. This certainly includes a patented product of intellectual property too, such as a drug with new chemical compound, a piece of software, and so on.

In the *Kaccānagotta Sutta,* Kaccāna came to ask the Buddha what exactly was the Right View *(sammādiṭṭhi).* The Buddha replied that neither of the extremes, namely to hold that things exist and to hold that things do not exist, represented the Right View. The Right View is represented only by the realization of Interdependence (namely, that ignorance *(avijjā)* is the condition for thought formation *(saṃkhāra)*; thought formation is the condition for consciousness *(viññāṇa)*, and so on) (*SN* 12:15; II 16–17, in Bodhi 356). Here is a clear textual evidence that the Buddha equates Emptiness and Dependent Origination. The idea is taken up and elaborated by Nāgārjuna (*MMK* XV: 7). David Kalupahāna is of the view that the passage here shows that at least on this particular topic the view promoted by Nāgārjuna and that of early Buddhist canonical text appears to be one and the same and that the former's work is essentially a commentary on early Buddhist teaching (See, for example, Kalupahāna 26). However, this view is much disputed by Buddhist scholars.[2]

We are not entering the debate on how much of the original Theravāda thought

2 See, for example, a review of Kalupahāna's work by Lang and Garfield's criticism of his view in the introduction to Garfield's own translation of the *MMK.*

available in the Pāli Suttas is actually there in Nāgārjuna. Suffice it to say that Nāgārjuna is aware of the *Kaccānagotta Sutta* and the seminal view there that he further develops and elaborates greatly. What interests us at the moment, however, is that the Mahāyāna and Theravāda at this point seem to be in agreement that the correct description of things in the world, the metaphysics of Buddhism, if one can be allowed to use such a term, is Emptiness and Interdependence or Dependent Origination. The gist of the view, of course, is that one cannot take an individual object to be capable of existing independently on its own without its relation, through the relations of cause and condition, to all other objects out there. This empty and interdependent character also extends to events and action too. Events are also empty and interdependent; an event such as a wedding party certainly has a beginning, a middle and an end, and it certainly relates to many other objects and events. If an event is necessarily empty and interdependent, so is an action. What this implies is that the activity that leads to an invention of a new product or a new method which can be patented must also be empty and interdependent. This means that the activity here is constituted by its relations to many other objects, events, activities that surround it. Thus it does not seem fair that the protection and return promised by the IP regime will belong to the innovator or only a small group of people alone without sharing the benefits to all that that the benefits are actually due.

How This Works Out in Practice

So my argument so far is that, as the Buddhist metaphysical view of Emptiness and Interdependence (or Dependent Origination) covers everything in the world, it certainly covers both the process and the product that is protected by IPR's. A patented product, such as a new medicine, thus is constituted by an entangled web of relations with many other factors in the first place. What is important is that these other factors are necessary for the success of the innovation; without participation of willing human subjects in a series of clinical trials, for example, the development of the new drug could not even get off the ground. Moreover, to recruit these participants, who could actually have come from many different parts of the world, requires a lot of institutional settings and other social, cultural and legal contexts all of which are indispensable. We can imagine this point more clearly if we look back to my example of the mug on the table that I mentioned earlier. A mug is a simple object, and even this simple object has a complex web of relations to many other things and events. Imagine how much more complex the newly developed drug and its clinical trials would be. The point is that since the justification of IP protection is that it brings rewards to those who are involved in developing the new thing which is beneficial to the world, the very concept of "those

who are involved" would need to be broadened.

This immediately raises the problem of how exactly one is to measure how much involvement a factor actually has in the process leading up to the patented product. How much, for example, should the drug company owe to an individual research subject who risks her health trying the new drug when it is not fully known what kind of effects on the human body it would actually cause? This is only one factor among millions of others. So how does this proposal work out in practice? Here compassion again as a role to play. What the drug company should adopt is an attitude which is compassionate to the needs and sufferings of everyone in the world. This may sound highly idealistic and impractical, but the idea is quite straightforward. The company should realize that without the participation and the help of many factors the development of the new product would not have been realized. Thus the company should seek out those who are rather directly involved, to the extent that they can be identified, as provide fair compensation to them. This act can also be regarded as an act of *dāna*, or giving, on the part of the coroporation, though it has to be made clear that the motivation for the *dāna* is compassion in the specific sense proposed here. This should include a share of the royalties that would accrue once the drug is released to the market. For example, if the drug depends on a new chemical compound that the researcher has found in a medicinal plant in a rain forest, the tribe that has provided the researcher with the suggestion as to the efficacy of the plant should be taken as a stakeholder in the success of the drug and the benefits shared to them accordingly. Each and every participant in the clinical trials also need to be included similarly.

However, what should the company do for those who cannot be identified but who clearly has a role in the development? Here the idea is that the company should share the benefit of the drug in such a way that the whole community benefit. As the world has become smaller and more tightly compacted, the *community* in question may well span many parts of the globe (but still retaining the sense of being a community). What the company should do in order to be compassionate and fair to the rest of the community who has a stake in the success of the drug is that the drug should be priced in such a way that the rest of the world community can afford it. That is only one thing the company can do; what it can further do is to design a mechanism by which the drug will be used more effectively. Perhaps the company can engaged in health promotion scheme where the population in certain areas can learn how to improve their health and well being on their own, or it can work with national and local governments on the best health care policy that would benefit the people the most.

This, nonetheless, does not mean that *only* the drug company should be doing things for the global community. The help should be two way, and the global community should be doing something in return for the company too. Apart from enabling the

company to gain reasonable profits, an obvious thing to do, the community could a fair environment for the company to operate, through enactment of clear and consistent rules and regulations and participation in the research and development activities. The compassion needs to go both ways.

Objections and Replies

A possible rejoinder to this proposal might be that in disseminating the stakeholders in the IPR's very widely, the innovator, the one who first conceives of the idea, is responsible for the research and who applies for the patent, might lose out because the benefits are spread too thin. The proposal of spreading the benefits around in this way might even look like a tax on the innovator which could result in a loss of incentive for future research and innovation. However, the proposal offered here does not force the innovator to give up his rights to the intellectual property. He can keep his patent, and the patent can be valid for as long as 20 years, depending on how the system is agreed upon. The innovator and the corporation that employs him still enjoys the rights, but they have to recognize that it is not they alone whose work lead to the patented product. Other factors are necessarily involved. In order to create a sustainable world, the holder of the IPR's cannot afford to hold on to their patent papers and sue everybody who infringes upon them even a little,in many cases with good reasons.

Another possible criticism pertains to the intention and the originality of the innovator. If the list of persons and organizations who have a stake in the intellectual property is as large as my proposal suggests, what would be the distinction between the ones who first conceive of the original idea and those whose role seem to be merely incidental, such as facilitating the workspace of the innovator but having no actual role in the process of development itself? For example, what would be the distinction between the team that originally conceives the idea and the building manager who takes care of the material condition of the lab building itself? In a sense the building management team does have a role because without them the experiment would not have been possible. But at least it seems that the roles of the innovators who do the actual experiment and the management team need to be distinguished and this should be reflected on who actually receives the credit for the discovery, and with the credit comes who owns the rights to the intellectual property in question. Or so the objection goes. This objection, however, overlooks one important empirical fact that in most cases of large scale innovation the team of scientists who toil in their laboratories do not end up being the only ones who own the IPR's. On the contrary, they themselves might not own the rights at all as they work for a large corporation, and it is the latter who eventually owns the rights as the patent will be applied in their name. This seems to

belie the façade of the Utilitarian Theory which says that it is the innovators themselves who will be rewarded. That would be the case if the innovators work all by themselves without being employed by any corporation. In most cases, however, the rights belong to the corporations themselves and not their employees. In this sense, neither the scientists or the building management team owns the IPR's at all even though both work for the corporation. The point, then, is that if it is possible for the employing corporation to own the rights (after all, the top management at the corporation might not have a hand in the actual experiment and discovery at all), then it should also be possible for larger contextual elements to have a share in the ownership. This does not mean that the corporations will be deprived of their means to profit making, but it means that in order to be true to the spirit of the Utilitarian Theory (which, by the way, is still the dominant theory continually being cited by lawyers and the court), one needs to expand the circle of who actually has a role to play in the discovery. The key concept of compassion from Buddhism helps us clarify the muddle here in that it helps us to see more clearly that everything is connected and thus one cannot claim the credit and the rights to the discovery for oneself alone. We must not forget that compassion is the desire and the action that arises spontaneously when we see that others are suffering. There is no real distinction between ourselves and others, and corporations and those who are involved with IP regime should realize this too.

Conclusion

Therefore, we have two possible scenarios, one where the company holds exclusive legal rights over their patents and charge a high price for them, and the other where the company is compassionate and shares the benefits equitably according to what really is due. It is not difficult to imagine that the latter scenario offers a better chance for a truly sustainable world. For one thing, strictly enforcing IPR's and persecuting everybody will only create backlashes and equally forceful reactions—something that could easily lead to unsustainability and even disruption and violence. If everybody, on the contrary, is compassionate toward one another, then the world will certainly be a much better place.

Acknowledgments

Research for this paper has been partially supported by a grant from the Thailand Research Fund, grant no. BRG5380009. Thanks also to Dr. Kamhaeng Visutthangkul for discussion and comments on an earlier draft of the paper.

Abbreviations

DK *Dhaniya Kumbakāraputta*

SN *Saṃyutta Nikāya*

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Intellectual Property Rights and Food Security: The Role of External Relations

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Abstract

Intellectual property rights (IPR's) have become an important tool in ensuring food security; however, if used inappropriately, it could well create the reverse. This paper looks at the concept of IPR's in order to find a way to harness their use so as food security is ensured. A tentative argument proposed here is that IPR's do not exist in a metaphysical or epistemological vacuum; on the contrary, research and development leading up to patentable products is often related to social, economic or political contexts in such a way that the relation is constitutive. Thus, it is appropriate that claims to IPR's should acknowledge these relations through a scheme of benefit sharing that is fair to all parties. In the course of the paper I will discuss the four major theories of IPR's according to Fisher—the consequentialist theory, the Lockean theory, the Kantian/Hegelian theory, and the democratic order theory. The aim is to criticize each of them very briefly in terms of the constitutive external relations. If it is the case that IPR's are even partly constituted by relations to outside contexts, then elements of these contexts should have a share in the benefits that accrue through the use of IPR's also.

Keywords: intellectual property rights, ethics, food security, external relations, benefit sharing.

Introduction

The main concern of this paper is to sketch a possible answer to the question

whether, and if so how, food security can be obtained through the use of some kind of intellectual property rights (IPR's). Many scholars have tried to link up the two concepts. For example, Blakeney (2009) devotes a whole book to the topic. Cullet (2004) looks at the issue from the perspective of the developing South. Chapman (2002) links up IPR's and human rights and argues that the former cannot proceed without due recognition of the latter. Since access to food is considered a right, IPR's are linked to food security along this channel. In his book, Dutfield (2004) discusses the use of IPR's, more specifically, protection of plant varieties, and how they could ensure food security in the developing world. The question is important because, on the one hand, it seems that IPR's could foster food security in some way. For instance, technological inventions that are designed to solve food security problems could be protected with IPR's so as to, according to the view of some of their proponents, make it possible for the investor in the research and development of the technologies to recoup their investment and to provide incentives for further development. On the other hand, however, uses of IPR's have been accused of preventing local farmers from maintaining their traditional ways of life and independence, as is the case when they come to rely on some forms of these technological inventions in their farming practices. What I would like to do in this paper, then, is to have a closer look at the whole concept of IPR's and the theory behind it, with an aim toward the problem of food security. What kind of theory and what type of possible modification of how IPR's should be understood is perhaps most amenable to preventing and solving the problem of food security?

I would like to argue that the use of IPR's should be more open. What I have in mind is that, instead of restricting the claim of ownership of an intellectual property to the traditional owners according to most available laws, namely to the investors and the firms that employ those inventors, the rights to intellectual property should be expanded, in some form to be sketched out in this paper, to a wider circle which includes the beneficiaries of the invention, the state, and the public as a whole. This by no means implies that the whole concept of IPR's is being destroyed. On the contrary, inventors still retain a right to ownership of their intellectual creation, but they have to realize that they alone are not the ones who have a stake in those creations. The fact that they are around implies that they owe the fact of their existence to the wider circle. Since nothing and nobody exists in a vacuum, what happens anywhere tends to ripple across all the space everywhere. Thus the wider circle indeed has a say and a share in the intellectual creation that the inventor comes up with. Hence it seems

fair that the wider circle should take part in the rights to the intellectual property also.

My approach, then, is similar in spirit to the proposal by Posey and Dutfield (1996, p. 3), when they aim at refocusing on "Traditional Resource Rights" (TRR's) rather than IPR's (See also Posey, 1990). However, Posey and Dutfield do not aim at analyzing the concept of IPR's nor criticizing the underlying theories as I intend to do in the paper. In fact the argument I am proposing looks rather simple; yet it is surprising that not many works in the literature deal directly with it. According to Fisher, there are four major theories of intellectual property rights: one that deals with consequentialist reasons—that IPR's bring about desired consequences and provide incentives for innovation, with the right to property arising from one's effort—that one has a right to a piece of property, intellectual or not, if one exerts one's effort and labor in producing or acquiring it, expression of one's personality—that IPR's are an extension of one's own creativity and personality, or a democratic social order—that IPR's are consistent with the kind of social order that is democratic and respectful of individuals' role in it (Fisher, 2013). However, none of these four major theories take into account the rather obvious fact that in order to produce the kind of innovation that merits being granted IP protection, the context is necessarily involved in such a way that to ignore it entirely in claiming the rights to IP would seem to be incoherent. As a result, claims to IPR's have to acknowledge these external relations and the benefits that accrue due to the claim should be shared accordingly.

Role of External Relations

Let us look at each of these four major theories in turn. The first one is the most familiar one and perhaps the most cited by corporations benefiting from IP protection as well as by legal scholars and the court in general. IPR's are needed as a guarantee, so to speak, that investments on research and development leading up to the patented product produce adequate return. Furthermore, they are also necessary as an incentive for further effort in innovating. However, effort in innovating, research and development seldom, if ever, exists in a vacuum such that no wider social or political contexts are involved. A firm that develops a technology that would ensure food security, such as a hybrid seed that is resistant to drought and has high yield exists as a node in a complex web of social, economic, cultural relations to other firms, other agencies, as well as the public. These relations do not obtain only at the obvious level of the firm's usual dealings with outside agencies, e.g., paying taxes to the

community, buying stuff from suppliers, selling products to consumers, sharing profits to their shareholders, and so on, but the very activity of research and development for the kind of technology that is going to be patented is constituted by these relations to the wider context too. It is highly implausible nowadays that any kind of sophisticated research and development of this kind can start entirely from the ground up. Researchers cannot shut themselves up in their laboratories and can still produce any kind of technology that works in the real world. In order to produce the seed, at least researchers have to rely on past studies, then the resulting seed has to be extensively tested in the field; unless the corporation owns a large tract of land testing the seeds would have to be done in open fields and in order to do that permissions from the relevant authorities have to be obtained. Furthermore, the laboratories have to employ a number of people and engage in various economic and other kind of relationships with other agencies outside of the corporation to which the laboratory belongs. Perhaps the corporation may have had performed a survey of need of the farmers in order to ascertain exactly what kind of seed would be the most preferable to them. All these mean that input from the outside in fact constitutes the very activity of research and development as well as the patentable product that comes up afterwards. The consequence is clear. Claims to IPR's would have to be in some way shared among these wider circles also; if it were possible for the laboratory to shut itself up entirely depending absolutely on nothing from the outside world, then it might be possible for them to claim exclusive rights to their IP. But since the world seldom works that way, the usual claim to IPR's, which is almost always exclusive, would have to be modified.

An obvious rejoinder to this argument is, of course, that to come up with innovation that is patentable might depend in some way on these outside factors, but the product itself must be shown to be sufficiently innovative in order to be able to be patented. The fact that activities leading up to the innovated product require a number of links to the outside world alone is not, so the rejoinder goes, sufficient in guaranteeing that the links and the external relations do have a share in the IPR's that result from the work of the laboratory. However, that is a rather narrow look at how innovation comes about. Even a lone thinker who shuts himself up in a room and thinks up a new idea have at least to base her thinking on some prior ideas that are around at the time which form, among other things, an input to the problem that she has set out to solve through the innovation in the first place. It is commonly acknowledged that Descartes's Cogito Argument is the epitome of an original argument in the

sense that, according to the content of the argument, Descartes or the cogito thinker does not need any external relations in order to let the argument go through toward its famed conclusion (Descartes, 1996). The fact that Descartes himself has to eat to survive and is situated in a room in a house, which presupposes that he either owns it or is allowed to remain there, does not imply that the farmer who produces his food, or the relation he has with the authorities to prove his ownership of the house, or the owner of the house who allows him to remain to think, has any role to play in the Cogito Argument. However, one of the familiar objections to Descartes' argument is precisely that the Cogito itself presupposes these very external relations for it to go through. Even if we allow that the house and the food might have been cooked up for Descartes by the Evil Demon, the very fact that Descartes thinks in a language, which presupposes that he has to have learned it through speaking it with others, show that external relations are constitutive of the Cogito from the beginning. According to Wittgenstein, private language, namely a kind of language that in principle only the one who speaks it knows it and no other, is not possible, so Descartes' language is not private either (Descartes, 1996). This means that other people are necessary in the content of the Cogito in the first place. Thus, if the requirement for constitutive external relations is necessary for Descartes' Cogito, then it is obviously the case for a much less stringent argument and practical development that takes place in the laboratory.

The second major theory of IPR's, the Lockean one, states, roughly, that IPR's are justified as a rightful fruit of labor that should belong to the one who has expended it in order to arrive at the intellectual property. This argument is rather similar to the consequentialist one that we have just considered. And as in the case of the former argument, it is rarely the case that one alone or even one corporation, without any relations or any help from the outside, could secure any kind of sophisticated intellectual property that abounds today. If it is the case that any attempt at research and development for patentable product has to rely on a number of contexts and external relations, then it means that it is not the labor or an effort on oneself alone (or that of one group alone, for that matter) that is responsible for the success of finished product. Hence the benefits that accrue through the use of the claim of IPR's should be fairly shared among those who are involved, both directly and indirectly.

The development of technologically advanced hybrid seed that can grow in unfavorable conditions is a case in point. The common assumption is that, since the corporation has invested a sum of money into the research and development for the seed, they

are entitled for a period of patent protection where the IPR to the seed is respected. However, in order for the seed to be made meaningful to the majority of the world's farmers who stand to benefit from the seed, the price of the seed needs to be low enough to be affordable. Furthermore, the farmers should be able to save some seeds so that they can grow them in the next season. The practice of some corporations of engineering the seed so as to become sterile is thus not in line with the argument adopted here. The Lockean position would view the research and development for the seed as an investment, an exertion of labor to stake a claim in a piece of property. But in order for the practice to get off the ground, the firm and the team of scientists who do the actual work need to interact with the outside world in one way or the other. Most of all, if the idea is to develop a kind of seed that would help the majority of the farmers, most of whom are poor and live in the tropical countries, then prior research on how the seed would respond to these particular climate conditions is absolutely crucial. Recognizing that the resulting technology is a result not of the work of the scientists alone, but that other factors are critically involved would mean that fair sharing of the benefits should be an important factor in deciding who gains what in the use of the technology in question. Since the scientists do not, and cannot, do their work alone without input and all kinds of relations obtaining between them and the outside world, including the farmers themselves who are on the receiving end, ways need to be found in order to acknowledge the roles that these external relations play in the process of research and development.

The third major theory states that IPR's are justified as an extension, or an expression, of the personality of the creator. Usually this view is used more to justify copyrights than patents, but it has also been used by some scholars to justify patents too. Here one needs to recognize, again, that an entity, be it an individual, a firm, or a scientific laboratory, does not exist in vacuum in total independence from all other factors. Hegel is usually cited as a source of this third major type of IPR's theory, but it is Hegel himself who, in the *Phenomenology of Spirit* (1977), famously presents an analysis of an individual in such a way that an individual, to be the individual he or she actually is, has to be defined through relations with other individuals. In the case of objects this means that an object can only be what it is through whatever lying outside of it, so that a boundary between the object and what is outside of it is defined. Something that has no externally defining boundary would not be an individual object at all. The same analysis also goes for individual persons. A person is the person he or she is only through *recognition* that other people have toward him or her.

Without the recognition, there would be no person since there would be no consciousness that this is a particular person with whom one can deal with. This is just another way of saying that a human person cannot be understood as such without reference to his or her community, family or group. The relation of recognition in this sense is a typically Hegelian notion (Cf. Taylor, 1977).

The upshot is that firms cannot consistently hold the claim to IPR's justified through the notion of extension of their "personality" and claim that no external relations are involved. The result then is structurally the same as what I have been trying to say so far regarding the previous two theories. In order consistently to claim IPR's to a product, external relations need to be factored in, and in the next section I will sketch a very rough form of what the factoring in of these external relations consist in.

The last major theory of IPR's is perhaps the most intriguing. The idea is that IPR's are needed to ensure that we live in a fully democratic society where the rights of individuals and presumably corporations are respected. This argument thus recognizes from the first moment the constitutive relation that IPR claims have to their external factors. In order to say that IPR's are necessary for a democratic society, one obviously needs a society to begin with; hence IPR's according to this theory are justified through their relations to the outside factor. That is why it is intriguing, because the previous three theories do not, *prima facie,* seem to admit the relations to external factors as does the fourth one here. Thus, a discussion of this theory has to be a little different from that of the previous three. Here the focus is on whether and how respect of IPR's contributes to a democratic society. However, it is quite clear that a narrow interpretation of IPR's in such a way that the majority of the world's farmers would be worse off because they have to buy expensive drought resistant hybrid seeds, the kind that may one day be needed in order to stave off food insecurity, would be a decidedly less palatable option than a broader one which, as I have been trying to say, includes the role of external factors including stakeholders such as the farmers themselves and other organizations and agencies in the process of developing a patentable product. A fair benefit sharing scheme where the farmers, the community, the local and national authorities, the firms, and the wider public, are all stakeholders are needed in order to ensure food security in the longer run. The scheme is not a radical one where the firms are disincentivized from developing new products, but as it ensures survival of all factors the scheme is in the long-term interest of the firms themselves.

Conclusion

What I have been trying to argue in the short space provided for this paper is that external relations play a constitutive role in IPR's claims. Any attempt to ensure food security through a reliance on IPR's does not even get off the ground, I believe, without the kind of benefit sharing scheme that is based on the recognition of the role external factors play. An upshot of my argument is that one cannot consistently claim a right to an intellectual property and at the same time hold that one has ultimately an exclusive ownership of the property in question with no need to regard any external factors that are obviously involved. It is true, nonetheless, that in a genuine case of innovation, the product has to be proven to be sufficiently distinct from all others that have been invented before. This is the linchpin of the whole idea of intellectual property rights. However, being able to claim innovation is not the same as depending on all others in such a process, and this means that, though one has a right to one's own invention, one does not have an obligation to the world or the context in which such process is possible in the first place. This necessitates a kind of fair benefit sharing scheme that all stakeholders should have a part, including the inventors themselves, the firms that employ the inventors, the farmers, the local and national authorities, and the wider general public. Recognizing a list of stakeholders this wide does not disincentivize the firms from developing future patentable products. Firms still hold on to their IPR's, but they have to realize that their long-term interests do depend ultimately on sharing of benefits of the technology to the wider circles. Holding on to IPR's in order to drive up the price and create a vicious monopoly could only benefit the firms in the short term, as the instability that ensues would create an environment in which further research and business dealings become increasingly difficult.

So what does a fair benefit sharing scheme look like? For one thing, the price of the hybrid seed (or any other agricultural technologies for that matter) should be made affordable to the farmers who need them. Since farmers are at the forefront of the fight to ensure food security, they need to be more fully supported than they are now. The whole idea is that we are living on the same planet earth. As of now there is no possibility of packing up and moving to other planets yet. So firms should lower their profit expectations and look at a broader notion of profit where well-being of people who are not stock holders be taken into account. It certainly requires a tremendous amount of work to sort out in detail who should get what and in what proportion in the fair benefit sharing scheme sketched out in this paper.

But if we are to think about how IPR's should play a role in ensuring food security, I believe that this is about the only way to go.

Acknowledgment

I would like to thank Helena Röcklinsberg and Per Sandin for their comments on an earlier draft of this paper, which led to many improvements. I would also like to thank the executive committee of the EurSAFE for inviting me to the conference in Uppsala. Research for this paper has been partially supported by a grant from the Thailand Research Fund, grant number BRG5380009.

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สัญญาเลขที่ BRG5380009

โครงการ "สิทธิในทรัพย์สินทางปัญญา:

นัยยะทางทฤษฎีและวัฒนธรรม"

รายงานฉบับสมบูรณ์

รายงานช่วงตั้งแต่วันที่ 31 พฤษภาคม พ.ศ. 2553 ถึงวันที่ 30 พฤศจิกายน พ.ศ. 2556

ชื่อหัวหน้าโครงการวิจัยผู้รับทุน: รองศาสตราจารย์ ดร. โสรัจจ์ หงศ์ลดารมภ์

หน่วยงาน: ศูนย์จริยธรรมวิทยาศาสตร์และเทคโนโลยี คณะอักษรศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย

1. การดำเนินงาน: ✔ได้ดำเนินงานตามแผนงานที่วางไว้ทุกประการ

2. สรุปผลการดำเนินงาน

ตลอดระยะเวลาของโครงการ ผู้วิจัยได้ดำเนินดังต่อไปนี้

2.1 เป็นผู้จัดและเข้าร่วมประชุมวิชาการ The First Digital Democracy Conference ที่จุฬาลงกรณ์มหาวิทยาลัย วันที่ 20 พฤศจิกายน พ.ศ. 2555

2.2 ได้รับเชิญให้เข้าร่วมการประชุมเชิงปฏิบัติการนานาชาติ Tsukuba Workshop on Information Ethics และได้เสนอบทความเรื่อง "Buddhist Perspective on Privacy" การประชุมจัดโดย Laboratory of Advanced Research มหาวิทยาลัยสุกุบะ ประเทศญี่ปุ่น วันที่ 4 – 5 ตุลาคม พ.ศ. 2555

2.3 ได้รับเชิญให้เป็น keynote speaker ในการประชุมวิชาการ "Ethics of Nanotechnology - Research and applications" ที่กรุงโคลอมโบ ประเทศศรีลังกา ในวันที่ 11 กันยายน พ.ศ. 2555 จัดโดย National Science Foundation ประเทศศรีลังกา เสนอบทความเรื่อง "Introduction to Ethical Issues in Nanotechnology"

2.4 เข้าร่วมประชุม World Congress of Bioethics เสนอบทความเรื่อง "The Extended

Lifespan and the Meaning of Life" เมืองรอตเตอร์ดัม ประเทศเนเธอร์แลนด์ ในวันที่ 26 – 29 มิถุนายน พ.ศ. 2555

2.5 ดำเนินการจัดประชุมวิชาการนานาชาติ The First International Conference of the Asia-Pacific Society for Agricultural and Food Ethics ที่จุฬาลงกรณ์มหาวิทยาลัย วันที่ 28 – 30 พฤศจิกายน พ.ศ. 2556

2.6 <u>รายการงานวิจัยที่ได้รับการตีพิมพ์มีดังนี้</u>

2.7 Hongladarom, Soraj. "Synthetic Biology, Intellectual Property and Buddhism" To appear in a volume on papers from the GABEX Meeting, University of Tokyo, 2012. In *The Future of Bioethics: International Dialogues,* Akira Akabayashi, Ed. (Oxford University Press, 2014).

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ภาคผนวก

ผลงานที่ตีพิมพ์แล้ว

Synthetic Biology, Intellectual Property and Buddhism

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Abstract

Kaebnick present a thorough account of the ethical issues surrounding synthetic biology. Synthetic biology should open up a new way of thinking about the role of intellectual property rights in promoting well-being of people around the world. Instead of tying up the products of synthetic biology to the existing regime of intellectual property rights, a new principle of conceiving the rights is briefly introducted that is based on Buddhist principles. Synthetic biology offers a clear possibility whereby the gap between the advanced developed countries and their counterparts in the developing world could become even wider. The Buddhist principle of mutual interdependence of all things shows that to hold intellectual property rights to oneself alone without a fair way of sharing the products will be detrimental, not only to the gap between the two groups of countries, possibly resulting in increasing instability, but also to the holders of those rights themselves.

Greg Kaebnick has presented a wonderful account of the various ethical implications that synthetic biology has raised. His main concern is with the roles that

synthetic biology is going to play in the near future, and he seems to have an overall positive view on synthetic biology, believing that it can create benefits to humankind in various ways, such as eliminating toxic waste and altering available chemical compounds into fuel. The ability of synthetic biology to help us survive in the twenty-first century underscores Kaebnick's emphasis in the paper on the relationship between human beings and nature. On the one hand, there is the view that nature is there to be used and exploited. According to this view synthetic biology would seem to be a clear reflection of how humans exploit nature through creating life itself according to the demands that fulfil humans' insatiable and egoistic desires. On the other hand, there is another view that there should be limits on what humans can do to the natural world. Kaebnick argues in the paper that there could be a role for synthetic biology in the second option. Products of synthetic biology could be used, for instance, in creating fuel out of other organic compounds which are already abundant. Question is what kind of humans' relationship to nature is reflected by this kind of synthetic biology. Kaebnick points out an option where artificially developed algae could produce fuel for us, perhaps eventually freeing us from the need to keep on searching for the elusive fossil fuels. The environment does not have to be sacrificed by taking this route of synthetic biology.

This is all fine and good. However, in this paper I would like to focus on another aspect of the ethics of synthetic biology, one that is discussed tangentially in Kaebnick. The issue concerns intellectual property rights and their role in helping alleviate the disparity between the developed and the countries (John, 2009; Boyle, 2008; Himma, 2008). This is the issue that is bound to take place when the technology of synthetic

biology becomes viable in an industrial scale. The main questions is: What kind of justification could be offered for claiming ownership of synthetic biological products? Knowing how to answer this question is necessary for the further discussion of how the benefits of synthetic biology, benefits that Kaebnick is so eloquent about in his paper. In this short reply paper, it is obviously not possible for me to provide the justification in any detail. So a sketch will be offered, a research program that could perhaps be a starting point for further discussion and studies. The discussion on intellectual property here will tie up with Kaebnick's paper through his discussion of justice.

It is quite well known that there are strong arguments against claiming intellectual property rights over living organisms. Pharmaceutical companies that go to rain forests in developing countries looking for local plants that might contain novel compounds for development of new drugs are accused of "bioprospecting" or "biopiracy," primarily because they do not recognize the rights of the locals who own the land on which the plant grows (Bhat, 1996; Fenwick, 1998; Tedlock, 2006). Moreover, multinational corporations are also accused of appropriating the knowledge of indigenous people without giving the latter credits. The idea behind this is that claims of intellectual property rights should not be confined only to those who have the sophisticated capacity of developing the local plant into new drugs, but the protection should also be expanded to cover the local people who have acted as the "guardians" of the plant in question and who might have indigenous knowledge which could be highly beneficial to the world.

In synthetic biology, however, there is no such concern with the local, indigenous people. The technology is highly advanced and sophisticated; it is no longer

the matter of finding organisms from the tropical forests or from any other parts of the environment and extracting useful compounds from them. It is instead a matter of creating organisms from scratch or altering existing ones to serve particular purposes, such as creating fuels cheaply. The developing world does not seem to have any role at all to play in this type of enterprise. The developing world may lay claim to the organisms that are taken from forests in their areas and demand their share when new techniques developed from the organisms prove to be profitable and useful. With synthetic biology, however, no such possibility exists. Everything from the beginning to the end of synthetic biology engineering is highly infused with very advanced knowledge and technology. If left unchecked, it is conceivable that this progress would widen the gap between the developing and the developed world further. Synthetic biology is here a clear example of the knowledge economy, where the key for economic progress is no longer in manufacturing per se, but in infusing sophisticated knowledge into economic production. Given the likely possibility that the synthesized algae will be powerful enough to turn common organic compounds into usable fuel, the economic impact will be enormous. The countries that hold the key to the technology will surely maintain their dominance far into the future. However, without effective benefit sharing scheme among the countries of the world, it is also quite likely that the growing disparity will generate more conflicts and instability. Thus the principle of global justice demands that an effective benefit sharing scheme be in place.

Such a scheme will have to depend on a massive rethinking of the whole idea of intellectual property rights. What I have in mind is that the principle should be supplemented by the idea, derived from Buddhism, that the very existence of the idea of

personal property depends on the usefulness of the idea on survival and flourishing of individuals having the property. This in Buddhism has to be accompanied by the idea of interdependence, the realization that nothing stands alone in the world and everything owes their very existence through connection with other things (Siderits, 2007). There is not enough room in this paper to explicate the Buddhist concept in detail, but the outline is clear enough. Personal property is useful in maintaining the survival of an individual. One needs a portion of the material world to survive; one needs to eat, to find clothing and shelter, and so on. The ultimate goal of being a Buddhist is to perfect oneself thoroughly so that one achieves final liberation from the bonds of samsara, or the world that is full of suffering. Translated to the ordinary language this means that the goal is to create a perfectly peaceful world for oneself and others through changing *oneself* rather than the outer world. This is only possible when oneself and others are essentially interconnected. The idea is that perfecting oneself in this way would not be possible at all without some dependence on the material world. Hence Buddhism in general is not opposed to the idea of personal property, and as intellectual property is an offshoot of personal property Buddhism does not have anything in principle against the former either.

Individuals' dependence on the material world, nonetheless, also needs to be complemented by the fact that individuals live together in groups and communities and cannot even survive without depending on others. This fact according to Buddhism dictates that acquisition of private property cannot be used solely for one's own purposes alone, but the property needs to be shared or given back to the community as a concrete realization of everyone's dependence on one another. In today's terms this

means that those who have put effort into creating and developing something beneficial should share that to others. There is nothing wrong with getting some return of one's investment in form of material benefits back to oneself. The principle of justice requires that too; otherwise that would be nothing more than exploiting the inventor for his effort while he gets nothing back in return. But the return should not be such that the others, those who make use of the invention, are exploited instead such as by having to pay a very high price. If everyone strongly subscribes to the principle of interdependence of everyone on one another and of everything on everything else, then a workable solution can always be found when there is a conflict arising from the problem of distribution.

So we are now in a position to provide a sketch of an answer to the main question raised before. Justification for holding rights to *intellectual* property in the case of synthetic biology would need also to include the notion that all things are interdependent and thus everyone in a sense has a role to play in creating the intellectual property in question, which would mean that the claim to intellectual property rights cannot be exclusive to any individuals or groups. Apart from the problem whether creating life from scratch or from existing "biobricks" is right or wrong in itself, products created through this technology, as well as the technology itself, need to be shared equitably among the population of the world. Even though it seems at first sight that synthetic biology does not need any involvement from the developing world at all; a further consideration shows that in fact such involvement cannot be avoided. Globalization is entirely pervasive and the livelihood of those in the West has been dependent on input in various forms from the East through export and import of goods and material as well as continual movement of students, researchers and professors

across the boundary. The Buddhist principle of interdependence implies that one does not achieve one's own flourishing and realization of one's ultimate goal if one does not give back to others; this principle would then imply that the fruits of the labor in synthetic biology, such as the creation of fuel-creating synthetic algae, should be shared equitably to the world.

The upshot, then, is that the whole concept of intellectual property, as an offshoot of the more tangible personal property, needs to be reconsidered. Perhaps one difference between the old concept of property and that of intellectual property is that one physically needs some kind of personal property to survive. The food one eats, for example is one's personal property in a very real sense. However, with intellectual property physical survival does not seem to be at stake. Instead it is used more by business corporations to protect their interests. One might look at the survival of the corporations themselves if their intellectual property rights are taken away; that could be the case, but it seems a far cry from the older scenario of a person on the verge of death when they are deprived of food. Consequently, the tie between personal property and intellectual property should be loosened. Instead of treating intellectual property as a kind of personal property (either belonging to an individual or to a corporation functioning as a juristic person), it should be treated as a distinct type in its own right, a special kind of property loosely connected to the old concept of personal property but not wholly so. Intellectual property should be understood as a tool for maintaining interests of the inventors who created the property only for a certain period of time; it should not be considered as fully personal property belonging to the inventor, but something that ultimately belongs to humankind as a whole.

The way this works, for example in the case of synthetic biological products, is that the technique behind the creation of the fuel producing algae and other synthetic biological inventions should in all cases be made open to the public. Business interests should not cloud the mindset of those involved to such an extent that they are blind to the ultimate benefits that the opening up will bring to humankind as a whole, which in the end will benefit themselves too. Here the Buddhist would emphasize that what is going on in someone's mind is of the utmost importance. What needs to be changed the most is the beliefs and mentalities of those involved so that they become less dominated by their own narrow personal, selfish interests and begin to see the real benefits that opening up knowledge and techniques to the world community would bring. Intellectual property is not personal in the sense that it can be used up and consumed by an individual or a group thereof; on the contrary it can be copied to all those who are interested, thereby benefiting everyone. Here would be a clear illustration of the Buddhist notion of interdependence.

Conclusion

The fear that synthetic biology will create new life forms that could harm our environment is perhaps overblown. The level of technological progress today does not enable us to do that. Instead what scientists have been doing is to engineer the building blocks of life in order to accomplish various engineering tasks, or to design what could be regarded as "life" using other forms of chemicals not found in normal life forms. Either way the likelihood that a monster will be created that threaten our environment or our existence is remote. As the current state of the technology goes, one should regard

synthetic biology as of now more as an engineering project rather than a fully biological one. The life forms that will be created (if indeed they can be classified in that way) will function more like chemical compounds than living microbes. If the public understand this point, then the fear might be diminished.

Nevertheless, the fear is perhaps not founded solely on inadequate awareness of the technical content. Even though one understands that synthetic biology now is only at an embryonic stage of development, one might not be able to stop thinking that some day in the future scientists will be able to create and manipulate advanced life forms at will, and the possibility emerges that some evil scientists might use that ability for their own purposes. This, however, is true for all other kinds of technology. Nuclear technology is a very powerful example of how destructive a new form of technology can become. Hence an effective regulatory scheme at the international level that is robust enough to ensure public safety must be in place, and it is now time to design and implement such scheme when synthetic biology is just beginning to be developed.

Furthermore, I have argued in the paper that a new way of thinking of intellectual property rights should be adopted, one that loosens the existing bind between the familiar conception of *personal* property and intellectual property. Based on Buddhist teaching, a way can be found so that the notion of intellectual property rights can act as a facilitator of global justice and equity instead of its enemy (Pogge, 2008).[1]

1 Research for this paper has been supported partially by a grant from the Thailand Research Fund, grant no. BRG5380009. I would also like to express my sincere gratitude to Prof. Akira Akabayashi who invited me to the wonderful GABEX conference in Tokyo in 2012.

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Genetic Information: Direct to Consumers or Gatekeeping?

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In her paper Maschke presents us with a snapshot of two initiatives in the US that collect samples of genetic data from the general population with an eye toward finding solutions that would be useful to clinical care. The main ethical concern she raises is about how this information is going to be used by the consumers. She presents two options, one with the "direct-to-consumers" approach where people can buy their own genetic information which they can use as they see fit and the other with a more conservative approach where "experts" decide which genetic information is most approprate for the people so that they can make the use of the information for their health purposes. Maschke favors the latter approach, which she calls the 'pull' approach as the clinical setting draws upon the genetic information that experts deem relevant and interesting enough. On the contrary the 'push' approach favored by companies such as 23andMe and others would seem, according to Maschke, to be offering individualized genetic information to the

clinical setting too early.

In this short reply paper, I would like to discuss Maschke's preference of the pull approach and evaluate how this approach fares with the principle of individual autonomy and privacy (Stein, 2011). Furthermore I will also touch upon the question how individualized or personalized medicine would help or hinder what I believe to be the more pressing problem in the developing world, that of equity in access to medical care. In the context of poorer countries in the developing world, genetic technologies might be of better use when they are tailored, not to individual differences or variations, but in finding possible traits that could occur throughout a group of population. Instead of tailoring medicine to individual *persons,* the technology should be focused on customization at the level of individual groups. This will go further toward reducing the inequity that is still extant in the world today.

Maschke's basic concern with the 'push' approach to individual genetic information is that some information that has minimal role in the clinical setting, or is too early to be of any effective use, might be offered to the health care provider who does not yet know what to do with it. However, this problem could be solved also by providing the consumer or the general population with adequate knowledge of what their genetic data could do at the moment, or the health care provider and the company selling genetic data analyses could inform the people what kind of genetic data are useful and what kind are not so useful in the clinical setting. The fact that there are companies that sell results of individual genetic data analyses back to the individuals who might rush the information to the health care provider should not be used as a basis for preferring the other approach which is much

more controlled. Moreover, there are also other reasons beyond health care as to why people send in their tissue samples for genetic analysis. People might want to know their ancestry or their anthropological position within the grand scheme of human genetic relationships, for example.

Maschke also fears that individuals who obtain their own genetic profiling might be scared, if the profiling happens to indicate some chance of their having a disease in the future, that this is an indication that they will actually have the disease. But again this can be solved rather straightforwardly by giving the population a training program where they learn about risks posed by genetic profiling and their probability and the undeniable role of environmental factors. Again there seems to be little reason to do away with the 'push' approach. Maschke also notes that commentators have criticized the gatekeeping approach as being "paternalistic" as they take important decisions away from the individuals whose genetic information is in question. There is nothing wrong with the notion that in some areas the judgments of experts who are genuinely and thoroughly knowledgeable should be respected, but those same experts could also inform the people about what kind of their own genetic information is clinically relevant and what kind is not quite relevant. Instead of deciding things on their own, these experts could instead provide basic knowledge about genetic information, susceptibility to diseases and other relevant topics so that the people can make informed choices about their own health and their bodies by themselves.

Perhaps the psychology behind the popularity of companies such as 23andMe is that people naturally want to know something about themselves. This is the same psychology behind the popularity of astrology and horoscopes. People read horoscopes in order to learn

what will happen to themselves in the near future, or what they are like, what their characters are, and so on. In the same vein, people are also attracted to genetic information companies because they would like to know what they are really like, what percentage of this or that ethnicity is in their blood, and so on. There does not seem to be anything inherently wrong about this. It is true that information contained in horoscopes is notoriously unreliable; this is a very common knowledge. But what people would need to know, and it is the task of genomics experts to let them know, is that personalized genetic information is in a way not much better than astrological predictions in successfully predicing the future. Certainly there is certain kind of genetic information that is much more certain, such as the information that one has the gene for thalassemia or Huntington's disease, but most information that people are interested in is not of that kind. Furthermore, there are a lot of environmental factors that can influence whether one's genetic predisposition to get a certain disease might be realized or not. And these environmental factors are very difficult, if not impossible, to control. The uncertainty of one's genetic predisposition to get a disease could be *less* than one's astrological predisposition to get the same disease, but since one almost always treat astrological information with a grain of salt, there is no reason why genetic information should not be treated the same way.

Another topic I would like to cover concerns the role of the technology of personalized medicine in alleviating the problem of inequity in access to health care across the world (Pang, 2009; Lunshof, 2005). One thing that can be achieved through the technology is that genetic traits in a population group could eventually be found that are linked to certain forms of diseases that ways toward treatment could be found afterwards.

There are of course many ethical concerns in this attempt, a problem well attested in the literature, such as ones dealing with the Icelandic population. However, if such genetic traits can be found, then the ethical concerns can be overcome if the obtained information is used not as a means toward discrimination but in order to find a way to prevent or treat diseases arising from those conditions. Instead of the group being discriminated against as a result of their possessing some genetic predisposition (if it is actually established that the group does possess the disposition that makes them susceptible), the group should be given priority in resource allocation and other areas so that their conditions are given immediate attention from the policy level downward. In short, instead of focusing resources and effort on narrowing medicine down to the personal level, it might be more effective in the context of developing countries to focus at the level of individual groups instead. And how groups are define also vary; not only should genetic groups be given attention to, but socio-economic or cultural groups such as the poor, the marginalized, or the underprivileged should also be given priority too. Instead of personalizing medicine to individual persons (many of whom are well-to-do persons in the West), medicine should also be "personalized" to individual groups not only defined by genetics but also by social factors too.[1]

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East Asian Science, Technology and Society: An International Journal (2013) 7:87–101
DOI 10.1215/18752160-2075384

A Tool for Equality and Justice: Thailand's BIOTEC and Its Culture

Soraj Hongladarom

Received: 21 July 2011 / Accepted: 28 September 2012

Abstract This article looks at the organizational culture of the National Center for Genetic Engineering and Biotechnology (BIOTEC), a research institute in Thailand. The purpose is to find out to what extent the culture affects how well the institute realizes its stated objectives, which include becoming an engine for the knowledge-driven economy of Thailand and developing the country's infrastructure in biotechnological research. The main methodology used is a close reading analysis of the texts published by BIOTEC itself and a series of interviews of researchers and analysts who have a close working relationship with the institute. It is found that the organizational culture of BIOTEC is rather typical of a Thai bureaucratic organization, in that the emphasis seems to be more on maintaining the general status quo rather than relentlessly pursuing its vision. The article suggests that BIOTEC should instead act more as a catalyst for equality and justice through its alignment with villagers in rural areas, helping them to realize their own goals.

Keywords Biotechnology · culture · justice · equality · organization · bureaucracy

Agriculture has been central to Thailand's culture and economy from time immemorial. Although its part in the overall economy has diminished in recent years, agriculture still holds a special place in the country's export economy: other industries are mostly

The research that made this article possible has been partially supported by the Thailand Research Fund (grant BRG5380009) and the National Research University Project (grants HS1025A and AS569A). I am also grateful to the organizers of the Asian Biopoleis workshop for inviting me and giving me the opportunity to share my views with other scholars. I also would like to thank the anonymous referees at *EASTS*, whose comments on an earlier draft led to many improvements. My special thanks go to Connor Graham, who has helped me in many ways. Publication was further supported by the "Asian Biopoleis: Biotechnology and Biomedicine as Emergent Forms of Life and Practice" Project, funded by the Ministry of Education, Singapore, and the Humanities and Social Sciences (HSS) Division of the Office of the Deputy President (Research and Technology) at the National University of Singapore (NUS), Grant Number MOE2009-T2-2-013.

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a result of foreign investment, so technical know-how remains largely in the hands of the investors; hence, the only truly Thai global companies are related in one way or another to food and agriculture.

One effect of the globalized economy is giant conglomerates specializing in animal feed and other kinds of foodstuffs; farmers have to contend with fluctuating world commodity prices.[1] Although successive Thai governments have tried to encourage other sorts of industries, such as the manufacture of automobiles and computer hard disks, these have amounted to little more than applying cheap labor to the specifications provided by foreign companies (Samnakngaan Setthakit Utsaahakam 2012). Although Thailand's top exporters are not agricultural, they depend completely on foreign sources for their technology—the Thai contribution is assemblage alone. It is in agriculture that Thailand can claim its own brand: the industry is purely indigenous from start to finish. Dependence on agriculture is so great that the economic collapse of 1997–98 did less damage than previously thought; most workers in the collapsed industries simply went back home and subsisted as farmers (Siamwalla 1998; Fallon and Lucas 2002).

This article is a preliminary investigation of a public research facility, the National Center for Genetic Engineering and Biotechnology (BIOTEC), which was set up by the Thai government close to thirty years ago in order to respond to the challenges agriculture faces in an age of globalization. I portray the organization through its role in the Thai economy, as well as how it functions within an overarching cultural paradigm. As the only organization in Thailand devoted solely to research and development in biomedical sciences and biotechnology, BIOTEC is the essential element of the Thai biopolis.[2] Hence, examining its culture and its relations with other elements of Thai society helps us understand the bigger picture of how bioscience and biotechnology function in Asia as a whole.

BIOTEC, even though it was set up as an autonomous organization, still exhibits many traits of Thai bureaucratic culture. I propose to show how BIOTEC transformed itself to serve the disenfranchised men and women of Thailand, aligning its research agenda with the actual needs of small farmers. Bioscience and biotechnology were put to use to promote equality and justice.

1 BIOTEC

Realizing the vital importance of agriculture to the economy, the Thai government set up the National Center for Genetic Engineering and Biotechnology in 1983. Afterward, when the Science and Technology Development Act was passed in 1991, the center became a part of the newly established National Science and Technology

[1] Recent statistics show that rubber is Thailand's highest earning agricultural export commodity, followed by rice, shrimp, and fish. In 2010, rubber generated 249,262 million baht or 22.8 percent of the national agricultural export earnings; the figure for rice and derived products was 180,726 million baht (16.6 percent), and for shrimp and fish plus their products, 101,632 and 99,039 million baht, or 9.3 and 9.0 percent, respectively (Samnakngaan Setthakit Kaan Kaset 2011).

[2] *Biopolis* literally means life-city in Greek. The name is derived from the meeting where this article was originally presented in Singapore in January 2011. The name also refers to Singapore's Biopolis, a huge biomedical research complex.

Development Agency (NSTDA) and adopted the acronym BIOTEC. The main purpose of the NSTDA is to harness the power of science and technology for national development; it is composed of five institutes: BIOTEC, the National Metal and Materials Technology Center, the National Electronics and Computer Technology Center, the National Nanotechnology Center, and the Technology Management Center. Taken together, these institutes represent the desire of the Thai government to become a player in the world's knowledge economy—a producer of knowledge and technology rather than an assembler of parts.

Since research in the biomedical sciences and agriculture has a longer and richer tradition than research in the other fields, it is not surprising that BIOTEC has produced more publications compared with the other institutes. Biomedical research is one of the missions of BIOTEC, which is affiliated with Mahidol University, a leading university that produces many publications in the area (National Science, Technology and Innovation Policy Office 2009; Svasti and Asavisanu 2006). This article examines the culture of this organization to see how it affects research and policy outcomes. Thus, the article largely follows Claver et al. (1998) in maintaining that organizational culture plays an important role in the success of technological innovation. I limit my scrutiny to what appears on the BIOTEC website (www.biotec.or.th) and to the interviews that I conducted with Thai scholars specializing in science policy and innovation who have firsthand knowledge of the organization. Close readings permit me to offer a description of how Thai culture affects BIOTEC's performance.

I also consider how BIOTEC can serve as a catalyst for a more equal and just society. A useful answer requires a fine understanding of the dynamic between Thai culture and science and technology. Thai government agencies generally do not hire individuals from foreign cultures, even if they have been naturalized. BIOTEC does have a number of international advisers from many countries, but they have a very limited role and do not conduct day-to-day research there. Everybody working in BIOTEC is Thai; this is in marked contrast to its counterpart in Singapore, where foreign researchers are pursued to improve competitiveness (Chan 2011; Thompson 2010; Waldby 2009).

The National Center for Genetic Engineering and Biotechnology was established by a resolution passed by the Cabinet of Thailand on 20 September 1983. It was to function directly under the Ministry of Science and Technology as a public research institute focusing on emerging biotechnology and advanced biomedical sciences. Then in 1991, with the promulgation of the National Science and Technology Development Act, which formally established an autonomous public agency focusing on scientific research and technological development—the NSTDA—the National Center for Genetic Engineering and Biotechnology came under the new agency's management and changed its acronym to BIOTEC. Thus, BIOTEC is even older than its parent organization, which has affected their relations.[3]

According to its charter, BIOTEC has five objectives: (1) to conduct excellent research on biotechnology, (2) to build up the country's readiness for biotechnology, (3) to network with organizations both in Thailand and abroad, (4) to transfer suitable technology to the public and industrial sectors, and (5) to enhance public awareness of

[3] Interview with Patarapong Intarakumnerd, 1 April 2011.

issues in biotechnology. BIOTEC is governed by an executive board consisting of thirteen members: five from academia, five from autonomous public organizations (including the directors of both the NSTDA and BIOTEC itself), two from the government, and only one from the private sector. According to the comments contributed by the director to BIOTEC's annual report for 2009, the organization produced a total of 199 research articles that year, of which 191 were published in journals with impact factors; 13 of the articles were published in journals with an impact factor greater than four (BIOTEC 2010). The organization submitted thirty-two patent applications in 2009 and received one patent from the Thai patent office.

In 2009 thirteen BIOTEC researchers received awards, both from Thai and from international organizations. Some of their work falls into the so-called red biotech fields[4] and ranges from the discovery of the basic molecular structure of antimalarial enzymes to new insights into the human immune response to the dengue virus and mechanisms that affect the severity of dengue fever. This shows BIOTEC's strength in biomedical research, especially in the study of tropical diseases. In fact, that is a field where Thailand is traditionally strong. BIOTEC researchers, including those who specialize in tropical diseases, have close ties with the universities, which have long-standing strengths in biomedical research.

In the areas of biotechnology and agribusiness, BIOTEC researchers undertook forty-six projects that involved collaboration with the business sector. Five were technology transfer projects that benefited six companies in Thailand and abroad. These joint ventures with the business sector generated 22 million baht for BIOTEC, equivalent to around US$734,000; the partnering businesses made 87 million baht, or just under US$3 million. More significant, the impact on the Thai economy as a whole was as high as 207 million baht, or around US$6.9 million. Furthermore, BIOTEC undertook policy research projects, such as one measuring investment in biotechnology, another assessing policy recommendations for genetically modified papayas and tomatoes, and one tracing the development of competitive indices for the Thai shrimp industry.

BIOTEC has also stated the goal of developing human resources, and in 2009 it provided fifty-one students with scholarships from bachelor's to doctoral degrees. It also organized meetings and seminars aimed at increasing awareness of biotechnological issues among the public and networked with foreign universities and research organizations.

2 BIOTEC and the Grassroots Economy

In the areas of agriculture and food preparation, which are directly related to the well-being of the Thai people, BIOTEC accomplished the following projects in 2009:

Improvement of rice strains. DNA markers were used to improve rice strains, which were passed along to farmers. For improved resistance to flood and pest attacks, certain markers in the genes of the rice plant were observed, giving scientists

[4] Red biotech refers to biomedical technologies—*red* here obviously refers to the color of blood. This is contrasted with green biotech, which is concerned with plants and agriculture.

insights into immature specimens, thus considerably shortening the time needed to breed a new type of plant.

Rehabilitation of saline soil. A private company used know-how developed by BIOTEC to improve the quality of land adjacent to a former salt mine; formerly marginal soil became arable, and the salt removed from it was sold. Northeastern Thailand has a large deposit of salt in the soil, and the company used a technique developed by BIOTEC to pump water at high pressure into the soil, which surrenders its salinity to the water, where it is held in suspension. The water is then collected, and the salt is extracted from the water.

Use of sugarcane as animal feed. BIOTEC collaborated with Kasetsart and Khon Kaen universities to study the potential of turning sugarcane into a coarse, fermented animal feed, which lasts longer than fresh. A private dairy that was informed of the results of the study planted sugarcane for the purpose of turning it into animal feed.

Improving the technology used in producing naem. To improve production of *naem*, a very popular fermented pork dish, BIOTEC developed a recipe that yields a higher quality product under hygienic conditions. The process is described in detail in a recipe that has since been provided to private companies.

Improving the production of fermented fish sauce. BIOTEC developed a new process for producing fish sauce, a staple of Thai cuisine, which reduced the period of fermentation from eighteen to eleven months. The resulting sauce was lighter and better tasting, qualities much in demand on the international market. The company that was involved in the project increased its annual revenue by 8 million baht per year as a result of its adoption of the new process (BIOTEC 2010).

In these projects BIOTEC worked closely with private businesses and the farming sector to help them address technical problems that arose in the context of normal agriculture or agro-industry. However, judging from the profits reported, one wonders whether BIOTEC can conceivably achieve its goal of becoming an engine for national transformation, as the amount reported was too low to produce any real impact on the Thai economy as a whole. Furthermore, when one reads between the lines, doubts arise regarding the size of improved efficiencies and profits once a given procedure is moved from an experimental stage—of necessity, fairly small in scale—to industrial-scale production. The small scale of the experiments is even more evident when one compares these innovations with BIOTEC's biomedical research, for instance, where the number of activities and the sheer scale of the activity are much larger (BIOTEC 2010).

This shows that the institute is actually not too keen on entering into relationships with private companies, even though it openly admits that joining with the private sector is the key to economic and national development. This seems to be due to BIOTEC's organizational culture: like other Thai bureaucrats, staff members view the private sector with suspicion. During an interview with a former employee of the NSTDA who has inside knowledge of BIOTEC and other research institutes, I learned that Thailand's scientific research institutes are still ambivalent about their key missions. On the one hand, they would like to become world class in some areas of scientific research, and they believe that this must involve producing stellar research

articles in high-profile journals. On the other hand, they would also like their research to function as a catalyst for economic and industrial development.

This accords with what Patarapong Intarakumnerd (2011b) calls a linear model of scientific research: what the scientists produce as a result of their work in the laboratory is automatically transferred to industry. This linear model describes Thailand's bureaucratic culture, where the research group has very close ties with the government. When research organization staff members view themselves more as government workers than as knowledge producers, and when the government regards itself as a country's only source of meaningful change, there is a natural tendency for those staff members to think that change flows from themselves to the outside. It is quite likely that this accounts for Intarakumnerd's linear model. Thus, the organizational culture at BIOTEC appears to mimic that of a typical Thai bureaucratic organization, where the main emphasis is to maintain the status quo and to perpetuate the interests of the organization rather than fulfilling its stated mission (Samudavanija 1987). In fact, in the Thai bureaucracy, those with seniority are held in high esteem, and the emphasis is more on group cohesion rather than on individual achievement (Vallance 1999).

In the eyes of the Thai bureaucrats, private companies are either vultures on the lookout for private gains at the expense of the public or cash cows to be exploited through the legal power given to the bureaucracy itself. Traditionally regarding itself as a servant of the king (*kha-ratchakaan*), the bureaucracy acts as his eyes and ears, helping him look after his subjects. This traditional viewpoint results in the ingrained suspicion toward businesspeople in the eyes of the bureaucrats. The suspicion also adds friction to the relationship between the private sector and the government.

The bureaucrats prefer to work with rural farmers, a collaboration that dates to the days when the farmers had to contend with an oppressive and extractive nobility. As a consequence, in many projects where BIOTEC works directly with farmers, it acts unilaterally as knowledge provider, and in its annual reports there is no evidence of any attempt to learn from farmers. This is disappointing, given the many studies showing that farmers actually have intimate knowledge of what they are doing, knowledge that could be translated into more advanced scientific research. This confirms Intarakumnerd's (2011a) remark that certain policy habits adversely affect Thailand's research on science and technology. As long as many believe that science and technology innovation originates solely within universities and public research institutes (such as BIOTEC), the transmission of innovation will tend to be unidirectional.

Reading through BIOTEC's 2009 annual report, I found no project that increased the indigenous knowledge of farmers. There is no mention in the report of how collaborations and technology transfers were effected. My interview with a senior scholar very familiar with BIOTEC suggested that staff members develop plans to work with the farming or industrial sector on their own, through existing personal relationships, or through directives given to them from the upper echelons of Thai society. At any rate, adequate studies of the needs of the farming or the industrial sectors seem to be lacking. No one at BIOTEC is cultivating relations with farming or industrial communities, seeking insights into the areas most in need of intensive research fueled by

two-way communication. Improving salty soil and the quality of fermented pork production took place piecemeal rather than through systematic investigation.[5]

Considering that Thai agriculture is a very large sector totaling billions of US dollars, the small scale of BIOTEC's involvement with farmers and agro-industry suggests that BIOTEC is still not actively involved with farmers. Most farmers and businesspeople involved in agro-industry continue their familiar practices without BIOTEC's help. Hence, if BIOTEC is to fulfill its mission of boosting the Thai economy through biotechnological innovations, it must learn new ways of partnering with farmers and agro-industrialists.

3 The Biotechnological Research Institute and Equality

BIOTEC could effectively promote farmers' economic well-being, which might narrow the troubling income gap between rural villagers and the urban middle class. However, the small scale of recent collaborations with the farming sector shows that BIOTEC still has a long way to go. In this section I consider how biotechnology can improve the lot of the majority of Thailand's people.

The data in its 2009 annual report show that most of BIOTEC's scientific expertise is clustered around advanced research in the biomedical sciences, a richer and more sophisticated area than the institute's other fields. I have already mentioned the large number of scientific publications produced by BIOTEC researchers in that field, as well as the patent applications. Such results suggest that BIOTEC could become a world leader in biomedicine. Progress is assured by a number of ongoing collaborations with a number of international universities and research institutes, such as Queen's University Belfast, University of North Texas, Korea Research Institute of Bioscience and Biotechnology, and Singapore's Temasek Polytechnic (BIOTEC 2010). However, because BIOTEC's mandate includes serving as an engine of economic growth for the agricultural sector, it cannot ignore this vital area. It must devote more energy to working with both farmers and the agro-industry sector.

One thing that BIOTEC can do to promote more equality is to support indigenous knowledge and integrate it into modern scientific knowledge production and technical know-how. Thus, instead of thinking of themselves as the provider of knowledge and expertise to the farmers, researchers should also learn from them. Farmers have a sophisticated system of knowledge based on experiences with their environment; they have an intimate knowledge of their specific locale that should not be overlooked by urban researchers. For example, over centuries Thai villagers have perfected a method of producing rice wine. This knowledge and associated skills can be developed and refined in such a way that the villagers can actually become players in the global market, much like villagers in Japan or France have been doing with their traditional rice wine or grape wine industries. BIOTEC could play a significant role in developing these traditional skills. In a study of the dessert industry, Nattaka Yokakul and Girma Zawdie (2011) found that knowledge transfer to small and medium-size enterprises,

[5] Interview with Pun-arj Chairatana, 5 April 2011.

complemented by the creation of strong social capital, is important and can do much to improve local economies; surely the lesson to be drawn is clear.

However, the commercialization of village wine and beer production is a controversial issue in Thailand. Even though there is a long tradition of producing good local rice wine, the practice was severely suppressed by the government, which feared that they would compete with the big distilleries. For five or six decades, the state maintained a monopoly on the production of alcoholic beverages; the law was repealed in 2000. Up until the repeal, villagers who had been fermenting and brewing their own alcohol for centuries found themselves committing illegal acts and were quite severely punished. One quite often heard stories of villagers being arrested for producing their wine and their equipment being impounded and destroyed. They had to choose between taking their production underground and putting an end to all of their brewing operations. Villagers who had long drunk their own wine were obliged to turn to mass-produced goods offered by a handful of large national distilleries that received concessions from the government. This assault on traditional knowledge and skills almost killed off local wine production. Thai words for the different local brews, such as *kachae*, *u*, and *sato*, came to serve, in urban areas, as a sort of shorthand for country bumpkins who committed illegal acts. It is amazing that wine-making know-how persisted until today despite all of the efforts to suppress it.

However, after the economic crisis of 1997, many in Thailand had to fall back on the small economies of the villages they had left to seek their fortunes in the city. Many started to realize that the traditional know-how involved in rice wine production could in fact be of economic benefit. In a recent study of Mon Pa Yang village, which is known for its wine making, Narongrit Upranukroh (2004) found that a newfound appreciation of wine-making methods, early in the twenty-first century, occurred at the same time as a wave of increased recognition of local knowledge in Thai society. In the wake of the economic crisis, many urged the people to return to their roots, to cultivate sources of economic prosperity that had nothing to do with foreign capital or foreign techniques. A coalition of villagers and their allies in academia and non-governmental organizations called for the repeal of the state monopoly on alcoholic beverages so that villagers could exploit traditional know-how and set up small businesses.

While the government, apparently following a recommendation from the International Monetary Fund, began to liberalize monopolies, it announced no plans to relax the alcohol monopoly. Instead, government officials fretted that alcoholic beverages were linked to serious health problems and that maintaining proper sanitary conditions in village breweries and distilleries would be virtually impossible. It turned into a paradox: because it was assumed that no small production facility could match the standards of hygiene maintained by the big distilleries, none would be allowed to operate, certainly not for the period required to raise its standard of hygiene to the level of the large distilleries that received government tax breaks.

In the end, however, the government finally succumbed to nationwide pressure and repealed the monopoly law. Suddenly there was a tremendous upsurge of the number of small enterprises producing beer and wine. The repeal released a vast store of pent-up energies and creative forces long suppressed by the misguided policy of the past. After having collected a lot of excise taxes from these start-up firms, the government then laid claim to the idea of liberalization. The administration of Prime Minister

Thaksin Shinawatra even listed wine production as one of its priorities in its One District, One Product policy of stimulating local industries. State-run trade fairs held in 2002 promoted the new local beers and wines, aiming for both domestic and foreign consumers. Thaksin himself told reporters of plans to serve a village wine on Thai Airways flights to highlight Thai ingenuity and its traditions.

Beer and wine production could certainly benefit from assistance from BIOTEC, such as new methods of combating crop diseases or ensuring high standards of cleanliness in the fermentation and bottling processes. However, BIOTEC's 2009 annual report makes no mention of local enterprises belonging to the villagers themselves.

4 Integration of Science and Technology into People's Lives

Science and technology need to be integrated with the local culture. One of the missions of BIOTEC is to educate people about biotechnological issues. The assumption is that as public understanding of science increases, so will people's acceptance of new technologies, including the genetic modification of organisms, a task that has become almost routine at BIOTEC in the past few years. But there is a difference between educating the people and integrating science and technology into people's lives. In a public understanding campaign, the focus is on transmitting knowledge unilaterally, and no effort is made to find out how such knowledge fits with local traditions, cultures, or belief systems.

In an earlier article (Hongladarom 2004), I argued that science needs to be grown in local soil to minimize conflicts between science and traditional belief systems; I call the confusion that too often arises from such lopsided conflicts *aporias*. On the one hand, in Thailand science and technology are usually delivered to local areas by big national agencies such as BIOTEC or by multinational agro-industry conglomerates, both of which assume that the farmers will simply accept what they offer. On the other hand, the farmers cling to their traditional way of perceiving reality, a set of habits that they must rely on every day of their lives. Without a clear grasp of how these opposing tendencies can be reconciled (and without the realization that the two *need* to be reconciled), the farmers are stuck in an aporia that alienates them, for example, from a democratic consciousness; few appreciate that they can play a part in shaping the direction of their country. The alienation affects their political outlook: as many observers have noted, rural voters tend to opt for the candidates who offer them short-term, tangible benefits rather than someone likely to act in the best interests of the country.

In more concrete terms, BIOTEC should allow villagers more say in the early stages of developing a research agenda. This would do much to integrate the culture of the villagers and that of BIOTEC, and it would have a positive effect on the culture of BIOTEC itself. Just as collaborations with foreign scientists result in changes to the organization's culture, so too could working more closely with small farmers. One has also to recognize that the culture of the villagers, a living entity, is already changing; the challenge is how to guide it in a positive direction. How can this be done without imposing unacceptable controls from outside? There are no easy answers.

Another kind of challenge arises when BIOTEC is not the only public organization working with farmers. Many other agencies are, in fact, currently involved in village-

level projects, such as the Ministry of Agriculture, the Ministry of the Interior, and local administrations. As a scientifically sophisticated organization, BIOTEC is playing a unique role. It could work with the other public agencies that are already collaborating the farmers—quite a challenge, since typically Thai government agencies do not work with one another. In any case, if BIOTEC is to fulfill its mission of providing sophisticated techniques for the development of the local economy, it must find out from the farmers what their problems and concerns are.

The goal can in fact be achieved. In an often-quoted review of roughly two hundred studies of the use of mobile telephones in the developing world, Jonathan Donner (2008) noted a large number of studies detailing the meanings and values that people assign to their telephones. In the Thai case, villagers have rushed to embrace the mobile telephone; using it opens no aporias. Studies show that mobile telephone use is one of the decisive factors in promoting economic development and bridging the rural-urban divide (Tenhunen 2008; Bruns, Robert, and Tiam-Tong 1996). One can imagine, then, how communities so quick to adopt a new technology would respond to know-how offered by BIOTEC. Used flexibly, new technologies could improve production of local wine without eliminating its special character; a combination of traditional skills and modern techniques would yield better rice wine with good potential in the world market.

5 BIOTEC and Its Organizational Culture

By taking a fresh look at its organizational culture, BIOTEC could transform itself, becoming a more effective promoter of justice and equality. This is an important, but often overlooked, point. What we have seen regarding BIOTEC's relations with farmers shows that the organization exhibits the typical attitude of the Thai bureaucracy toward small farmers, treating them as subjects of the king while seeing themselves as the king's servants. It is likely that BIOTEC researchers would not consciously look at themselves in this way, but culture has a way of surreptitiously influencing thoughts and habits.

This bureaucratic attitude can be also found, furthermore, in BIOTEC's very close ties with other government agencies. Not only is it a public institution funded by the government, but also BIOTEC is part of the NSTDA, which itself operates under the direct supervision of the Ministry of Science and Technology. BIOTEC researchers also have strong ties with public universities and other public organizations, such as the Thailand Research Fund and the National Research Council of Thailand. All of this fosters a culture that closely resembles that of other Thai bureaucratic agencies.

The linear model of knowledge transfer favored by these bureaucracies is rather inimical to attempts to create more equality among the Thai people. Even though Thailand is governed by a constitution that specifies the rights of all citizens and the distribution of sovereign power, in practice the majority of the Thai population—those who live in the countryside—are denied many of the privileges enjoyed by the urban middle class. This is one of the most urgent problems facing the government in the wake of ongoing political unrest. Without changing the organizational culture of the Thai bureaucracy, as well as its attitude toward the ordinary rural villager, it would be hard to imagine effective reforms. Within the sweeping context of a political tran-

sition, BIOTEC must change its culture, its habits, and its habitual way of doing things. This is very difficult, but experience has shown that changing habits and culture is not impossible. One has to start small; for example, one could recruit new members committed to a new set of principles and practices.

The specific nature of bureaucratic culture at BIOTEC can also be seen in how the agency is governed. As previously mentioned, the executive board consists of high-ranking members of the Thai elite, such as government officials and university professors; the one board member from the private sector is an executive for the Charoen Pokphand Group, Thailand's largest food processing and animal feed multinational. Including this executive suggests that BIOTEC wishes to encourage links to the private sector; however, in the 2009 annual report there is no mention of any collaboration between BIOTEC and the company. This is rather surprising, as Thailand's largest agro-industrial company stands to benefit significantly from such a collaboration. But perhaps it only means that the Charoen Pokphand Group is self-sufficient in research and development and does not need any help from BIOTEC.[6] If large agribusiness companies do not need collaborators, this is all the more reason for BIOTEC to focus its efforts on how to help small farmers.

Fifty years ago, Edgar Shor (1960) observed that the Thai bureaucracy is a self-contained system affected very little by external pressure:

> Etatism absorbs into the public sphere the significant groups and goals which occupy the private sector in other countries, incorporating within the bureaucracy virtually the full range of societal interests. Few important organizational roles exist outside officialdom; autonomous formal organizations are few and feeble. Thus the government almost completely absorbs entire professions, such as medicine and teaching, and affiliates their associations. Few external pressures relate bureaucratic perspectives to nonpolitical norms and goals. Within a virtually autonomous political system, the bureaucracy rarely transcends the introversion of an exclusively bureaucratic ethos. Political influence, personality, and prerogative consequently provide the guidelines of Thai administration. (67)

After five decades, there has been some change. BIOTEC, for instance, is not a branch of the Thai government; it is an autonomous public organization, though it maintains close ties with the government. But Shor's observation that the government absorbs the entire professional class—including researchers—still rings mostly true today. The tendency for bureaucratic culture to turn inward explains the reluctance of BIOTEC to work more extensively with the farming sector or agro-industry, and it explains why Intarakumnerd's (2011b) linear model of knowledge transfer may be applied. It also reinforces Danny Unger's (1998) observation that social capital is lacking in Thai culture: it is difficult to find cohesive groups to support individuals who wish to implement strategies. With strong social capital, it is possible for society to forge consensus and go ahead with new initiatives in a relatively short time. In the case of Thailand, such capital is absent, according to Unger, since differences among the

[6] This independence is supported by a brief look at the company's website (www.cpthailand.com), which has a large section on research in food technology.

various groups are too deep. Unger compares the situation to the plight of a watchmaker who has to disassemble an entire watch whenever the smallest problem occurs. The feeble relationship between BIOTEC and the private sector can also be seen as a symptom of this lack of social capital.

One of the scholars whom I interviewed told me that the culture at BIOTEC closely resembles that of a Thai university. Senior researchers are called *Arjahns*, an honorific term (derived from the Sanskrit word *acharya*) meaning teacher or professor; the term denotes respect and is used by students in universities. The scholar added that there was a rather limited amount of intellectual discussion or camaraderie among the researchers; this also reflects what is happening in Thai universities, where intellectual discussions among the faculty are uncommon—my own experience shows that most teachers prefer to chat with their colleagues about nonacademic matters. At BIOTEC, the Thai cultural trait of describing all relations in terms of an elder (*pooyai*) and a younger (*poonoi*) survives, with the former responsible for the behavior of the latter. All this suggests that BIOTEC remains in the grip of traditional bureaucratic culture.

Many feel that BIOTEC should act more on behalf of the villagers in their struggles with multinational corporations (Singh 2002). As an independent public agency, BIOTEC is uniquely suited to that role. Multinational corporations have attempted, in Thailand and elsewhere, to introduce contract farming that would rob farmers of their independence. Many corporations are buying up land and then leasing it to farmers on the condition that they cultivate specific crops using specific methods. This will eventually erode traditional ways of life, and if the trend continues, farmers will come to resemble ordinary factory workers. BIOTEC could act to prevent this by working more closely with the villagers to encourage more independence on the part of the farmers through scientific research and technological development that are based on the needs of the individual farmers themselves, rather than primarily those of the big industries.

What is being proposed here is actually a major undertaking, for it amounts to changing the whole organizational culture of BIOTEC. However, if one follows the old wisdom that a journey of a thousand miles begins with the first step, then one must divide the huge task into smaller, more manageable chunks and search for ways to deal with those chunks one at a time. There is not enough space in this article to discuss all these steps in detail, but the first steps could involve nurturing the culture of new arrivals, the younger recruits who already subscribe to the new way of thinking and doing. Hence, some kind of constant training needs to be in place, including more frequent communications between the members of the organization and their foreign colleagues.

Research has shown that international collaboration contributes a great deal to institutional performance (Basu and Aggarwal 2001; Leta and Chaimovich 2002; Numprasertchai and Igel 2005). BIOTEC could start by expanding its collaborations with farmers, a step in keeping with its mandate. For example, in developing new strains of rice, BIOTEC's scientists need to communicate more with the farmers in order to learn exactly, in sufficient detail, what their needs really are. My speculation is that the farmers' needs arise more from socioeconomic and perhaps political concerns than from scientific or technical issues. If that is so, then scientists should not ignore these concerns; they should realize that science and technology exist in the context of sociocultural concerns. This requires a change in the mind-set of most scientists, who

will be expected to collaborate with colleagues in other fields, especially in the social sciences. Thus, instead of being only a technical organization, BIOTEC must assume new duties, acting as an advocate for farmers.

For a long time, commodities produced in rural areas have benefited Bangkok. Many farmers have had no choice but to sell their crops to middlemen, who then sold them on the international market for big profits. The middlemen are then taxed by the government, which spends those revenues in ways that disproportionately benefit the urban middle class. This has resulted in a tremendous growth of Bangkok and a significant expansion of the urban middle class. The cost has become increasingly clear: most farmers cannot depend on agriculture alone for survival. Many have opted to take jobs doing something besides farming, so much so that a process of deagrarianization seems to be occurring (Rigg and Nattapoolwat 2001).

Unlike China and other states with a history of peasant uprisings, smallholding Thai farmers have been relatively docile. As a result, Thai society has maintained gross inequalities for a long time. However, since gross injustices are immoral, they should not be tolerated. In fact, more and more Thai people are starting to realize that they, too, are *citizens*, and they are beginning to demand their rights. Finding concrete and effective means to achieve a fair society is now the top priority for Thai policy makers. With the process of deagrarianization (Rigg and Nattapoolwat 2001), as farmers shed their identities to become hybrid workers laboring in a variety of sectors, tremendous frictions arise with potentially disastrous results.

To alleviate rural poverty, policy makers must consider social issues alongside technological problems. In setting its research agenda, BIOTEC should begin by basing its research agenda on the need to support farmers to remain independent. For instance, the goal of developing a new strain of rice might be improved nutrition and less need for chemical inputs rather than a bonanza on the international market. Considering the harm that global agriculture has done to the environment—including its contribution to global warming—this approach should be encouraged. That would put BIOTEC in a position to act on behalf of disenfranchised farmers and not merely as a tool of multinational corporations.

Furthermore, as a research institute not formally bound by the rules of government bureaucracy, BIOTEC can act as a neutral zone where farmers, private corporations, scholars, and the government can interact. The function of this neutral zone is to mediate among all players. For example, given its good connections with universities both in Thailand and abroad, BIOTEC should be able to harness powerful scholarly expertise to help solve farmers' problems and create a fairer society. It can also act as a link between private corporations and universities, and because it has strong connections with the government, it can bring in the latter so as to create a tripartite coalition, a triple helix (Etzkowitz and Leydesdorff 2000; Leydesdorff and Meyer 2003). Moreover, it can add another important dimension to the helix, making it a *quadruple* helix, by bringing in the farming sector, as well as the nongovernmental organizations that often speak for them.

However, all these points are only recommendations. They cannot be fully realized unless BIOTEC reinvents itself and examines thoroughly its organizational culture in order to reduce and finally eliminate the typical bureaucratic mind-set. It remains to be seen how this will actually play out in the future.

6 Conclusion

The investigation described in this article is a sketch of BIOTEC as it is and as it might be. Many of the traits typical of Thai culture—the hierarchical relation between the elder and younger, for example—occur in the research organization in spite of its lofty reputation. Perhaps the most salient point that emerged from this study is a corroboration of Intarakumnerd's (2011b) description of a linear model of knowledge transfer that is unidirectional: researchers tend to believe that the fruits of their work, presented to the agents active in a given sector of the economy, will confer economic benefits without any need for dialogue and adjustments. The article provides an explanation of why this model is accurate through an analysis of organizational culture.

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Nanoethics (2012) 6:47–54
DOI 10.1007/s11569-012-0138-2

ORIGINAL PAPER

The Disenhancement Problem in Agriculture: A Reply to Thompson

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Received: 13 September 2011 / Accepted: 24 February 2012 / Published online: 8 March 2012

Paul Thompson's paper on "The Opposite of Human Enhancement" is a thought-provoking piece that introduces us to a really thorny issue in human enhancement. Instead of enhancing humans (and perhaps other animals too, if needed) so that they have stronger physical and cognitive capabilities, Thompson proposes that in some contexts the opposite of enhancement—let's call it *disenhancement*—might be desirable because doing so appears to lead to some desirable results. Thompson has worked extensively in the field of agriculture ethics, and his examples are certainly from within this area. He cites an example of raising chicken in an industrial farm. Keeping chicken close together in the farm sometimes results in the chicken pecking one another, causing them many injuries which incur high costs in veterinary attention and treatment. Noticing that chicken which are congenitally blind are less prone to pecking, Thompson asks whether it would be more desirable to engineer the chicken in such a way that they are blind from the beginning (and not wait for congenitally blind ones) so that they don't peck one another. This would presumably benefit the chicken, since there will be fewer pecking injuries, and it will benefit the consumers too eventually, because less veterinary care costs can translate to cheaper chicken meat in the market.

Thompson also talks about other forms of disenhancement, referring to the growing literature on the topic, such as animals which are aptly termed "headless commodity-producing organism" or "football birds" [4, 12]. These are "birds" that are genetically engineered so that they produce only meat and no extra appendages such as heads or nervous systems. Though this is unlikely technologically at present, we can certainly surmise that in the near future it will be likely that meat will be produced also by means of growing tissues on petri dishes in an industrial scale. In this case, the term "football birds" will not be actually suitable, as the grown tissue will not resemble any living organism in the first place. The tissue being grown in this way is not an organism at all, in the same way as the tissue being grown for the purpose of therapy through stem cell cultivation techniques is not an organism because the cells are cultivated from stem cells taken from a living organism but are never allowed to develop into a real, functioning organism. I will show that there are certain differences between producing blind chicken and producing tissues that never has the potential to develop into an organism afterward.

My aim in this paper is to take issue with Thompson on the very idea of disenhancing animals. The main argument for disenhancing animals is utilitarian; that is, it is right to disenhance the animals because doing

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so would lessen the capability to feel pain. My problem with this argument is that it neglects the possibility that the capability to feel pain is a function of the animals' survival in their normal environment. The fact that these capabilities have evolved in chicken, so that chicken are always born with eyes and the ability to have tactile sensation, for example, show that eyes and the tactile sense must have a crucial function in their lives. However, in the environment of high-tech farming where the disenhancement is possible, it seems that chicken do not need eyes any more. The problem, then, is what are we to make of this technologically sophisticated environment? Since we are actually what we eat in a real sense, does this mean that, if we really accept and eat disenhanced animals without any qualms, we would ourselves be changed too? I would like to offer a way out of this apparent conundrum by pointing out that an alternative way of doing farming does exist, one that is more localized and less technologically oriented. If we are less focused on producing chicken meat at the lowest possible cost and instead encourage more local farms using traditional methods of raising chicken, then the conundrum does not have to be there in the first place.

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Thompson is certainly correct in saying that disenhancement is a very controversial issue. He says in the paper that this is an unresolved "conundrum" that currently besets ethical thinking on food and agriculture as well as on (human) enhancement issues. The blind chicken problem has a very strong impact on our feelings, since anything related to food seems to arouse very strong feelings in the first place. Witness the strong opposition to genetically modified food that has been around for many years now. Food is very intimate to the sense of who we are. The old adage "You are what you eat" seems to be literally true, not only in the physiological sense (which is obvious anyway) but in the more refined sociological and psychological senses ([2, 3, 14]: 1–17). You are thus what you eat not only because the nutrients or chemical compounds eaten by you end up forming up your bones, sinews, muscles and so on, but you are also what you eat in the sense that the cultural and philosophical context surrounding the food you eat in a very curious way has a way of forming the sense of who you believe you are, or who you take yourselves to be [6, 14]. This point, as I will try to show, has a strong bearing on Thompson's point here. Since what we eat is intimately connected with who we are in this philosophical sense, eating blind chicken then naturally arouses very strong reaction and aversion. And I would say that this aversion trumps over Thompson's more utilitarian argument that refers to the less suffering to the chicken and more economic benefits to the industry and the consumers. Basically put, one may feel that eating disenhanced chicken in this way could result in one being "disenhanced" too.

One may object to this that normally we consumers do not know the provenance of the chicken we eat. We usually do not ask how the chicken we consume everyday are raised, killed, packaged, and distributed to the market. We buy the chicken in nice packs and take the meat out to cook. Thus it seems that whether the chicken has been disenhanced in the sense that Thompson is talking about does not seem to figure in an average consumer's mindset. However, if we are a more conscientious consumer, which is as we should, then we should know, and be entitled to know, how our chicken are treated before coming to our kitchens. I don't question the motives behind disenhancing the chicken—perhaps the technology is such that it can actually reduce their suffering through pecking and other things, but the fact that Thompson himself reports in his paper how he was attacked by the public after airing his story about chicken disenhancement seems to show that the public can have very strong opinions on what they eat. Furthermore, the backlash felt also by him from the poultry industry, which is very keen on showing the public that their chicken are not disenhanced in any way, seems also to corroborate the point that the public at first sight are strongly opposed to the idea. We need to find a reason why, and my point is that in some cases water-tight ethical argument—such as one offered by a utilitarian on how doing this would reduce the suffering felt by the chicken and so on—might not be enough to assuage the public's reaction. Gut feelings can really overwhelm cool reasoning.

But even so there are indeed reasons behind the gut feelings. Imagine that someone proposes a reverse of what is being discussed in Thompson's paper. That is, suppose that someone proposes that instead of the industrial scale farming and industrial production of chicken, we should have local farms like the one in Laura Ingalls Wilder's *Little House on the Prairie* [13] where chicken run around freely in wide fields and lay

eggs in a barn, to be collected and eaten fresh every day, I am sure that no one would object to this. The gut feelings will be totally opposite to industrial farming. Somehow most of us prefer our chicken to come from the likes of Laura's farm than from some anonymous poultry industry, especially one in the 21st century that is researching ways to disenhance the chicken instead of letting it roam about in wide open fields.

All this is an unrealizable dream in today's world, of course, but the point is why we feel attached to Laura's farm than the anonymous poultry farm. Is it because Laura's farm is closer to nature than the modern, technologically sophisticated farm? By changing the way we eat, we thereby are changed ourselves. So the real question posed in Thompson's paper is whether we are prepared to accept the change that seems to be forced upon us by the apparent dictates of economic reality and technological advances?

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Before answering this question, let us consider another type of ethical theory, the teleological one, which is more ancient than utilitarianism that is found in Thompson. As is well known, the teleological theory looks at the rightness or wrongness of action not through some universalizable rules but through whether the action is conducive to some desirable goals. This may not be enough to distinguish the two theories from each other, for utilitarianism also bases its ethical judgment on conduciveness to goals. The difference lies in the fact that in the teleological theory the goal here always has to fit with some kind of metaphysical system. Thus an action is good according to this theory if it accords with the metaphysical system or teleological nature. Instead of looking an action and seeing whether the action leads to reduction of suffering or maximization of pleasure only, the teleological theory always looks for some kind of fit between the action and the overall metaphysical context. Thus an action is a right one just in case it promotes the realization of the final end, so to speak, where the end here is not conceived in utilitarian terms of immediate subjective gratification, but in terms of being in tune with the grander scheme of things metaphysically. For instance, in Buddhist ethics, an action is considered morally good if performing it leads to the performer's realization of the ultimate goal of Nirvana, or the state of total blessedness where one is free from the bondage of samsara, or the cycle of births and rebirths [5, 7, 10]. In the utilitarian theory, the metaphysics is dispensed with altogether; one does not have to talk about Nirvana, or God, or things like that; the only reality which is presupposed by the utilitarians is the familiar one which everybody sees and feels everyday. In Buddhist ethics, the only way disenhancing the chicken this way will be wrong is that the chicken suffer from having to endure the process. One imagine a chicken which has the usual faculties and also imagine that it has to suffer the process of taking the visual sense taken out of it. However, this is not what Thompson is talking about in the paper, because he talks about engineering chicken in such a way that they are born with no visual or tactile senses from the beginning. According to Regan [8, 9], this is wrong because animals are entitled to some protection in virtue of their status as "subjects-of-a-life." But if the chicken were engineered and disenhanced in this way that there does not seem to be much sense in taking them to be any kind of a subject, unless being a subject also involves having a life in such a way that accords with the functional context in which it has naturally evolved. If chicken have evolved to have eyes, then having eyes matters to them in a certain context. Being a subject in Regan's sense appears to count as what matters in this type of context too. In the environment where chicken forage for food and are always on a lookout for predators, being a subject, i.e., having a brain that coordinates all its perceptual faculties and action, is clearly evolutionally advantaged. Nonetheless, as I shall discuss later, this argument ultimately depends on there being a certain kind of environment, and if the overall environment does change, then the argument itself loses its force.

So is engineering chicken to be congenitally blind in tune with a metaphysical scheme of things? If one takes the full potential of being a chicken to consist in having a pair of eyes, then the metaphysical system does require that chicken can see, which means that any action that takes away this capability of chicken is wrong. To actualize a chicken in order that the organism become all the chicken it can be, the chicken need to have a pair of functioning eyes. The eyes aid the chicken when it looks for food, help it see a predator so that it can run, and so on. To realize the full potential of being a chicken, then, means that an organism does all the things that a chicken is supposed to do, and do it well. The word 'well' in the last sentence refers to how close the doing of the tasks

attributed to a chicken is to the ideal of perfection of being a chicken. In other words, chicken have naturally evolved to have eyes, so having eyes is a natural part of being a chicken. Thus engineering them so that they are born blind would be contrary to this nature, and would then be wrong, at least according to the teleological conception.

However, one can still criticize this teleological conception that having eyes is not absolutely necessary for being a chicken and in fact in these modern farms where the technology is employed one does not have even to call these creatures (namely the bioengineered sightless chicken) "chicken" at all (if the factories continue to call their creatures "chicken" it would be only for marketing purposes). If the sightless creature is not considered chicken, then the argument put forward above becomes moot, for having eyes just is not necessary for these creatures. In providing a metaphysical conception that governs the final end that serves as the arbiter of ethical judgment, one still has to fill out details on, for example, what counts as the full potential of being a chicken or as being the most chickenlike. Does being the most chickenlike have to consist in having a pair of eyes? How does one know the ideal of perfection of being a chicken? In a world which has almost been totally transformed from the one Laura Ingalls was familiar with to the one where Paul Thompson talks about headless or eyeless chicken (if indeed they are chicken), it seems that even the metaphysical context has changed in such a way that now the ideal of perfection of being a "chicken" consists in having tasteful meat rather than being able to run well or having fine, colorful feathers. In this case the ideal does not seem to require having a pair of eyes.

So is there a way where we can decide which metaphysical system is the correct one so that perhaps some of us might be able to banish the system where the ideal consists in having tasty meat out of the metaphysical repository? There may be not, at least in this contemporary world where our epistemological system is dominated by modern science. But we don't need to find out which one is the correct metaphysical system. We can check our feelings. We can examine ourselves what we felt when we heard that the ideal of perfection of being a chicken consisted in having tasty meat? Or perhaps less fatty and more nutritious meat? But is that to reduce chicken from being an independent organism to the status of meat producing machine? (Or egg producing machine)? Certainly we can conceive of a world where chicken are judged as to their quality of producing meat or eggs.

However, the function of the chicken in having tasty meat depends on us; after all we are the ones who consume their meat, but the older function of the chicken in, say, running well does not seem to depend on us. . So is this point enough to distinguish one metaphysical system from the other? In one world the function of a chicken, its reason for existence, is that they live in a typically chickenlike manner, foraging the ground for food, looking for mates, crying out loud every morning if it happens to be a male, and so on. It is conceivable that in a world with no humans chicken, hens and roosters will continue to behave like this. However, in the other world, the reasons for existence of the chicken is that they are just there in the factory farm; they eat and are kept still and become meaty, waiting for their final ends where their meat is processed. Here their lives are totally dependent on humans. In the former world they live for themselves, because they can and will continue to live as they have lived with or without humans. The ideal of perfection of a chicken certainly does not involve humans. On the contrary, in the second world this is not possible. Being totally dependent on humans in every way, it is inconceivable for the chicken in this world to have any kind of essence that is independent of humans. When the whole system changes, so too is any conception of what constitutes right or wrong action, or so it seems. Instead of being a wrong act because it involves depriving the chicken of sight, which is a crucial faculty for its survival, engineering sightless chicken seems to be a right thing to do because it accords with the new ideal for chicken which consists in producing the most high quality meat with the least input resources. In this case sight is clearly unnecessary because the chicken can well survive in the factory without it.

In other words, there is a sense in which blinding chicken intentionally through the use of advanced technologies is unethical because it deprives them of a crucial faculty needed for its survival outside of the factory. However, if the conception of what constitutes an ideal chicken changes, then since we already have the problem of how to tell which of the overarching metaphysical systems is the correct one we are not actually entitled to pronounce that disenhancing chicken in this way is categorically wrong. I don't think we can categorically pronounce that only one

metaphysical system is the correct one anymore, because in modern times we no longer live in a world totally informed by a single metaphysical conception to the exclusion of any other. We can only judge that it will be wrong if it conflicts with one metaphysical system. In the old system where chicken run around foraging for food, then disenhancing them seems wrong. On the contrary, in the new system where what it is to be a chicken is constituted through being lined up in a factory, then it does not seem to be so wrong. In the context of the new system, taking away the chicken's perceptive faculty, either sight or sense of touch (so that it won't feel pain) makes sense because all they do is just to be there being fed in an assembly line waiting for the final moment.

Nevertheless, there is another sense where taking away the chicken's perceptive faculties seems to be wrong even within the new context of the poultry factory. The fact that the chicken's perceptive faculties *are there* at all presupposes that they are not born to be lined up in the assembly line; instead the fact that they are born to have eyes and to be able to feel pain presupposes that they are born in the wild environment where they have to fend for themselves. Nature has put eyes in the chicken, or in other words chicken have evolved in such a way that they have eyes, because having sight is necessary for survival. Hence the fact that chicken are born with eyes appears to show, a priori, that their place does not naturally belong to the factory. But if this can be the case, then it seems to show that disenhancing the chicken is wrong any way because it runs contrary to their nature as naturally evolving animals. Here the argument is focused on the nature, or the essence if you will, of the chicken and not on any kind of consequentialist argument that may refer to economic reality or anything like that. Simply put, if chicken are born with eyes and with the ability to feel pain, then they belong to an environment where these faculties are needed, which is certainly not in the factory.

If this is the case, then perhaps a way out of the ethical conundrum here would be to engineer tissues so that they grow out of stem cells without ever developing into a living organism. For example, research is now being done to develop tissues to aid in treatment of a variety of diseases. Pluripotent stem cells are able to generate all kinds of tissues in the body, so theoretically it would be ideal to use this kind of stem cell to develop tissues not only for therapeutic purposes, but also for the purpose of producing meat for the consumers. This is of course hugely difficult because of the scale involved, but theoretically speaking, developing tissues this way would escape the ethical difficulty discussed above because the tissue is not going to develop itself into a living, independent organism. As there will be only the intended tissue and no organism at all, growing tissues in this way would be rather similar to growing vegetable for consumption. The tissue has no potential to develop into an independent organism; hence the argument that this conflicts with the course of nature or that it gets rid of organs and faculties that will be useful in their natural habitat becomes moot. The problem is that the level of technology nowadays is such that this scenario is still some way off in the future.

So to summarize what has been discussed so far, I have tried to argue that there may be something wrong with disenhancing the chicken because doing so would deprive the chicken of their faculties such as vision and tactile perception which are designed by evolution to equip them with needed survival tools. However, this is valid only in the normal context where chicken live in the wild, but in the modern factory where the chicken do not have the freedom to forage their own food these faculties do not seem to be so necessary. Here things actually depend on the overall context. In one context, where chicken are in the wild, the ideal of perfection for being a chicken certainly involves having a good pair of eyes among other things. However, in the other context where chicken are born and raised in the factory aiming at producing chicken meat or eggs using the most efficient and cost effective technological tools, having a good pair of eyes turns out to be a liability.

So it boils down to which context, or which metaphysical system, is to be preferred. There is no easy answer. As I have said before, one might take the route of arguing that, since the chicken are designed in their genes to have eyes and the ability to feel pain this shows that they do not belong to the factory from the beginning. As the factory is not the chicken's natural "home," so to speak, engineering their sense faculties in order to suit the exigencies of the factory looks wrong. But certainly to say that the factory is not the natural habitat of chicken is a truism and no ethicist would ever deny that. The point, however, is that

there are economic forces bearing on the poultry industry and to engineer the chicken so that they lose their eyesight could even be an ethical thing to do because it will lessen their pain and suffering, and in addition it will fit better with the economic reality too. Thompson also emphasizes this point in his paper.

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However, if we do not take the context of modern agricultural industry to be the given, then there might be a way out of the conundrum. In other words, if we think that there are alternatives to the modern, technologically sophisticated method that Thompson talks about, perhaps a way back toward Laura Ingalls' farm (but of course not becoming exactly like hers because of the changing time), then this might represent a way out.

Now we are back to the original question just before we started on the discussion on the metaphysical framework. Let me repeat: Are we prepared to accept the change that seems to be forced upon us by the dictates of economic reality and technological advances? According to Thompson, it seems that these changes are actually being forced upon us and there is no other way out. It seems that we are led to believe that industrial-scale poultry production is here to stay; thus any type of ethical deliberation has to take place within this frame, which of course has led to Thompson's conundrum about producing sightless or headless chicken. In the context of industrial-scale poultry production, producing sightless chicken appears to be ethical, but as we have seen this seems to be only valid in the context of the poultry industrial complex. Thompson seems to imply that this large scale poultry industrial complex is the only viable option in today's economy. Thus if it can be shown that this is not the only option, then a way will be open for the arguments that I have presented earlier.

How can this be shown? It is interesting to note that Thompson's argument is based only in the context of poultry production in the US, an advanced economy where technologies are being used in a very intensive scale and where the consumer market is so large that there is an economy of scale which results in the huge industrial production becoming profitable. It would then be interesting to see how this industry would fare in the developing world where the level of technological development is much lower and where the small scale farms are much more prevalent [1]. The point is that if the context of huge industrial production is viable only in the US and other advanced economies such as the European Union, then clearly it does not have to be the only one possible. In the context of the developing economies, huge industrial scale production is out of place. The amount of investment required to set up such a factory in a third-world country would be too high; more specifically the input of live chicken would not be as standardized as in the advanced economies, and the resulting packaged meat would be really too expensive for the local consumers because of lack of economy of scale. The only viable option for such a big industry, if such were to exist in this environment, would be to produce chicken for international export. However, this is a very expensive option because chicken is not like other industrial products such as automobiles or consumer electronics, which lend themselves much more easily for international export and long travel. Chicken has a rather short shelf life; in contrast to the automobile, one can't stockpile chicken meat for more than a definite period of time, even if the meat is properly refrigerated. Thus in real terms setting up a poultry factory in a developing country with the hope of reducing labor costs would not be profitable at all because of the huge logistical costs involved. The upshot is that huge industrial poultry production facilities are viable only in the advanced economies with large domestic markets such as the US and the EU.

However, what I am saying here seems to be contradicted by the situation in my own country, as Thailand is one of the world's largest exporters of chicken meat [11]. But the situation is different, because Thailand produces its own chicken, and the factories are all locally owned. They produce the meat and export it mostly to the EU and Japan (and to a lesser extent the US). This makes a huge difference because when the factories are home grown, the supply chain and the local farmers who supply the factories with their chicken are much tighter, enabling the factories to produce more efficiently.

But are these local industries aiming at producing chicken for the international markets a viable alternative to the huge American factories Thompson is talking about? Perhaps not. However, what distinguishes

markets such as Thailand from the more economically advanced ones in the US is that the production of local chicken seems to be more robust. A large number of Thai consumers love their chicken to come from local farms which let their chicken run around freely, living as they have always done, raising their youngs, foraging for food on the ground, and so on. Many consumers testify that the meat from these locally produced chicken are much tastier than the fatty meat from the poultry industry. Since it is less fatty (because the chicken have opportunities to exercise through running and foraging for food), the meat is healthier. In Thailand there are restaurants specializing just in this kind of chicken meat and there are a large number of avid followers. Hence while in Thailand there are large scale industrial factories aiming at producing chicken meat according to the strict international standard for the export market, many Thais prefer instead to have their chicken from these local, family-owned farms. Of course these farms cannot compete with the industry in terms of the scale of production or standardization or quality control. But they make up for these with the higher quality of the meat which is less fatty and healthier (and more chewy), and most importantly for the consumers tastier meat. Since the owners let their chicken run around freely and fend for themselves, obviously the chicken need their visual and tactile senses. Furthermore, as they are running around and are not being packed and lined up in an assembly line, they don't peck one another just because they are too close.

So is this option economically viable? The situation where there are specialized restaurants and avid followers who won't have their chicken in any other way seems to show that in Thailand at least this option will be here to stay. But will this option be also viable in the US and other advanced economies? I think so. One thing that needs to be done in there is that consumers should start paying more attention to their local farms and start buying from these farms rather than from the supermarkets fully stocked with industrial meat. Perhaps instead of developing technologies that disenhance the chicken, new technologies that allow for less fatty and healthier meat because the animals have chances to exercise while keeping the cost down should be developed. In Thailand the viability of the local farms actually depend on the consumers who really love their chicken this way. The farms do not have to be too big. This is an important point because if the farms get too big and produce too much chicken, then they will start becoming an industry in itself. So the farms need to remain local and are attached to their communities. We can also imagine that each community in the US starts buying their chicken from their local farms, and if this trend continues then this will present a really concrete option which will lessen the need to produce headless or sightless chicken in factories which gave rise to Thompson's conundrum in the first place.

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Since we are what we eat in more ways than the literal, physiological sense, we naturally do care a lot about the food we eat every day and we can have strong emotional reactions when it comes to food. What seems to upset people the most when they hear about the development of technology to breed sightless chicken is that these chickens are not like the ones they themselves and their forefathers are familiar with. This indicates that given enough time people can get used to these new breed of chicken, and the controversy will die down.

This, however, shows that ethical conundrums, at least the ones we are discussing right now on disenhancement, appear to depend on the mood of the time. Ethicists typically do not like this, for if dilemma or controversies depend on how strong the feelings of revulsion are at certain point of time, then when the time comes when these feelings are weaker or gone away all together, when people do not feel that there are any ethical problems at all, the ethical problem itself seems to disappear, which means that some ethical problems depend on changing public moods. Perhaps this is not the case. But at the very least if the public reaction against bioengineered sightless chicken dies down, then I don't see that there will be many ethicists who bother to take up on this issue. Certainly there will still be acts such as lying, cheating, stealing, killing and so on which are universally judged to be ethically wrong. But if in the not too distant future the public become comfortable with these disenhancing technologies then there is a strong chance that there will be no ethical debates on this matter. In my way of putting it, this will mean that the whole metaphysical context has changed. In this new scenario, chicken will in fact have been transformed in such a way that having eyes is not necessary for their being "good" and "functional" chicken any more.

Perhaps this is also the case for the problem of enhancement as a whole. Many who are uncomfortable with the idea of enhancing humans beyond their normal capabilities feel that this will violate the "natural being" of humans, no matter what it means. The chicken have their "natural being" which belongs to the environment where they freely forage for food; hence in this environment it would be wrong to deprive them of vision. Humans also, according to this perspective, have their natural being which is represented by the familiar ideal of the human being (perhaps in a Greek statue). Extending anything beyond this perceived ideal then risks arousing negative sentiments. There are certainly many ethical problems related to enhancing humans beyond just restoring their physical, perceptive or cognitive capabilities. For example, many have worried what would happen if only some groups of humans are so enhanced while others are not. This is a very real and very serious problem which needs to be fully deliberated. However, if we could solve this equity problem, if perhaps we could find a way to enhance every human being no matter their nationalities, cultures, ethnic groups, income levels, educational attainment, gender, and so on (a very difficult thing to do), then enhancing humans, in the analogous manner with disenhancing the chicken, would not be too objectionable. Thus, also analogously, if we live in a totally transformed social and cultural environment where the purpose of being a chicken is just to be there, being fed continuously in an assembly line waiting for the final moment to become packaged meat in the supermarket, then disenhancing them so as to help them from being pecked would not be so bad. The only problem is that I don't think that this new environment is upon us yet. Furthermore, there are alternatives to the large-scale poultry industry, which would make the whole practice of disenhancing the chicken totally unnecessary.

Acknowledgments Research for this paper has been partially supported by a grant from the Thailand Research Fund, grant no. BRG5380009 as well as the Commission on Higher Education and the National Research University Project, project no. HS1025A and AS569A.

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Information **2011**, *2*, 360-371; doi:10.3390/info2020360

OPEN ACCESS

information

ISSN 2078-2489

www.mdpi.com/journal/information

Article

Pervasive Computing, Privacy and Distribution of the Self

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Received: 5 April 2011 / Accepted: 20 May 2011 / Published: 27 May 2011

Abstract: The emergence of what is commonly known as "ambient intelligence" or "ubiquitous computing" means that our conception of privacy and trust needs to be reconsidered. Many have voiced their concerns about the threat to privacy and the more prominent role of trust that have been brought about by emerging technologies. In this paper, I will present an investigation of what this means for the self and identity in our ambient intelligence environment. Since information about oneself can be actively distributed and processed, it is proposed that in a significant sense it is the self itself that is distributed throughout a pervasive or ubiquitous computing network when information pertaining to the self of the individual travels through the network. Hence privacy protection needs to be extended to all types of information distributed. It is also recommended that appropriately strong legislation on privacy and data protection regarding this pervasive network is necessary, but at present not sufficient, to ensure public trust. What is needed is a campaign on public awareness and positive perception of the technology.

Keywords: pervasive computing; ubiquitous computing; ambient intelligence; privacy; self; distribution; trust; personal identity; public perception; ethics; metaphysics

1. Introduction

The emergence of what is known variously as "pervasive computing", "ubiquitous computing", "ambient intelligence", or "internet of things" has created a number of conceptual and normative issues that deserve closer attention. Basically speaking, these refer to the ability of devices, which are normally not computers, to communicate with one another through a data network so that the network itself is not limited to the traditional structure of a computer network, but extends to ordinary things,

including the human body. Applications of this ability for things to network with one another are many. For example, a refrigerator might be able to connect with a grocery store in order to inform the store when certain items are running out so that the store can supply these items automatically (assuming, of course, that the owner of the refrigerator has agreed to this networking). Another application might include networking between the human body and medical care units, so that when certain physical indicators fall below a certain threshold, data can be sent out from the sensor in or on the body to the medical unit in order for the latter to take appropriate action. One can certainly imagine more applications that could be potentially useful, such as a car that can sense the condition of the driver. With such an application, if the driver is unacceptably tired or sleepy or has more alcohol in his bloodstream than the lawful limit, the driver's commands can be negated or overridden.

In this paper, I would like to focus on the conception of self that is affected by this emerging technology. This issue is significant because guidelines designed to protect the privacy of the individual are justified on the basis of a conception of the self. As the self of an individual should be accorded dignity and treated with respect as ends and not merely as means, the mainstream argument is that privacy is needed as a necessary ingredient so that the individual is accorded respect and dignity. Without the space made available with privacy protection guarantees, it is not possible for an individual to enjoy dignity or respect. According to the mainstream argument, this line of reasoning seems to require that there be an objective conception of the self such that the self exists as the basis on which the individual is maintained as an actual subsisting, objectively existing, entity. This is often overlooked in the mainstream argument, but it is certainly implicit in it. An implication is that, as we are considering how the conception of privacy is affected by the phenomenon of ubiquitous computing, the conception of self needs to be considered because the phenomenon does affect how the self is constructed and understood in significant ways, or so this paper will aim at arguing.

The structure of the argument presented in this paper is that: The phenomenon of ubiquitous computing or ambient intelligence does affect the conception of the self in a significant way, and as the self is necessary as the basis on which privacy guidelines can be developed and defended, the emergence of ubiquitous or pervasive computing does have a significant impact on how privacy should be justified and how privacy guidelines could be developed and enforced.

2. Ubiquitous Computing and the Self

The body itself becomes part of a pervasive or ubiquitous network when information pertaining to the body is distributed in the network in a significant way. The example alluded to above about a sensor attached to the body sending out signals on vital information, such as blood sugar level, blood pressure number and other medical statistics, to the medical unit is a clear indication that the body can indeed become enmeshed in the network. Indeed, not only is the body already becoming part of such a network, but in fact much of the mind is also fast becoming included, if not entangled already. A vast majority is already well acquainted with the ability to engage in a computer network, sharing the content of one's mind—one's thinking, one's beliefs, desires and so on—with one's peer. This is an example of the potential for sharing the mind throughout a network, and this sharing predates ubiquitous computing. However, one can certainly imagine a scenario where the content of one's mind

is shared through a ubiquitous computing network. This could be done by installing a device in the brain that senses the electrical movements inside the brain representing various thoughts and desires and sending out information of these movements to a network. This could of course be controlled by the subject so that he can choose which mental information can be sent out. For centuries there has been talk about some very special people having telepathic ability, but now with advanced technology this appears to be an impending reality. The upshot is that information pertaining to both the body and the mind of an individual may soon be distributed throughout a network.

What this means is that the self itself is distributed throughout the network too. This may sound rather surprising at first, but when it is understood that the self itself is constituted through information then it does not sound so surprising at all. One recognizes that the self is constituted through information when one realizes that anything that one encounters when one encounters one's own self is nothing but information. This does not mean that everything is information only, but what we know of our selves is all information. For example, consider a very simple statement describing my body:

(1) I weigh 80 kilograms.

The statement obviously refers to a condition of my body at the moment of this writing, that it weighs 80 kilograms. The first-person pronoun "I" refers to the person who is writing this paper and more accurately to his body, which weighs 80 kilograms. Since it is my body that weighs 80 kilograms and since it is the actual referent of the first-person pronoun, it is not too wide off the mark to say that my body is at least part of my own self. To say that I weigh 80 kilos has some subtle difference with saying that Soraj's body weighs the same, for when I say that it is "I" which weighs this much, the term has indexical force which is lacking when I say that Soraj weighs 80 kilos. The indexical force is more intimate in that it refers to the person who is uttering the statement himself. This is the conception of self that is normally understood. We have access to our selves through the use of the first-person pronoun "I", or "me".

In addition, when I think of something, such as when I am thinking of how to formulate the argument for this paper, I might be thinking thus:

(2) I am thinking of how best to formulate the argument for this paper

Here I am referring to an episode of my mental events. The idea here is that my mental life—all of my personality and everything that constitutes myself which is not overtly physical—is constituted by a series of events, each of which is an episode. As before, I am referring to myself which is thinking of something. Here the indexical force of the first-person pronoun is also there, for it is clear that (2) differs markedly from the statement.

(3) Soraj is thinking of how best to formulate the argument for this paper.

It is the indexical force that is indicative of the self.

Now suppose that we can accumulate all the statements about one's body throughout a period of time, as well as statements describing one's mental episodes as they progress through his or her life. It does not seem too far fetched to conclude that these statements taken together represent the account of that person's self. After all, the self is given content through these statements which are true of it and

which all together give it its uniqueness vis-à-vis other selves. For example, I have my own unique narrative which constitutes my life story. Everybody has his or her own unique story that accounts for his or her own self. But if it is story, if it is narrative, that gives a self its uniqueness, its standing as a self, then it seems that the self is constituted through information, for it is information that is contained in the statements that make up the narrative of a self. In fact, Paul Ricoeur has written much on the role of the narrative in self and identity [1-3].

Consequently, statements such as "I weigh 80 kilograms now" or "I am feeling very pleasant with the cool breeze" and so on are constitutive of the unique narrative of an individual self. These statements presumably do include such statements as "My current blood pressure measure is 140/90 mmHg" or "My pulse rate is 102 beats per minute". These vital statistics do not seem to belong any less to the conception of the individual's self that those measuring his weight or his height. In short, they are constitutive of the individual's self as well.

What is true for bodily episodes is true for mental episodes as well. It can be said that information sent out by the subject is part of the self of the subject. Suppose that the subject sends out the message "I am very tired." through a telepathic network. The message contains information that describes the state of the mental and physical condition of the subject that is part of the self of the subject at that moment, since it refers to the referent of the first-person pronoun. Moreover, even information sent out without the subject's conscious awareness, such as when a sensor sends out information pertaining to the subject's condition of his brain through some kind of implanted device, is also a part of the subject's self as it portrays the condition of the subject's mental episodes (assuming that the mental can be mapped onto the function of the brain). Since these episodes belong to the subject, it is as much a part of his own self as anything is.

A consequence of this is that through a pervasive computing network the self can be distributed across the network in a variety of ways. We can say rather informally of information about ourselves that is distributed this way that "this is part of me." That the information can be a part of the subject means that the self in a way does not have to be located within the confines of the subject's body, but can spread out of it too.

Basically speaking, this implies that information that can be related back to the subject's self or person is thus part of the subject's self. In this way my national identification card, which every Thai citizen is required to carry, is part of my own self as it contains information that is uniquely related to me. It contains a unique national identification number, which is specific to each and every Thai citizen; thus it is always possible for the authorities, or those with the appropriate means, to know much more about myself if they know only my thirteen-digit number. They will know where I live, who I am married to, how many children I have, who my parents are, who my siblings are, and possibly much more. Also, in roughly the same way, artistic creators often feel that their creation is not only something that comes from them, but the creation is in a significant sense a part of them too. Thus when we listen to a piece by Schumann, we often learn about his personality, his feelings, his temperament, and so on; in short, those traits that constitute specifically who Robert Schumann was and none other. Through his music we have a window to Schumann's very self. Since Schumann is no longer alive, there is a sense in which his self lives on through his musical creations.

The emergence of a pervasive computing network appears merely to accentuate this ongoing trend. What it does is that it accelerates the rate and level of distribution of information much more than previously possible. It also adds another dimension in which the information can be distributed without the subject being conscious of distributing it all the time, as a sensor device can do this on its own. Hence the self gets distributed much faster, and there is more of the self that is distributed than at any previous time. Nonetheless, this does not seem to detract from the fact that the self is there in the information constituting it. The speed and volume of the distribution, however, raises a number of concerns which are unique to it. The problem is, if we are to reap the optimal benefit from the emerging technology of ubiquitous or pervasive networking, how should we ensure that the system is trusted by the user and that the user's privacy is protected? Without a clear understanding of how trust and privacy can be ensured, the potential benefits of a world of pervasive networking can hardly be made fully available.

3. The Self and Privacy

Privacy is very much related to the self. In fact, it is none other than privacy of the self that is the key issue in formulating privacy protection guidelines. In former times, one was concerned with privacy of the outward, physical body. For example, one was concerned that one had privacy within the domain of one's own home, such that it was not right to peep into somebody's house to find out what he or she was doing there. Also, privacy of communication is protected, so that it is not right, indeed illegal, to open up someone's private mail without permission or to tap into someone's private conversation over the phone. These are well-known privacy violations. With new, advanced technologies, privacy issues have become broadened. One concern has been with the social networking websites, which allow for an unprecedented degree of "opening up oneself" and thereby posing a serious threat to privacy. Social networking websites such as Facebook tend to have an uncanny ability to extract users' private thoughts and information so that users do not feel *prima facie* that their private lives are being threatened. On the contrary, they often feel that they are disclosing private information of their own free will, while in real, offline life they would hardly have revealed so much even to their close friends. Perhaps it is the degree of distance afforded by Facebook—the distance felt by users when they log on to the website, when they are alone with their computer and their "friends" are only blips of images and texts on screen—that gives users a false sense of security so they feel there is little danger in revealing their innermost secrets on the website. As there are a tremendous number of studies on privacy on social networking websites, the present paper will not touch upon this topic in any further detail. But it suffices to show that privacy has become a serious concern with today's technology, and what can be dangerous is that many are not fully aware of the seriousness of the problem.

On Facebook, one can be said to send out one's "self" on the network, to a circle of friends or even to the entire cyberworld. Thus, it is possible to construct a conception of self from the bits of images, videos, sounds and texts that are related to a person who has a Facebook account and who is engaged in online activities there. This self might not be exactly the same as the usual, offline self of the person, as the person might consciously construct an online persona for a variety of purposes. Perhaps the

person might want to project an online persona into the cyberworld as a way of keeping her real identity hidden, or as a way of participating in a specific "community", a certain type of group of friends. It is possible that the person even maintains more than one persona, each for a certain type of community. For example, someone might project her real identity (a profile containing her real name, real email address, and so on) to a group of friends that are related to the work she is doing, but project a different self for a group of friends who are related to her special interests. In any case, it is plausible to have multiple selves which are manipulated and tailored to the community one is connected to.

However, the situation for ubiquitous computing is a little different from networking on sites like Facebook because with ubiquitous computing the subject does not have to log on to any online system and sit in front of a computer, but the data can be received and transmitted twenty-four hours a day, seven days a week, integrating one's entire body (possibly including mental episodes) with the network. As the self is constituted by the information pertaining to it, there is clearly a sense in which the self is distributed throughout the network. This does not mean that the whole self of an individual can be found on the network such that one can, for example, speak to a computer screen on which some data pertaining to the individual appears. But it means that, in a significant sense, part of the individual's self is there on the network. The self can be scattered around throughout space and time in the same way as, in a sense, Schumann's self is distributed across time when we have a window to it or when we get intimate with it when listening to his music. Schumann does exist through his music when we listen to it and appreciate it. On Facebook, the self of someone is likewise scattered around the network, on the news feed of friends, on the huge database kept by Facebook for the purpose of selling profiles to advertisers, and so on.

So, if the self can thus be distributed, how then should privacy concerns be addressed? How should the privacy of the distributed self be protected? There is an irony involved in all this, for privacy is a value that protects the subject from distribution of information that the subject does not want to be distributed. Thus, if the self is distributed, then it seems that privacy is compromised in the first place. However, if distribution is based on trust, and if there are satisfactory guidelines for privacy protection, then trust and privacy can certainly be a guaranteed component. When a part of myself, for example, does exist on the network, I clearly want my privacy protected so that my information is not abused or misused by anyone who is not authorized to have access to it. Hence the control that I have on how my self is distributed becomes crucial. Furthermore, there should also be a way to protect the privacy of my self as it is distributed too. What this means is that, as a part of my self is distributed across the network, there should be some kind of measure or system to protect the integrity and privacy of the data that represent my self when the data exist on the network. If I were to allow a device to be placed on my body to measure my vital signs in order to send out signals to some appropriate medical unit, I would want some kind of protection, so that the information contained in the signal is available only to those at the medical unit who are responsible for reading and interpreting the data. Hence privacy protection is not only assured to my usual self, located physically within my body, but also extends to the distributed self that exists across the network.

To use the Facebook analogy again, it is clear that many Facebook users tend to disclose private information very casually, as if unconcerned with the privacy of their own selves. Nonetheless, there should be privacy protection of the information so divulged, and it should be the burden of the website

owner and the appropriate political authorities to ensure that the privacy of the user is protected. The authorities should not push the burden of protecting privacy onto individual users alone, especially as most users are not careful enough to ensure their own privacy. There should be appropriate legal mechanisms so that the website owner is forced to install privacy protection measures inside the website in order to ensure that the space available to users on the website is sufficiently protected and safe. This will be to everyone's benefit.

The same should be the case for pervasive computing. In fact, there are already a number of works published dealing with privacy in a ubiquitous computing environment [4,5]. As information pertaining to the self is being distributed throughout the network, appropriate privacy protection measures should be in place to protect the privacy of the self that is distributed, in addition to the protection traditionally given to the individual. However, the protection needs to be commensurate with the type of data that are being distributed. Information one voluntarily divulges on Facebook, even though part of one's own self, should not have the same level of protection as information propagated through the sensors in a ubiquitous computing network. On Facebook and other social networking sites, one ideally should be aware of what kind of information pertaining to oneself (which is actually part of one's self, as we have seen) is being distributed through the network of one's friends or even the public at large, and one should also be aware that there are mechanisms inside Facebook itself by which one can control how the information can be accessed by others. In a ubiquitous or pervasive computing network, however, information appears to be much more intimate; it is not only information such as my preferred restaurants that I share with my group, but something about my own physical body itself. Hence, protection of these varying kinds of information may vary too. But still the bottom line is that no matter how the type of information differs, it is part of an individual self, which needs to be protected. Here, the administrator of the network as well as the political authorities needs to get involved. An effective data protection law, with added clauses specifically mentioning personal data distributed across a pervasive computing network, might be what is needed to ensure both privacy and trust, both of which are necessary for the technology to be accepted widely by the public.

4. Justifying Privacy

The view that the self is distributed throughout the network is predicated on the idea that the self is not an inherently subsisting metaphysical entity that exists objectively. Instead, it is ultimately speaking of a construction out of a large number of physical and mental episodes that all together make up an individual person. This idea is not new. In fact, it is an ancient view found in Buddhism [6]. However, it appears to be corroborated by findings in contemporary cognitive neuroscience. For example, Michael Kurak [7] has compared the recent findings in neuroscience regarding the self and consciousness with the ancient teachings of Buddhism on dependent co-origination. What has been found is that both agree that the self consists of several states or episodes which are collected together in order to form a coherent, working, normal self. This view also finds support in Metzinger, who argues that "Nobody ever *was* or *had* a self" [8]. According to these findings, then, the representation of the self is nowhere to be found physically inside the brain. That is, there is no one locus inside the functioning brain that is directly responsible for the consciousness of the self. On the contrary, the self

is constructed through a variety of factors and many functioning regions of the brain. The old idea of a homunculus inside the brain responsible for all cognitive and self-conscious activities is now as good as dead.

It has to be noted, however, that this does not mean that there is absolutely no such thing as the self. If such scholars and scientists as Kurak and Metzinger do deny that there is a self, then they are clearly wrong. This is so because our experience of our own selves is so basic and visceral that it is almost impossible to deny one. What we should be focusing our attention on is not whether the phenomenon that presents itself to us as the self is in fact an illusion or not (perhaps it is), but even if it is an illusion, the fact that it is a very persistent illusion shows that the self phenomenon is something that we need to investigate and explain. We cannot deny our experience of the self, but it seems that, according to Kurak and Metzinger and according to the Buddhist system, what we do experience is ultimately nothing but a collection of mental and bodily episodes. Nonetheless, that something is a construct does not mean that it does not exist *tout court*. The idea that the self is a construct is also found in Susan Blackmore. In her book, *The Meme Machine* [9], Blackmore shows that what we understand to be the self in fact consists of a myriad of self-replicating cultural and informational entities known as "memes." (The term actually originated with Richard Dawkins [10], who proposed the term as an analog of the gene. As the body of a biological organism is seen by Dawkins as only an instrument of the gene to carry itself on through replicating itself, the meme is then a *cultural* gene where what is replicated is an idea rather than genetic information.) Whatever we take to be the self, after analysis, we will find that this "self" is nothing but a collection of memes, which can consist of such things as memories, desires, thoughts, feelings, ruminations, and so on.

In sum, what these recent findings in neuroscience of the self show is that the idea of the self is constructed out of different episodes. These episodes, moreover, do not have to lie within the brain or the body, as we have already seen how a part Robert Schumann's self can still be found in his music even though the composer himself is long dead. These episodes—the unique characteristic of Schumann's music that provides a glimpse to his own personality and inner thoughts—are part of his self through the act of uniting them into one coherent self, and it is this act that collects together the mental and physical episodes of his body into his own self.

An implication of this is that the mainstream view that privacy is justified through reliance on the received view that the self exists as a unitary unit functioning as the seat of thoughts, and hence deserving respect, needs to be reconsidered. Since the self is not there objectively in the same way as the brain exists objectively, the justification of privacy based on the view that the unitary, self-subsisting self is a flimsy one at best. I have argued elsewhere that privacy should instead be justified pragmatically [11,12]. What this means is that we need to consider the goals of privacy guidelines and regulations—how having them contributes to realization of the goals we value—as the way privacy should be justified, rather than relying on the dignity of the person based on the metaphysical self.

That the self can indeed be distributed across a pervasive computing network supports the view that the self is a construction out of various episodes. As the self of the person needs to be protected as to its privacy, the part of the self that is distributed through the network needs protection too. What pervasive or ubiquitous computing does is merely to accelerate the rate at which the self gets

distributed, but the structure of the argument and the general form of how privacy is to be justified remains the same.

It is clear that privacy is pivotal in maintaining a democratic society, one which respects the dignity and rights of the individuals within that society. This is so because privacy provides for a space, a personal space around each individual, which allows the individual to operate freely within that space. Without such space, the individual will not be able to exercise many of the rights and privileges that belong to her as a citizen or a human person. For example, in voting in an election, it is customary, indeed it is necessary, for the voting citizen to have a degree of privacy so that she can decide whom to vote for without anybody looking over her shoulder. Without this minimal degree of privacy it is indeed difficult to see how democracy is possible. Furthermore, individuals should also have protection regarding privacy in their own homes. They should have freedom to communicate freely within the limit of the law and requirements of national security. To encroach upon this freedom would mean that the authorities would be given too much power, which makes it more likely that they could misuse it for their own immediate and self-regarding purposes.

One may wonder how privacy could in fact be justified when the metaphysical underpinning of the self appears to be as loose as the one presented in this paper, especially when privacy is bound up with notions such as moral agency and civic freedom, which are the basis upon which the modern liberal democratic state is founded. Moral agency and civic freedom seem to be founded upon an autonomous self; it is the very autonomy and independence of the self—the very notion that the self must be unified so that it can even begin becoming autonomous and function as a moral agent—that seems to be the reason why privacy of such a self should be safeguarded. By cutting loose this tie between the autonomous self and the notions of agency, autonomy and freedom, it seems that this paper lacks a tenable way of justifying privacy. Nonetheless, as I have argued elsewhere [11,12], a viable justification of privacy can indeed be constructed based on this notion that the self is a construction. Basically the idea is that one does not base privacy on the Western liberal notion of the autonomous, unified self. Instead privacy can be based on its function in a democratic state, as a protection against encroachment on personal freedom and personal space by the authorities. Since a democracy cannot function without such protection, privacy is then justified in this regard. Likewise, when the self is regarded as distributed through a network as presented here, one need not worry that there is not an adequately strong justification or defense of privacy. Such a defense and justification works more effectively, I believe, through regarding privacy functioning as a necessary component of the rule of law in a democratic state, and one defends it through overt demonstration, such as by pointing out what is happening in a state which does not have adequate privacy protection.

In conclusion, the argument presented here does not rely on the condition of individuals as autonomous subject, which seems to be presupposed by right-based arguments [13]. Justifying privacy on consequentialist and pragmatic grounds seems to be more powerful as it shows that privacy is necessary for the values and goals that we all hold dear. Even if the individual self is a construct and does not have firm, objective metaphysical footing, justification of privacy does not have to be weakened. On the contrary, it appears to be stronger when it is tied up with the desired political and civic values and goals.

5. Conclusion: Trust and Privacy

The justification of privacy regulations given above also makes it clear how closely related the concept of privacy is to that of trust, a topic that has been quite extensively explored in the literature [14-16]. What we have seen in this paper, however, is a new way of looking at this issue through the idea that the distributed self works as a basis upon which a reliable system of trust and privacy protection in a pervasive computing environment should be constructed. With emerging technology like ubiquitous computing, the role of trust is very important; if users do not trust the system, then it is hard to imagine how the technology can even get off the ground. Trust can only be generated when users are assured that their interests are protected and they will not be harmed, directly or indirectly, through their involvement with the technology. One of the most serious obstacles against widespread acceptance of internet commerce in Thailand, for example, is that most users do not trust the system. They do not trust putting their credit card information online because there have been many cases of fraud and inefficiency in the online commerce system. Enactment of appropriate legislation, such as the Electronic Commerce Act [17], which ensures trust in the basic documentation infrastructure such as digital signatures and so on, has been somewhat successful in promoting public trust in the system. This example shows that in order to create trust, a strong legal mechanism is important. But more important than the law, is that the technology itself must be designed with the interests and safety of users from the beginning. In designing a pervasive computing network, trust can be ensured when the privacy of users are fully protected so that no possibility of inappropriate use can arise. As telephone users generally trust the technology, believing their privacy in communication is protected, so communication enabled by a pervasive computing network can do the same. As the legislation ensuring trust in electronic commerce shows, strong legislation for a pervasive network is necessary to ensure public trust. This, to be sure, is not sufficient, as public awareness and perception of the technology plays a significant role too. Building up public awareness and perception could begin through a small number of successful uses of the technology in actual situations. Once this is perceived by the public to be useful, then the power of word of mouth can encourage the use of the technology rather rapidly. Here the perception at the first stage is crucial. If the technology fails during its first hurdle, then it will take a long time for it to recover from the injury.

So privacy and trust are intimately connected in the context of pervasive or ubiquitous computing. As the proposed idea of the distributed self through the network discussed above shows, privacy protection should be extended to the data themselves, since the data are in a real sense part of the individual's own self. This point could well be included in the legislation on data protection in pervasive computing. This is clearly necessary to ensure the public trust needed for the technology to be accepted on a wide scale.

Acknowledgements

Research for this paper has been made possible in part by grants from the Commission on Higher Education, Royal Thai Government, and from the National Research University Grant number

AS569A and HS1025A. I would like to thank the anonymous referees of this paper, whose comments have improved the paper a great deal.

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Minds & Machines (2011) 21:533–548
DOI 10.1007/s11023-011-9255-x

Personal Identity and the Self in the Online and Offline World

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Received: 11 June 2011 / Accepted: 8 August 2011 / Published online: 25 August 2011

Abstract The emergence of social networking sites has created a problem of how the self is to be understood in the online world. As these sites are social, they relate someone with others in a network. Thus there seems to emerge a new kind of self which exists in the online world. Accounting for the online self here also has implications on how the self in the outside world should be understood. It is argued that, as the use of online social media has become more widespread, the line between the two kinds of self is becoming fuzzier. Furthermore, there seems to be a fusion between the online and the offline selves, which reflects the view that reality itself is informational. Ultimately speaking, both kinds of selves do not have any essence, i.e., any characteristic inherent to them that serves to show that these selves are what they are and none other. Instead an externalist account of the identity of the self is offered that locates the identity in question in the self's relations with other selves as well as other events and objects. This account can both be used to explain the nature of the self both in the online and the offline worlds.

Keywords Self · Social networking media · Metaphysics · Virtual world · Identity · Externalism · Buddhism

Introduction

The rapid advances in information and communication technologies have created tremendous changes all over the world, not least among which concern a number of new philosophical problems and ways to solve them. During the last few years social networking websites such as Facebook and Twitter seem to throw much of the traditional thinking about the self and the object into confusion. A main

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characteristic of social networking is to form webs of links among "persons" whose identities are there on the social networking websites. It is typical for a member of Facebook to have hundreds of "friends." It does not matter how many of these "friends" are those whom the member actually meet and interact in real life; what does matter is that the interaction is taking place more and more online. The line between the real person (or the "offline" one) and her projection onto social networking sites (her "online" self) is becoming blurred. There are situations where a real person has multiple accounts on Facebook, each with a unique personality. For example, the person might appear as a serious professional in one account, and a completely different personality in another. These accounts, or to put it better these personae, seem to be on a par with the real person herself when it comes to the question of identity. So the questions are how one can distinguish between the offline, real-world self and her online projection onto social networking sites?; how are the two different or similar to each other?; and who is the real person behind all these personae and façades?

This paper contends that a fusion between the offline and online is taking place in the area of the self and the person. This fusion also appears to reflect the view that even reality itself is informational; that is, it is constituted by information (Wheeler 1990: 5; Floridi 2008). I will argue that both the offline and the online selves are ultimately constructions and do not have any essence of its own. This argument reflects my own Buddhist inclination, which is based on the idea of the Non-Self, namely the view that what is commonly understood to be the self is nothing more than a convenient label one puts on a myriad of mental and physical episodes.

More specifically, I would like to argue that the so-called online self, in other words the putative self existing on profile pages and updated timeline or news status on social networking sites such as Facebook, Twitter and others, is essentially no different from the real self that is already there in the "offline" world. As the offline self is a construction (as I shall show in the paper), so is its online counterpart. The online self functions as a persona, a front used by the underlying person when she faces the public world, and there is a degree of freedom within which the person can create her persona the way she likes. Moreover, the constructed nature of the online self also shows that privacy tends to be as valued in the online world as in the offline one. This seems to contradict a widely held view that users of social networking sites tend to be more open toward one another and perhaps value their privacy less in social networking situation than in others. However, it is not the aim of this paper to discuss privacy in any detail; it is only my aim to note that if the argument about the identity of the self and the person presented here is tenable, then this will have a far reaching effect on discussions of privacy.

Where there appear to be persons, there arises the traditional problem of their identity. How should the identity of a person be understood? Here I propose a more externalist version of identity where identity is constituted more by external factors rather than solely on the subject's own mental content. Then I discuss Kant's famous Transcendental Unity of Apperception (TUA) and try to find out whether this mechanism succeeds in securing identity of the self or the person. What I find is that Kant's TUA succeeds only in securing unity of a person, but not her identity.

So the section arrangement is as follows: In the following section, I discuss an empirical situation of what is happening in Thailand, an Asian country that is fast embracing social networking sites into its social and cultural milieu. Then in the next two sections I discuss the philosophical problem of personal identity in the online world, arguing for an externalist version of identity construction. The last section then concludes the paper.

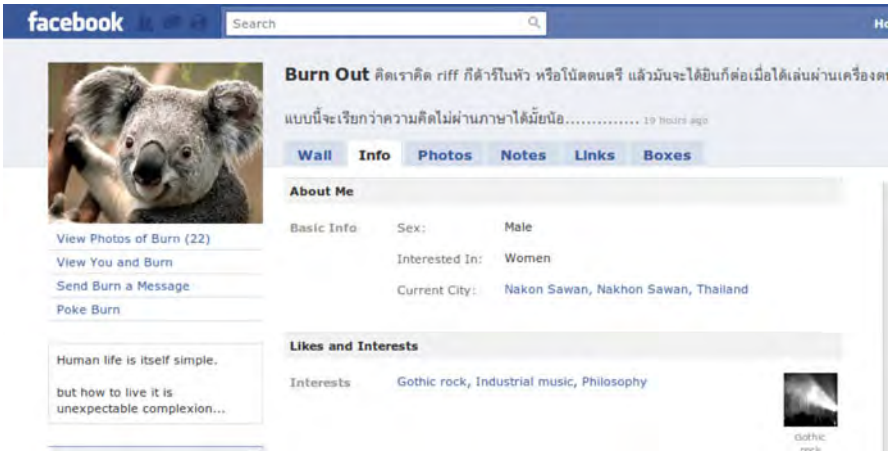
The Putative Self, Social Networking Websites, and Thai Culture

When we look at the popular social networking websites today, we are struck by the sheer number of the people who are connected to one another through them. Facebook has more than 500 million users at the last count (http://www.facebook.com/press/info.php?statistics), and the number far exceed the entire population of many countries. Twitter has around 75 million (http://www.numberof.net/number-of-twitter-users/) (There are certainly other social networking sites, such as Google Plus, Hi5, MySpace, and so on, but these two are the most popular). These users put up their "profile pages" on the websites, which are essentially a projection of their own identities in the online world for their peers, colleagues and friends. In most cases the profiles actually represent the persons behind them; in other words, the profiles are mostly intended to refer to the persons themselves. This can be useful when, for example, I would like to find out whether my long lost high school friend is on Facebook or not and can get reconnected with her again after I have seen her profile. In this case there is a clear link between the profile and the person. However, in some areas, especially in Thailand, the profiles on Facebook serve another function. Many Thai Facebook users opt not to show their faces or their real names on their profile pages. Instead they are very creative in inventing new names for themselves which effectively prevents anybody from knowing who the real person behind the Facebook persona is. So unless the person herself tells her friends who she really is, nobody would know who she is. Instead of putting up their own portrait on the profile as is originally intended by the very name "*Face*book," many in Thailand are putting up all kinds of pictures: Some put up pictures of their favorite pets; some put up a political banner complete with the Thai national flag; some use pictures of well known cartoon personalities such as Winnie the Pooh, and so on. Furthermore, they are not using their real names in the profiles. Some call themselves "Laughing out Loud throughout the Field," "Red Linguist," "Dragon from the Plateau," and so on. A recent practice has a result of the ongoing political conflicts in Thailand is that many put up the phrase "love the King" following their names to show their support for the King. Someone else who stand on the other side of the political divide then say something like "Love Everybody" or "Love my Parents" or "Love Humanity," to mimic those who declare their love for the King. They cannot say outright that they do not love the King because according to the draconian law against criticizing the King in Thailand this might be interpreted as insulting to the King himself.

This practice of putting up anonymous or alternative profiles on social networking sites, then, is common in Thailand. The practice is rather different

from the older one of putting profiles on web discussion forums in that social networking sites are originally intended to act as a forum where those who are already know one another interact online. When one poses a profile on Facebook or LinkedIn, a professional social networking site, for example, one in effect is telling one's own social group of one's presence and is inviting those in the circle to join the link. The sites are "social" in the sense that getting together in a bar or in a meeting are social—the sites are gathering places where one interacts with one's friends. In older web discussion forums, however, these social aspects are not as much emphasized. The profile page is almost non-existent in these older forums and there is no way for a user to "update her status" in order to tell her social group of what she is up to as she can on Facebook or Twitter.

Let us look at a profile page of one Thai user of Facebook. He calls himself "Burn Out." Then we can analyze his strategies in constructing his online identity on the social networking website:



We do not need to worry about his real identity here, because he does not use his real name on his profile page. He also uses a picture of a koala as his profile picture. The result is that, if one does not know beforehand who Burn Out really is, then there is no possibility of knowing his real identity.

So Burn Out has created an online persona that does not necessarily connect with his real life person. The name "Burn Out" is only used for his Facebook account. The koala apparently does not have anything to do with his personality (I know this because I know who "Burn Out" really is, and he is just an ordinary Thai man having no essential connection to a koala). Thus, it seems that the profile page here functions only as a place holder, a neutral platform on which Burn Out can project his thoughts and ideas to his friends most of whom already know him in real life. Furthermore, those who do not know him personally also can interact with him; they know that he is a Thai person and has certain likes and dislikes based on what he posts on his Facebook profile. Since they are all Thai, they already share quite a lot in common so there is little need to reintroduce background information as is the

case when people from remotely different background need to do when they interact. The situation here represents Hall's view of the "high context" (Hall 1976), in contrast with the "low context" situation normally found when people from different cultural background meet and interact with one another.

Contrary to the received view that Facebook and Twitter tend to reflect the true identity and personality of the users (since according to the view users tend to be more revealing of their personal information), in the Thai context at least the characteristics of the earlier anonymous online discussion tends to carry over onto social networking sites, though in a visibly different form. This is a new finding that deserves a closer look and more systematic research, which is not the aim of this paper. Nonetheless, if this preliminary finding is tenable, then it would contradict studies such as one by Zhao et al. (2008), which shows that construction of identity in social networking websites tend to reflect more of the true identity of the user. In their terms, social networking sites such as Facebook are 'nonymous' rather than 'anonymous' (Zhao et al. 2008). However, the data from the Thai use of Facebook tend to show that there are strong elements of anonymous asynchronous discussion found in earlier online discussion lists in social networking sites too (Zhao et al. 2008). What is different between my preliminary findings and those by Zhao et al. seems to be that Zhao et al. argue that the use of social networking websites is markedly different from the use of older forms of websites in that in the former the users tend to be more open toward revealing themselves to the public world. Nevertheless, what we have found in this very brief discussion of the Thai situation is that Thai users tend to protect their privacy through creative uses of profile pages in Facebook (and also in other social networking sites).

In the paper I will show that both the offline and online selves are constructs, and if there is any line purporting to demarcate one from the other, the line is also a construct. What this means is that both kinds of selves are not something that exist out there in themselves in objectivity. The self is something that emerges out of certain components and activities that constitute it. This is a strongly philosophical point which will be discussed in detail in the next sections.

Personal Identity Online, But Who or What is the Person Here?

So far we have conducted a preliminary investigation on the behaviors of some Thai users on social networking sites that appear to contradict what seems to be a received view on how social networking sites are being used to construct identities. But what exactly do these behaviors tell us about the philosophical problem of self and identity in the online phenomenon? Instead of using social networking profile to show who they really are, many Thai users are using it in a creative way, essentially to create a new persona which exists only in the online world. A reason behind this move may be due to the fact that Thailand still has very limited freedom of speech; it is a serious crime, punishable by jail terms up to 15 years, to commit lèse majesté, or insult to the king. This law has in recent years been interpreted in such a way as to suit the political agenda of the faction that is holding power in Thailand, and the result has been that more people have been charged with the crime than ever before.

Many of them, moreover, have been charged simply because they have posted information and ideas on the Internet. The newly created persona, then, allows the person behind to say things in such a way that would not be possible if the person revealed who she really is to the world. Another situation is that more and more users are connected with those whom they do not know before. This is understandable given the situation where many are putting up invented semi-anonymous profiles.

In order to understand the effect of this new phenomenon on the conception of the self and the person, a philosophical discussion of these concepts is in order. In any case, what seems to be uncontroversial is that the self is not the same as the body. I, obviously, am not my body, because my body does change—I might become thinner as a result of an exercise program—but that does not mean that I become another person. However, some philosophers do argue that bodily identity is constitutive of personal identity. Bernard Williams, for example, argues that personal identity cannot be understood apart from bodily identity and continuity (Williams 1973). For Williams I can indeed become thinner as a result of exercising, but that does not mean that I become another person because it is still the same body that becomes thinner. Hence any criterion of personal identity has to include criterion of bodily identity too. However, Williams does not say specifically what exactly are the criteria by means of which a body of a person at one time is identified with a body of the same person at another time, except only that they are the same body or that the bodies at different times endure as a single entity. However, since it is well known that most of the molecules that make up the human body are lost after a period of time and are replaced by new molecules, simply identifying the body with the molecules or the matter itself does not work. Williams may reply that it is not the molecules that make up identity of a body, but its spatiotemporal location occupied by the body—the same body has to endure through time even though its constituent parts do change. But since a human body does not exactly occupy the same volume of space through time its identity then has to be inferred from other factors such as certain likenesses and other properties of the body that endure for a time, not the occupied volume alone. But as these likenesses and properties are chosen to represent the identity of the person, it seems that even in using the body as a criterion personal identity has to be constructed out of some interaction between those who perceive the likenesses and the body itself. At any rate, the perception of the likenesses of bodily properties and judging that these properties are similar enough to constitute identity would seem to be something that is external to the body itself.

Furthermore, the self is not entirely constituted solely by any of my mental events or episodes, or any collection thereof. My mental episodes change very rapidly during the course of a day, but that does not mean that I become different persons each time my thinking changes. The problem of personal identity is precisely to account for the apparent existence of the self even though analysis shows that everything that constitutes it does change over time. But is there actually something that remains the same in one person amidst all these changes?

One might object to the presentation above, arguing that some set of mental episodes do constitute the identity of the person. Memory, for example, has been

cited by Locke as a means by which the person can be identified (Locke 2008). However, it is also well known that relying memory results in a vicious circle (Cf. Butler 2008; Reid 2008), for in order to me to verify that an episode of my memory, say, of a young kid playing a toy car that I seem to remember, as belonging to me, I would need an account to tie up the young kid and myself at this moment together. There must be something which is external to the young kid and to myself as of now that is responsible for the 1-year-old playing a toy car and the 48-year-old college professor to be one and the same person. But this is what precisely the memory account of personal identity denies. There cannot be anything external. But if there is not, if it is the memory itself that is responsible, then the memory account clearly presupposes that continuance of the person, which is exactly what needs to be explicated through the memory account in the first place. The proponent of the memory theory might object that memory can certainly be fallible, but my memory largely is true, which shows that what I do remember is largely true, so the memory account is tenable after all. However, the proponent still needs to account for the assertion that the memory he is having is largely true. If he relies on his memory to do that then the vicious circle spins again. Moreover, in relying on memory or any other internal mental content, one also has to compare and contrast likenesses or differences among those episodes, which means that identity does not reside in the mental content alone.

Defending the memory account of personal identity, Shoemaker (1984) has argued for the conceptions of psychological connectedness and continuity. Basically speaking, psychological connectedness is what I have when the memory states that I am having right now are caused by earlier states of an earlier version presumably of myself. Psychological continuity, furthermore, is what I have when my current states are caused by the earlier states in such a way that the causal chain can be interrupted by periods of unconsciousness such as sleep. This undercuts the vicious circle argument because I don't have to actively remember those states I had at an earlier time. However, it is questionable how elements within the causal chain constitute an identity of the same person. It seems to be tenable that my mental states at this time can affect the content of your mental states at a slightly later time, such as when I tell you something and you are then informed by it. This seems to be a standard case of cause and effect relation of mental states, but if this is tenable, then Shoemaker's account of either psychological continuity and connectedness would not seem to be sufficient.

Now we are prepared to discuss identity in the online world. Essentially, the problem of online identity then is: What are the criteria by means of which disparate episodes of postings, comments, video links, etc. that together constitute an online person in a social networking website are unified such that they constitute *the same* (online) person? Note that the online person here is a persona that has been expressly constructed on such venue as social networking sites so as to represent an offline person or the latter's projection of a semi-anonymous entity as we have discussed earlier. An analog of the memory account of personal identity in the online world seems to be that, in order for me to verify that my past episodes of posting, for example, what I posted online a year or two ago, really did belong to me and not somebody else, is that I do remember doing so. I can look up what I did post

exactly 12 months ago (it seems to me now rather difficult to do that because I post so much material on Facebook), and the reason why I know that these postings belong to me, or to my online self, is because I remember doing so. However, the vicious circle argument against the memory account of the offline personal identity should be applicable in the online world too. After all, the structure of the argument is the same, the difference only being the characteristic of the person in question, whether he is online or offline.

Here the memory account, as we have seen, does not seem to do an effective job at providing such criteria. In order for me to remember that these postings on the social networking sites do belong to my profile or my online persona, I would need to be able to relate all these episodes together in a string of memory. But that would mean that the online person requires the existence of myself as an offline person whose memory accounts for the identity of the online person in question. And since the memory account has a problem of its own as mentioned before, namely the circularity problem, relying on the memory of an offline person for accounting for the identity of an online one does not seem to work; any problem that exists with the memory account of the identity of the offline person would still persist when the problem is shifted up to the online world.

It is clear, at any rate, that in the offline world I do have my body, and bodily continuity seems to count heavily for personal identity, especially for those who espouse the somatic or animalist approaches. Even though the popular view that every cell in the human body gets replaced every 7 years seems to be wrong (nerve cells in the brain, for example, never get replaced), there are so many unreplaced cells in the body that talks about the human body itself being more like an event rather than a static thing does not seem to be too far off the mark. The human body indeed looks like an event as there are dynamic activities going on there all the time, ranging from the blood circulating within the body, the firing of the nerve cells, to all the movements of the limb. That the body is usually regarded as a thing rather than an event is due perhaps more to habit and our overlooking of these dynamic activities than otherwise. But if the body is more like an event, then the criterion for its identity and continuity needs to be different from that of a static thing. For example, an event has to have a clear beginning and ending, which in the case of the body, of course, refers to the birth and death of the body and also of the person. Then we have familiar means by which we individuate the body, such as giving it a special status of a human person, giving it a name, a place in the society and community, and so on. These are the means by which the identity of the body and of the person is fixed. That the body is a process shows that it cannot be identified with the self, simply because the self is static (I normally appear to remain the same person, the same self) even though my body is always changing (For another argument in favor of the view that persons are constructs, see Brandon-Mitchell 2011).

Arguing that the perception and judgments of others, or other forms of external evidence such as birth certificates and so on constitute the identity of the person shows that personal identity is fixed rather by external factors than internal ones. This does not simply mean that these external factors are useful in identifying or in keeping tab of a particular person, but these factors are constitutive of the identity of

the person himself. This is so because what it is to be a person himself is constituted by external factors—there are no internal properties of a person such that they succeed in identifying the entity they are properties of as a person. This line of argument is akin to the externalism/internalism debate in epistemology. In their attempts to locate the source of justification of belief, epistemologists have traditionally tried to look at the subject's beliefs, i.e., what lies internal to the subject's own cognitive field, as the source of justification. Thus we find Descartes locating the ultimate source of justification of his belief in the cogito statement through the fact, evident to himself, that it is clear and distinct to him that he thinks and he exists. However, recently many epistemologists have started to look at external sources for the justification. For example, Alvin Goldman has argued for a kind of social epistemology where the source of justification of belief is located outside of an individual and among the social interaction that the individual has with her social environment (Goldman 1975, 1986, 1999). Perhaps in the same way, personal identity has traditionally been associated with internalism—factors thought to be responsible for fixing the identity have come from internal sources such as the subject's own beliefs and memory episodes. However, one could follow the lead of the social epistemologists and other externalists in epistemology and start to argue that external factors are really the ones that fix the identity. For example, instead of trying to find the source of the identity internally, one could broaden out and try to locate the source instead outside of the subject's cognitive domain. A candidate could well be what others think of the subject in question, what their collective behaviors are like such that these behaviors taken together succeed in fixing the identity of the subject. Suppose I am not absolutely certain if the picture of a young 1-year-old that I am holding is that of myself, I can certainly ask my mother. My mother's testimony (usually mothers are very good at recognizing her young child even though decades have passed) will then fix the identity of the boy in the old picture and my own self today. Other clues are also possible; perhaps the picture is associated with some notes or documents that could relate back to me. These notes and documents thus serve as the external factors too. In fact these are the standard methods used by societies to identify persons in real life, such as in solving identity disputes and in courtrooms. Here trust seems to be given more by society to external factors than the merely internal ones of the self report of the subject himself.

It might be objected that these external factors can succeed only in keeping tab of a particular person through time while leaving his or her core identity intact. Suppose there are no external factors at all, the identity of a person would still be intact because the identity does not seem to have anything essential to do with the external factors, or so the objection goes. However, it is difficult to maintain how identity of a person can be understood or conceived of at all in such a situation. In order for something to be identical with anything, even to itself, there has to be a context or an environment within which the identity in question makes sense. Even if one imagines that there is only one thing in the whole universe, that thing has still to be related to the universe in order for its own identity to be conceivable. In fact this is a necessary condition for there to be a *thing* at all. But if that is the case, then it does not appear to make much sense to maintain that identity of a person (or any entity for that matter) could be constituted by that person alone. According to Hegel,

a necessary condition for there to be a thing at all is that it has edges defined by something else existing beyond the edge. Without any edge there would be no thing. In the same vein, a person is also defined through a boundary separating the person from the outside.

In the online world, things do not need to be radically different. We can regard the moment when someone registers their profile onto sites such as Facebook and becomes known to the circle of people who are already on Facebook as the moment when that person is "born." In the same vein, the moment when someone removes their profile from Facebook, thereby ceasing to engage in any activities that are performed by Facebook users, then this can refer to the "death" of that person online. All the activities during these two boundary marks represents those performed by the subject when she is "alive," so to speak. And since it is very difficult in the online world to locate where the subject, cognitive domain is, external factors seem to be the only ones available for fixing identities. In Facebook there are guidelines that one needs to follow in order to be "born" or to "die" there. For example, one has to follow certain rules in order to have one's profile picture show up; one has to register oneself, answer a number of questions, invite friends, and so on. The "birth" of a new user of Facebook can be announced publicly throughout the Facebook world, or it can be a rather quiet birth where the subject comes to be scene quietly without much fanfare. In the same vein, Facebook also has a clear policy regarding the "death" of its user. Formerly it was very difficult, if not entirely possible, to delete someone's profile from Facebook, but after much protest Facebook then allowed someone to delete their profile rather completely. Furthermore, it also enables users to "memorialize" a deceased user. An account that has been memorialized will remain, and the user's close friends can have access to the wall of the account to post their remembrances. Thus, in effect the wall of the deceased and memorialized user becomes a grave where close friends can drop by and pay their respect (see http://www.facebook.com/help/?faq=13016 and http://www.facebook.com/help/?faq=13941). Here, then, the identity of the person on Facebook is constituted through the information that is posed by the person herself as well as what others post about her. These are the activities that take place after the moment when the user is "born" and before she "dies" or removes herself completely from the site. Furthermore, even if she really dies in real life, her posts and comments can still be available, in the same way as the thoughts and ideas of dead persons can be available to us. The postings and comments of the dead person will remain there and there will be no new additions, in the same way as a dead person cannot write a new book.

How the Self and the Person Get Unified

A key problem in analyzing the self and the person has been the problem of searching for a unifier that combines all the physical and mental episodes together to make up a real, substantive self. That I am a person who have a self is obvious, but it is not obvious how my physical and mental episodes are combined to make up my own self. This is known as the "Binding Problem" (see, for example, Searle 1990).

Basically the problem is about how the brain combines various kinds of input so that they result in a single, unified field of vision or an episode of self-conscious thought. This act of combining different types of input by the brain is analogous to the more philosophical problem of how I gather different mental episodes to make up parts of my own self mentioned earlier. The difference may be only on which perspectives the act of binding is perceived. If the activities of the brain are discussed, then it is from the third-person perspective, but it is certainly from the first-person perspective that the latter version of the binding problem is looked at.

However, before we embark on the problem of combining various online episodes in order to make up an online self, we need to discuss first the problem of how to combine the various episodes so that they belong to one overarching self is well known. Kant posited the "Transcendental Unity of Apperception" as a means by which these episodes are combined so that they belong to one and the same subject, which would make cognition (or in his words "judgment" and "understanding") possible (Kant 1997). However, a problem with the Transcendental Unity of Apperception (TUA) is that it is a purely formal concept, and does not contain any particular information that pertains to any particular individual. According to Kant, "it must be possible for the 'I think' to accompany all my representations" (Kant 1997: B131–132), meaning that it must be possible for me to be conscious of all my mental episodes; otherwise it would not be possible for me to be justified in asserting that these episodes are mine. But what is very interesting here is that Kant is not arguing here that there must be an objective self, the "I" which "thinks," for to posit that would be to commit oneself to a metaphysical argument which lies beyond the scope delimited by the critique of pure reason. Kant is instead putting forward a transcendental argument here. A transcendental argument is one that accounts for a condition of possibility of a certain phenomenon; its point is that, for the phenomenon to be an objective one at all, or for it to be even possible, certain conditions must already obtain. The transcendental argument does not show *tout court* that the phenomenon exists objectively; that would run against the spirit of the critical philosophy. According to Kant, the transcendental concepts are necessary condition of their being objectivity in the world at all. That there is empirical objectivity is taken by Kant to depend on the objectivity of empirical knowledge which yields us knowledge of the empirical world. However, that knowledge depends, according to Kant's Copernican Revolution, on the set of pure concepts of understanding which are found to operate a priori and function as the condition of possibility of the empirical knowledge in question. For example, in arguing about causation in the Second Analogy (Kant 1997: A189–211; B232–256), Kant's point against Hume's devastating attack on causation is that there are conditions of possibility of causation, such as if an event A were to be the cause of another event B, certain conditions need to obtain, such as that both A and B need to be able to be subsumed under the pure concept of understanding of logical relation. Kant does not rebut Hume directly; he does not argue that Hume's conclusion is directly false. That strategy is closed to the critical philosophy. Kant cannot just argue that there is objective causation in itself because that would be to argue for some properties on the side of the thing in itself, which is not possible in his system. What he does

instead is that he argues, in the Second Analogy (Kant 1997: A189–211; B232–256), that, if we are to be able to maintain objective knowledge, we need to posit the concept of cause and effect. Hence the concept does apply objectively to phenomena. In the same vein, Kant argues that it must be possible for the 'I think' to accompany all my representations. The move here is that objective knowledge requires that there be a consistent self who somehow combines all the different episodes of sensory input together to make a coherent whole. Without such a self then objective knowledge would not be possible in the first place. He does not argue categorically that the "I" has to exist; what he says is that the "I" needs to exist as a condition of possibility for relating disparate representations into a coherent whole, which in turn is necessary for there to be objective knowledge. What the "I" is doing here is nothing more than a place holder, a formal factor that serves to unify various representations together so as they belong to a coherent self.

This is of course not a place to examine Kant's philosophy in any detail. But if the "I" of the Transcendental Deduction here functions as a purely formal unifier, then this "I" would be devoid of all and any characteristic that would qualify it to be the "I" of any particular person whatsoever. All it can do is to perform this purely formal function, which must be the same for everybody. In short, the "I" here functions as the Transcendental Unity of Apperception (TUA). Thus, my TUA is exactly the same as your TUA, since both function in the same way and cannot contain anything unique to either me or you. In fact this is to ensure objectivity of knowledge in Kant's system. If my TUA and your TUA are different, that would mean that the uniting functions at work in my cognition and in yours are different. A consequent of that would be that my and your TUA are different concepts, which would entail that objectivity is lost. Anything unique would be empirical and cannot be part of the TUA. If this is the case, then Kant's TUA is too general and cannot perform the work expected of the individual self. If the TUA at work in my cognition is one and the same as yours, then there is no point in maintaining that the TUA is a foundation for a conception of a self or of personal identity since in that case you and I would be one and same person because we both are founded upon the TUA which is necessarily the same in both of us. In other words, one cannot rely on Kant's transcendental argument about the "I think" here and use it to argue categorically that the self does exist as an objectively existing being.

It may be objected, however, that the Transcendental Unity of Apperception might succeed in identifying a person after all, since it specifies a range of possible mental episodes such that some episodes may belong to me and some may not, thus the TUA delimits what it is in fact to be me and not others. According to this point of view, the structural relations specified by the TUA are responsible for me being a person at all, and hence, according to this view, the TUA then specifies a range of states and events that do and do not constitute me. This then implies that the TUA succeeds in specify a unique person after all. However, the TUA cannot achieve this, since in order for it to be able to identify a particular person, A, and not another one, B, it has to contain empirical conditions which alone are necessary in distinguishing A from B, but the TUA, being transcendental, cannot contain any empirical input whatsoever. What the TUA can achieve is only for A to be certain that he is a unified person such that he can combine his various mental episodes

under the rubric of "I think" because if he could not have done so he would not have had the objective empirical knowledge that he is certain of having. What goes for A certainly goes for B, as B can be certain of TUA at work so that he can combine his own episodes to constitute his own "I think" which combines his various representations too. The TUA, then, cannot choose which representations do belong to A and not to A, because that would presuppose the unity of A from the beginning, while in fact the only work that the TUA does is to function as the condition of possibility for A to have objective, empirical knowledge that he is certainly of having.

Hence, any attempt at finding the overall unifier of the mental episodes for a particular person falls under the empirical side of things (because once a candidate for the unifier is identified, it then falls under the category of a mental episode which is being thought of, which then requires another subject to think about it, and so on), or under the purely formal schema such as Kant's, which is empty. An upshot, then, is that any attempt to bind up the episodes is always provisional and cannot escape from being itself yet another mental episode. When one attempts to bind up one's own episodes, one is then conscious of yet another episode whose content is about the binding, but then that becomes another mental episode in need of further binding. Consequently, the offline self is a construct in the sense that it is not there objectively or ontologically. It is something "made up" in order to facilitate daily living of any human being. For example, it would be much easier for me to refer to you, using your proper name, if you stay relatively stable throughout some period of time, even though analysis shows that there is ultimately speaking no real "you" in the ontological sense. What I and others take to be "you" is a social construct not too dissimilar from Searle's example of a bank note whose value is also a social construct (Searle 1997). In other words, the value of the bank note does not reside ontologically in the material itself, but sociologically through agreement among members of society that this particular type of a bank note has such and such monetary value. In the same vein, when I refer to you, calling you by name for example, I am abiding by certain social conventions that recognize that, relatively speaking, there is a certain person behind the persona that I am now perceiving.

But if this is the case, then it is also similar for the online self. We have seen that the online self as a kind of persona that an individual makes up as a front to present himself or herself to the world, and sometimes the individual may intend itthat the persona assume an identity of its own, without being able to refer back to the real person behind, as we have seen earlier from the Thai examples of online persona in social networking sites. This online self, then, is nothing more than a representation that the offline self creates for a variety of purposes. One is reminded here of those who construct various versions of their selves online, such as one for the family, another for the workplace, yet another for his highschool buddies, and so on. The online self, then, is not a collection of memories and thoughts of a particular person which, according to Singularitarians such as Ray Kurzweil, can be uploaded onto a giant server and represent the essence of an individual person (Hodgkinson 2009). Nonetheless, the online self is also made up of physical and *mental* episodes. The physical episodes are easy enough to understand–bits of electron working together to present images, sounds, and texts on screen. But the mental episodes are also

there, as we can gauge what the persona (or in other words the online self) is thinking or feeling through her use of language and other symbols (such as emoticons) through the Internet. These episodes also need to be connected together in order for us to form a more or less coherent picture of a self working behind. Here one also finds an analog of the Transcendental Unity of Apperception in the online world too. Just as in the offline world, the analog of the TUA in the online world functions to bind the different episodes of postings and comments together so that they belong to one person. It thus functions more as a regulative agent working as a condition of possibility of there being a coherent self behind the various representations constituted through images and texts that are posted online. So the analog is something like this: "It must be possible for the 'I think' to accompany all my postings of links, images, videos, comments, etc. on the social networking site; otherwise no coherent self does not emerge which is necessary for there to be social networking at all. In short, the Transcendental Unity of Apperception is a condition of unity of a person, but not of identity.

In other words, the TUA does not seem to succeed when it comes to securing uniqueness of a particular self or of a particular person. What the TUA does is that it gives me, for example, a means by which I can be certain that I am a coherent self and that all the representations that are flitting across my brain or my cognitive field are indeed mine. However, what the TUA does not do is to identify me as someone who is distinctly different from another person. Since the TUA is a purely formal apparatus, it cannot do this job, because what makes me a unique person, such as someone who is teaching philosophy and who is interested in many subjects and so on, cannot be contained in the TUA function that I have. Identity is not the same as uniqueness. There can be several things each of which are of course identical to itself, but without uniqueness all these things are just a bunch of entities sharing all properties in common but having no unique identity of its own (i.e., the characteristic of being itself alone and none other). This is not something that can be accomplished by the TUA. Hence, in order to account for my uniqueness, external factors need to be considered too. For example, in order for me to be certain that I am unique, I usually refer to the set of characteristics that only I have and are shared by no one else. Since the TUA functions in exactly the same way in all the selves and all the persons, it cannot specify uniqueness.

Conclusion

We have seen from the discussion above that the most intimate thing that we can have, our own persons and our own selves, are being affected significantly by the technologies. Many people are constructing their own alternate personas online; even in social networking media, which are assumed to be a place where one reveals oneself to others, are also being used in such a way as to present entirely new personae to the public. These personae do share deep seated metaphysical affinities with the real-life, offline individuals, and the strategies used by those in the offline world to construct their identities are also used in the online world. I have argued that personal identity is constituted more by external factors such as social

perception and various sorts of documentation and physical traits than by the internal ones such as memory and the subjective feeling of being oneself through time. However, this does not seem to carry over for the identity of the self, since this is more a matter of being referent of the first-person pronoun, which points deeply to the sense of being the subject of the various thoughts and feelings. Kant's view on the Transcendental Unity of Apperception might at first sight be able to explain how the identity of the self is fixed, but as we have seen Kant's view succeeds only in fixing identity, but not uniqueness. It seems that external factors are still required for the latter.

In the online world, things are again similar. We can find an analog Kant's TUA in the online world. There must be something functioning as the 'I think' that binds up all of the various texts and images posted online as belonging to one and the same self. This binding, again, does not have much to do at all with the content of what is posted. For that we need the external factors to construe their meanings and how they are received and perceived by the community of other online users, who all together form the social network. But if all this is tenable, then the two worlds—online and offline—seem to collapse into one, and we cannot really tell this collapsed world to be either strictly one or the other.

Acknowledgments Research for this paper has been supported in part by the Commission on Higher Education, Ministry of Education, the Thailand Research Fund, and a grant from the National Research University Project, project no. AS569A.

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A Buddhist Perspective on Human Enhancement and Extension of Human Lifespan

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Abstract

Buddhism has nothing in principle against either human enhancement or lifespan extending technologies. Everything depends on motivation. In the case of human enhancement technologies in general, the argument that enhancing humans is unethical because it commits an unnatural act is found wanting because it relies on the premise that the natural and the ethical are identical, which is not tenable. However, Somparn Promta's argument to the effect that in Buddhism there is no unnatural act is criticized because the argument conflates two different senses of "natural," one being natural law and the other presupposed in the premise that the ethical and the natural are identical. Then the chapter moves on to discuss the central idea in Buddhism concerning the emptiness of all things. Since there can be no essence or core of identity of anything, person or non-person, any argument based on there being a subsisting person whose body is to be enhanced or whose life is to be extended is based on an untenable premise. Then the chapter discusses Steven Horrobin's recent attempt to base the value of the extended lifespan on the ability enjoy more pleasures. This is also found wanting because the extended life will contain not only pleasures but also pain and boredom. Moreover, the value of life, either extended or not, lies more on how well it is lived rather than how much pleasures the subject can consume.

Keywords: Buddhism, human enhancement, aging, longevity, human lifespan, self, identity

Introduction

This chapter proposes to discuss the Buddhist viewpoints on human enhancement and extension of human lifespan. Current technologies are being developed with the aim of providing bodily and cognitive enhancements of human

beings in very significant ways. Developments in human-computer integration, made possible by nanotechnology and increased understanding of the workings of the inner mechanisms of the brain, have made scenes in science fiction a likely scenario in the near future. There are many applications of these technologies; for example, patients suffering from memory loss due to the decrease in the activity of the brain can have those functions enhanced or restored through implantation of computer chips inside the brain itself, so that the neurons and the switches inside the chip can become integrated and interact with one another seamlessly. Further research has also been being done on how to restore sights back to blind people through integration of artificial eyes that transmit visual information to the brain or to restore the lost functions of the visual processing parts of the brain itself.

Another area of research on extending human capabilities focus on extending the lifespan itself. Recently there has been much increased understanding of the mechanisms underlying the aging process, and there is a hope that one day humans could live indefinitely through mastering the art of manipulating these aging processes and stopping them before they happen. This requires the same kind of sophisticated technologies that are being developed for physical and cognitive enhancements alluded to above. Futurist Ray Kurzweil, for example, is foreseeing the day when human beings will become "transhumans" or "posthumans," both terms signifying an emergence of a new type of organism, one that will perhaps supersede human beings as all of us are familiar with. According to Kurzweil, it will be shortly possible for a human being to upload all the content of his or her mind onto a huge server, only to be downloaded to a new body when the opportune moment arrives. In that way it is foreseen that human beings (or a later version thereof) can live indefinitely. Death will be a thing of the past, an episode of history.

Though these research works are at their beginning stages of development, they carry strong potentials for altering the lives of us human beings forever. Moreover, it is not only the lives of individuals that will be affected, but human societies as a whole will be significantly affected too. These enhancement technologies will have tremendous impact on human relations. When only some groups of humans are enhanced and others are not, inequality among the groups will widen, and this surely entails a host of social, cultural and political problems. Furthermore, even among the enhanced beings themselves, there will be changes in how they are related to one another. For example, when one's lifespan is increased significantly, there will need to be changes in life insurance schemes and patterns of retirement age regulations. These are just small examples in the changes in the characteristics of society due to enhancement technologies.

It is the aim of this chapter to reflect on these developments through the lens of Buddhist teaching.[1] Even though there are many schools of Buddhism, chief among whihch are the Theravada and Mahayana traditions, what is offered here is a common

1 There are a number of fine introductions to Buddhist philosophy. One is Mark Siderits (2007); another is Gethin (1998). These works, nonetheless, do not even scratch the surface of the enormous amount of literature on Buddhism and Buddhist philosophy.

thread that runs through all Buddhist schools. Both Mahayana and Theravada schools accept that the self as an inherently subsisting and enduring entity is ultimately non-existent, and it is this thread that is relied on as the basis of Buddhist thought presented in this paper. Furthermore, one of the most important aspects of Buddhist teachings both the Theravada and Mahayana schools is that the emphasis on motivation as the basis on which ethical value of action rests.. Thus according to Buddhism action such as enhancing the physical and cognitive functions of humans or extending their lifespan is not good or bad in itself, it is the motivation behind the act that is ultimately responsible. The basic saying in Buddhism is that when the motivation is good or "wholesome" then the act is also good, and vice versa, and a motivation is good when it is directed at the well-being of other sentient beings and away from the egoistic attitude of the subject. Another important aspect of the teaching is that the subject itself is constituted not by a self-subsisting self or soul as in other religions, but by a series of ever changing episodes of bodily and mental activities. This point has a very strong impact on much of the motivation behind enhancement and lifespan increasing technologies. These technologies are perhaps motivated by the desire to be stronger, more intelligent and to live longer, but all these are effects of the ego itself. It is the ego that wants to be stronger, to be more intelligent, and to live longer and ultimately without end. According to Buddhism these are very unwholesome indeed.

Another point concerns the conceptual issue of extending one's lifespan itself. In attempting to increase the lifespan, it seems to be the individual ego that wants to extend its stay in the world for as long as possible. The thinking behind this seems to be that it will be the same ego that is living now in the year 2011 that wants to be the same ego that is around in, say, 2081. But according to the Buddhist analysis this is clearly impossible as the ego does not stay the same from a moment to another moment, and there is no underlying entity that remains unchanged behind all these changes. This is a metaphysical point, and the chapter will try to present this point in philosophical terms, aiming at providing an logical argument showing that the ego does not stay the same through time. This, if true, will show that the motivation for extending one's lifespan or to increase one's physical and cognitive abilities simply to extend the duration or the existence of the ego is always a wrong one because it is based on a wrong conception of reality.

However, this does not mean that Buddhism is opposed to human enhancement or increased lifespan on the whole. It is only opposed to performing these out of wrong or unwholesome motivations. When these technologies are used on humans for altruistic purposes, then they can do really good things for both individuals and their societies. The hard part lies in how to spell out in detail how the use of these technologies for altruistic purposes are.

Human Enhancement

According to the EU document on the issue, human enhancement is defined as

"a modification aimed at improving human performance and brought about by science-based and technology-based interventions in the human body" (Directorate General for Internal Policies, 2009). Basically speaking, attempts at enhancing humans originated from attempts to restore the human body and human functioning that has been lost due to illness. Thus enhancing or restoring can be performed through the use of medication, surgical means (for example in case of restoring the use of limbs), implanting device to restore sight or hearing, and other measures. As technologies aimed primarily at restoring the human functions are being developed, it is but a short step until someone imagines that the same technologies can also be used to *enhance* human capabilities in the way that may exceed those of a normal, average human being. For example, a drug may, *prima facie,* be developed with the objective of treating the memory function of the brain, which has been lost through illness such as Alzheimer's. However, if the efficacy of the developed drug is such that it can be used in normal people so that they have more powerful memories, then the issue seems to exceed that of normal medicine. It is here that the ethical questions surrounding human enhancement are centered. There seems to be a basic conceptual distinction on this issue between the therapeutic purpose of enhancing technologies and their newer, non-therapeutic and *augmentative,* purposes. Due to the latter, the goal of the technologies is not merely to restore the normal functions, but to push the boundary of what it is to be a human being, possibly in the future even to create an entirely new kind of being itself.

However, the distinction between the therapeutic and augmentative purposes of human enhancement technologies has been criticized by some as not being very clear cut, since it is the same technologies that can be employed on both sides, and since the very concept of a *normal* human being can be a contested one. This shows that the most salient ethical issue surrounding human enhancement is the question what constitutes a normal human being. What most people find objectionable about human enhancement is that the technologies are poised to create a new kind of human being, one that, essentially, is different from the kind of human being with which everybody is familiar. Talks about human enhancement seem to conjure an image of a grotesquely big and powerful human body, one which is significantly different from a typical human, and this seems to the source of the uneasy feeling. The feeling of unnaturalness as a source of ethical concerns cannot easily be discounted, because it seems a natural reaction for someone to find ethical objectionable an image of a human being which is very different from the norm. Here the assumption is that the ethical lies with the normal. Any attempt to diverge from the norm, to create a kind of human being that is too different from it, would simply be unethical. The story of Frankenstein is a very good example of this sentiment. The doctor who created the monster committed an unethical act because he tried to overcome nature. By creating the monster, who is at the opposite end of what a human being should look like, the doctor violated the ethical norm which is implicit in our deep rooted judgment that to create something different is unethical. This feeling that the ethical coincides with the normal is also a leading cause of the public backlash against the genetic modification technologies. It is not a surprise to find people labeling food created through these technologies "Frankenstein" food. The root cause is one and the same.

On the issue of human enhancement technologies, what seems to be ethical objectionable at the first sight is the possibility that humans will be created which violate the view that the ethical and the normal are coextensive described above. If the purpose of the enhancement is not therapeutic, then, given the predictably more widespread and powerful technologies in the near future, it is quite likely that many of the enhancing technologies will become routine, with the consequence that a new type of human being, if not a totally distinct kind, will emerge. This will certainly violate the assumption that the normal and the ethical are one and the same. For example, it is conceivable that a drug will be available which significantly enhances memory capacity of those who take it. So when the drug is in general use, we will have a new type of humans who have more powerful memory than those who do not take the drug. If a critical threshold of number of those who take the drug is crossed, then even the conception of what constitutes the 'normal' itself could change. In this scenario, the 'normal' will be those who take the enhancing drug, leaving those who don't to be branded as out of the normal range instead. Those who find this scenario ethical objectionable typically reasons that the new norm is unnatural; hence it cannot be an ethical one.

Another ethical issue concerning human enhancement concerns groups of people rather than individuals. Suppose a group of human beings are enhanced in one way or another. Suppose, for example, that the group takes the memory enhancing drug on a regular basis. What will happen will be that there are other groups who might not be as fortunate and do not have the opportunity to take the drugs regularly. The result could be that, in the long run, the group that take the drug will enjoy more cognitive and memory capabilities than those who don't. This will surely be a recipe for segregating human beings into distinct groups, only that this time the issue that separates one group from another is not entirely socio-cultural, but physical. This is tremendously important, as the physical characteristic that separates one group from another (such as the ability to perform cognitive functions) will remain inside the bodies of the human beings themselves, whereas in the old days socio-cultural characteristics (such as the fact that one is born to such and such family) are not physically there in the bodies themselves. It is true that certain physical characteristics were used in the past to segregate people into groups, such as skin colors and so on, but with the enhancement technologies the segregating characteristics will be those that enable those who possess the new found abilities to perform tasks that might not be possible for those who are not so enhanced. This is in stark contrast with the earlier physical characteristic such as skin color which was not relevant as a marker of more enhanced capabilities. The group who take the memory enhancing drug will be in theory be able to remember more things and remember them more clearly than those who do not take the drug. This different was not available for those with different skin colors or belong to different ethnic groups. Hence it appears that the human enhancement technologies have a much more serious impact on the issue of equality among groups of people than any natural physical characteristic ever could.

Of the two main ethical concerns surrounding human enhancement—the view that the normal and the ethical are one and the same, and the other view that the

technologies could segregate humans into unequal groups—the former one is more basic. We can imagine a scenario where every human being gets the (putative) benefits of the technologies, so nobody will be left out. In this case there will be no inequality among the people since everybody will become equally enhanced. However, even if everybody is enhanced in the same way, the first ethical objection seems to remain, because in this case everybody then deviates from the norm, so the whole thing becomes unethical.

A Buddhist Response

We will discuss each of the two main ethical concerns of human enhancement and see how the Buddhist responds to them. The first issue, as we have seen, concerns the identification of the normal and the ethical. On this topic, Somparn Promta has argued that according to Buddhism nothing is in fact unnatural. That is, Promta sees that in Buddhism there is nothing unnatural since everything has to follow natural law. Creating a Frankenstein is a natural act since the creation has to follow natural law and the result, Frankenstein himself, has to be an object in the natural scheme of things. Here is what Promta says on the issue:

> In Buddhism, morality can be separated from the concept of being natural because according to Buddhist teaching it seems impossible to say that such and such a phenomenon is unnatural. Buddhism proposes that the moral goodness or badness attributable to any action depends solely on the moral properties. Actually, Buddhism does not think that there is anything unnatural. Buddhism believes in the Five Laws of Nature as we have observed previously, and thinks that there is nothing which is beyond these laws of nature. In Buddhist texts, for example, reproductive methods other than the sexual one we are acquainted with are mentioned. For those of us who never perceive such methods, they could be considered unnatural. But they are natural in the sense that they are permitted to appear in the universe through any of the five natural laws (Promta, 2005).

The Five Natural Laws mentioned in the quote above are: physical law *(utuniyama),* biological law *(bijaniyama),* law of action *(kammaniyama),* law of mind *(cittaniyama),* and law of dhamma *(dhammaniyama)* (Promta, 2005). In short, these laws represent all action in nature, both physical and psychological. Physical law refers to what is happening in the physical world. Biological law refers to what happens in the biological world; thus genetic inheritance, for example, belongs to this law. Law of action refers to the relation of cause and effect that obtains in the world. The fourth law, that of the mind, covers action of the mind and the relation between the mind and the world, while the last law covers everything else. We don't need to concern ourselves with the details of each of the laws here. Suffice it to say that these laws cover everything in the psycho-physical world. According to Promta, nothing is unnatural in Buddhism because everything that happens does so according to one or more of these five laws. Furthermore, he argues that, since nothing is unnatural, any argument purporting to show that an action is ethical because it leads to unnatural result is not tenable as it rests

on a false foundation. Promta uses this argument to claim that human genetic research, for example, is not unethical in itself because the research necessarily follows natural laws.

It is quite clear that this argument rests on an equivocation of the meaning of the word "natural." On the one hand, things in the physical world proceed according to natural laws; this much is totally uncontroversial. On the other, however, when someone makes an argument to the effect that an action is unethical because it leads to unnatural products such as a grotesquely enhanced human or others of such kind, he or she is not referring to the natural law, but the fact that the resulting product is out of the range of the normal for a thing of such kind shows that it is unethical. When one creates a thing as grotesque as Frankenstein, the act is unethical precisely because it distorts what has come to be agreed upon as normal. The fact that creating Frankenstein is only possible through reliance on natural laws is not relevant on the ethical value of the act. It may be the case that Buddhism teaches that everything happens according to natural laws, but that does not imply that acts which create grotesquely unnatural thing are for that reason an ethical one. What constitutes ethical value of an action in Buddhism is not whether the action is natural or not.

In Buddhism what determines the ethical value of an act is not its functioning according to natural laws, but the motivation behind the act itself. An act, considered in and of itself, is neutral regarding its moral value; it is the motivation of the one who is doing the action that is important. If the motivation is such that it leads to harmful results, than an act is an unethical one, but if the motivation is for beneficial purposes, then the very same act can become ethical. Buddhist ethics is sometimes regarded as a consequentialist one, but an important difference from a standard consequentialist ethics is that Buddhism pays much more attention to the motivation behind an act, and it is the motivation that is more important in determining an ethical value of an act rather than purely the consequences. For example, in developing a human enhancement technology, such as one that enables a human to hear better. The act can be a good one just in case the motivation is for the good of everyone as a whole, such as when one tries to develop the technology in order to help deaf people. However, if the motivation is a selfish or narrow-minded one, such as developing the technology out of the desire to gain monetary benefits just for oneself, then it is unethical.

Sometimes, however, the motivation can be mixed, as in the case where one develops a technology that helps the deaf, being motivated both by the desire to help the deaf and to reap material rewards out of the attempt. In this case Buddhism would say that the action would be both ethical and unethical. It is ethical just to the extent that the act is performed out of altruistic motivation, and it is unethical just in case where there is a selfish motive. There is no direct contradiction here since each of the ethical values are dependent on their respective motivations. Since the motivations can clearly exist alongside each other (one can certainly intend that one's creation benefit both the deaf and oneself), the resulting ethical values do not necessarily conflict either.

In one of the most important passages in the Buddhist Canon, there are the

following verses that emphasize the supreme role that the mind plays in determining the value of an action:

> Mind precedes all mental states. Mind is their chief; they are all mind-wrought. If with an impure mind a person speaks or acts suffering follows him like the wheel that follows the foot of the ox.
>
> Mind precedes all mental states. Mind is their chief; they are all mind-wrought. If with a pure mind a person speaks or acts happiness follows him like his never-departing shadow (Yamakavagga, 2010).

This passage opens the *Dhammapada*, one of the most widely read Buddhist scriptures. It says that the mind is the most important thing; everything proceeds from the mind and everything also is made up by the mind. Thus if the quality of the mind is not pure, such as when one performs an action with selfish attitude, or with one or more of the defilements such as greed, anger and delusion, then the act itself cannot be said to be pure. On the contrary, if the quality of the mind is pure, then the act itself will also be pure. The act in both cases here can well be one and the same, but it becomes vastly different in terms of its ethical value due to the quality of the mind that is involved. Thus, in the case of human enhancement technologies, what is at issue is not the act *per se,* but the quality of mind behind it.

If this is the case, then what about an act such as enhancing soldiers to become more powerful than ordinary human beings? Could such an act be ethical according to Buddhism? This question can be asked in another way, which is: Could there be a positive, altruistic motivation behind creation and enhancement of human soldiers so that they are more powerful than their enemies? Could there be a good motivation behind an act of war at all? The answer is yes. We could imagine a situation where creation of robo-soldiers who are half machines-half humans for certain altruistic purposes. Perhaps in a very unlikely case of earth being invaded and attacked by very technologically advanced alien species, robo-soldiers of this kind are really needed. And the motivation behind this is certainly an altruistic one of saving humankind from devastation. On the contrary, if the reason behind the creation of enhanced humans is not an altruistic one, but the opposite, such as when one enhances one's body in order to defeat others for the sake of material gain only for oneself, then the act is certainly an unethical one according to Buddhism.

Extension of Human Lifespan

One of most interesting applications of human enhancement technologies concerns how the technologies will be used to extend the length of human life. Knowledge and technical knowhows are being developed in such a way that humans can extend their lifespan beyond what has been hitherto possible. This requries highly advanced knowledge into the working of the human body at the cellular and molecular

level, something that is being done with the development of nanotechnology and human enhancement technologies. As is the case with other applications of human enhancement technologies, the goal is not only to restore the normal function of a healthy human body, but to enhance it, in this case in order that the normally aging body will function in the same way as does a healthy, youthful one. Humankind has searched for millennia for the fountain of youth, something which promised to defeat the most feared enemy of life, namely death itself. Recent advances in sophisticated technologies have appeared to make this age-old search closer to reality.

As with the other applications of human enhancement technologies, the normal application is focused on treating diseases and disabilities that afflict human beings as they get older. Diseases such as Parkinson's or Alzheimer's attack humans when they get old, and technologies are being developed to combat them, mostly by studying the working of the brain and to restore its functions through various means. For example, chips can be planted inside an elderly's brian so as to help the brain function normally. This will prevent brain deterioration and thus postpone the time at which the individual becomes senile. Here it is quite clear that the line between the restorative or therapeutic function and the non-therapeutic, enhancing functions of human enhancement technologies are becoming blurred. The problem lies in how one can specify, clearly and objectively, exactly what is the normal functioning of the brain and what is the goal that restorative technologies should aim for. What, exactly, is the "normal" level of brain functioning for someone who is, say, eighty-five years old? Should the brain of a "normal" 85-year-old function in a slightly less efficient manner than the brain of a 25-year-old? If this answer is no, then the goal of restoring the brain function might specify that the ideal functioning of the brain should be the same as that of a healthy 25-year-old. However, to "restore" the brain of an 85-year-old so that it functions exactly as well as that of a 25-year-old could also be regarded as an "enhancement" beyond what is normal for people of that age, as what is "normal" for an 85-year-old is, naturally, a brain that is less effective than its younger counterpart. But if this is not accepted, if, instead, the goal is set at the functioning of a 25-year-old brain, then there would not seem to be any barrier against an attempt to extend the capabilities of the brain even beyond that of a 25-year-old, perhaps to extend it beyond any brain of any naturally existing human being. Again all this hinges on our conception of what is "normal." If it shifts, then the distinction or the line between restorative and purely enhancing technologies will shift too.

So in a nutshell, the ethical problem of human enhancement technologies with regarding to the elderly and extension of lifespan is this: Is it ethical to use the technologies in such a way as to extend the lifespan of an individual further and further? Does so extending the lifespan mean that we humans are again doing something that is unnatural, hence unethical at least according to some views? These questions are difficult to answer without a clear conception of what constitutes the normal functioning of an elderly human being. If, as is likely, one is to insist that the normal functioning of an elderly should be exactly the same as that of a healthy, youthful human being, then one seems to admit that enhancement beyond what is therapeutically required is all right, since there is no clear line between the two to begin with.

The ethical value of extending lifespan can be determined roughly in two ways. The first way is to look at death itself. If death is something to be avoided at all cost, then extending lifespan for the purpose of avoiding death seems to be tenable. If everything else is equal, one should always choose living rather than death if death is always to be avoided according to this point of view. Epicurus is well known to have a view on death such that death can be nothing to us, because when we are living, death does not occur to us, so death is purely negative when we are living and thus can be nothing to us. However, when we are dead, we are no more; in other words we are totally non-existence such that there will be no "we" such that death can be anything to us at all. If this argument is sound, then death cannot be a factor in any argument at all, including the one that death is to be avoided mentioned earlier. But if this is the case, then any argument in favor of extending lifespan cannot depend on the fact that we would like to avoid death.

A Buddhist Response

Steve Horrobin argues that life has an intrinsic value such that it is always desirable to extend the lifespan and that since the person himself or herself is a process rather than an entity, lifespan extension has an "inalienable" intrinsic value (Horrobin 2006a; 2006b). Extension of lifespan enables the person to realize his or her potentials and to live out all kinds of dreams and goals that would not have been possible if the lifespan were limited by normal biological nature. In other words, according to Horrobin one should always strive for extending one's lifespan because not only is life intrinsically worthwhile in itself, but the extended life would make it possible for one to become anybody or to enjoy any kind of pleasures that life has to offer. Horrobin's example is particularly telling:

> Consider the notion and ideal of a Renaissance Man. A person fully integrated with their cultural milieu was once at least *possible*. What hope now that a single person may within the scope of their lifetime understand or know all concerning even the single discipline of biology, let alone further and other realms of knowledge? The harsh and bitter rigours of the Procrustean lifespan cut us off, *increasingly*, from the possibility of integrated experience and understanding of our own created realm of culture and of knowledge (Horrobin 2006a, p. 286).

So Horrobin would like to be able to experience all things, know all things and perhaps to enjoy everything possible that life has to offer in its unlimited variety. In the past the ideal of the Renaissance Man was taken seriously because it was then still possible for one person to master all fields of knowledge and to enjoy all kinds of artistic creations that were in existence at the time. However, in today's world that has not been possible at all because of the tremendous explosion in all branches of knowledge and in creative works, so there is simply not enough time for an individual person to master them all. Out of this Horrobin then argues that life is worth being expanded indefinitely. Given that the current human enhancement technologies might start to make this seemingly

unrealistic scenario a reality, this demands a response from the Buddhist. In a nutshell, Horrobin is arguing that life is intrinsically valuable because it gives us the chances to enjoy so many things; hence extending life is valuable because it gives us more chances. Ideally becoming immortal would then be the ultimate good because it gives us an unlimited amount of time to experience and to enjoy an unlimited number of things.[2]

Note that Horrobin emphasizes one's *experiences* and *enjoyment* of life that requires that there be one and the same person who does the experiencing and enjoying. For Horrobin it is not possible for there to be a series of persons who live successively and who experience things in turn. The reason is that some kinds of enjoyment require that one spends a long amount of time on education and training which would make it possible for the person to enjoy those things in the first place. A person may not be able to appreciate the intricacies of Bach's music on the first hearing, but after repeated trainings and experiences the person may start to enjoy Bach's music fully. Hence if there are a series of persons, each of whom has to start life from birth and infancy, then, given the limited lifespan that the idea of series of persons presupposes, then there is simply not enough time to undergo all the trainings so that one be able to experience many sophisticated artistic works to the full. Thus Horrobin's view requires that there be one and the same person whose lifespan should be expanded.

This view is in stark contrast to the Buddhist one. Firstly, Buddhism holds that even at one moment or at one particular point of time it is untenable to hold that there is one and the same person, since at any time the person himself or herself is a process, something comparable to a flowing river, which cannot be pinpointed as being one and the same across time. Thus the Buddha and Heraclitus share this important aspect of their thinkings in common; when Heraclitus says that one cannot step in the same river twice, he could almost become a Buddhist. Horrobin, however, may object that his view does not require that a person must be a self subsisting entity. In fact Horrobin argues that his view of the person is that the person is a process and it is by virtue of the person's being a process that lets him or her enjoy and experience all that life has to offer (desirably indefinitely) (Horrobin 2006a; 2006b). However, as Horrobin's argument against the series view of persons makes clear; in order for one person to be able to enjoy and understand all of Bach's music, one has to undergo rigorous musical training, and in order to enjoy *all* of Bach's music and its perhaps unlimited depth in full, one has to be able to live longer than a normal human being does. Hence a person may be a series but Horrobin's view requires that the person in question has to be one and the same; in other words even if the person is a process, there has to be a core behind this process which enables the process itself to be part of *one and the same* person. Without such a core no carrying over of identity across time is not possible. For Horrobin the desired picture is that of a man or a woman who can live, say, for two hundred years or a lot more, enjoying all the niceties of life and learning all the

2 Being immortal in this sense is different from what Floridi (2008) describes as being 'e-mortal' where an "artificial companion" acts as a surrogate to a person and could even survive the person himself due to large memory storage that contains the person's private information. In Horrobin's sense, being immortal here is that of flesh and blood. It's our own body that borders on being immortal, and not of any surrogate.

knowledge that there is to be learned. The man or the woman here, then, has to be *one* person.

This is the type of view that the Buddhist has troubles with. A key component of Buddhist philosophy is that for any thing whatsoever, one cannot find a substantive core for such a thing such that it functions as the seat of identity for the thing itself. In other words Buddhist denies that there be anything comparable to Aristotle's "the what-it-is-to-be" or an essence that functions as the core identity of a particular thing. This is the main contrast between Horrobin's view and the Buddhist's. In arguing for the kind of person that is able to enjoy all the experiences that the extended lifespan will bring, Horrobin presupposes that there must be an enduring person, even though he argues that the person is essentially a process. The Buddhist, however, refuses to acknowledge that there be such an enduring person. Instead what we normally take to be a person, for example when we refer to others using personal pronouns, is only, ultimately speaking, what appears to our perception and functions in our daily lives as though they are enduring entities. Behind these appearances, however, there are nothing but episodes of mental and physical events that all together make up, to the perceiving mind, the appearance of a person.

There is obviously not enough space in this paper to lay out this important Buddhist view in any detail. But at least we can see that the Buddhist arrives at this conclusion about the person and indeed everything else through analysis. When one pares down a person one finds nothing that functions as the core that serves as the seat of the identity of the person himself or herself. For example, when one pares down someone's body, one finds nothing but bodily parts, none of which looks like the core seat of identity. The brain seems to be the most promising candidate, but even the brain, physically speaking, is nothing but a blob of fatty tissue and does not look remotely like the person whose brain it is. Alternatively, the analysis might also be directed at the mind. But when we inspect our own mental content (it is not possible to observe someone else's inner working of the mind yet.), one finds that the content consists of ever changing episodes of mental events, such as memories, desires, passing thoughts, plans, ruminations, and so on, none of which looks like the core seat of identity either. Thus the Buddhist concludes that the belief that there be a core seat of identity which functions as the essence of the person himself or herself is an illusion created by our habits. This is a very complicated argument which will take up volumes if it is to be explicated fully. But for the purpose of this paper, we can see that, if the Buddhist view is tenable, this will pose a serious problem for Horrobin's view.

But if the person is ultimately a perceived entity, a construction, then what consequence does this view have on the problem of lifespan extension? If there is ultimately no person, then what exactly got extended when the technologies are applied? One might say that, according to the Buddhist view, no person is extended from one time to another. The fact that I very closely resemble my previous self that existed yesterday shows that there is a sense in which there is an 'I' that endures. But according to Buddhist this is an illusion. There is nothing that gets carried over from yesterday to today; anything that looks like there being the same person as the one who

is typing this paper is merely due to a habit that takes up similar episodes of an event to be an enduring entity. If I change too much, such as what will surely happen when I become an elderly person, say, thirty years from now, then there is a real sense in which I may not be the same as what I am today right now. But if this is the case, then this contradicts Horrobin's view that one can stay as oneself throughout.

Horrobin argues that enduring as one person is necessary for someone's being able to enjoy all the knowledge and experiences that one would not have been able to enjoy had one's lifespan not been extended. He castigates the series view of person as being "conservative," and not being able to accommodate his perferred view of being able to enjoy things with the extended life. For Horrobin life is worth living precisely because it enables to enjoy the good things, and if there are more good things to enjoy then it is good to extend the life so that one is able to do so. According to the Buddhist, however, the question whether human lifespan should be extended should be based on what kind of motivation lies behind the attempt to develop the lifespan extending technologies. As in the case of human enhancement technologies, the Buddhist gives prominence to motivation. Thus the act of extending lifespan is not ethical or unethical per se, but its ethical value depends on the nature of motivation behind it. Perhaps one would like to develop lifespan extension technologies in order to save human beings from extinction (in this case we need to suppose that all humans have lost their capabilities of reproducing themselves, perhaps due to all the chemicals that humans have ingested throughout the years). However, if the development of the technologies is such that it responds to the selfish need of someone's desiring to extend his or her own lifespan simply for the purpose of expanding his or her own time for enjoying the pleasures, then the motivation is not a wholesome one and hence it is unethical. Since Horrobin's focus seems to be mostly the possibility of enjoying the pleasures (and to learn all the knowledge, which is also a kind of pleasure) that life has to offer, then Horrobin's motivation does not seem to be an other-regarding one. Instead one would want to extend one's lifespan only because one wants to experience more pleasures for *oneself*. If this is so, then Horrobin's view would be criticized by the Buddhist as being "unwholesome."

Furthermore, there is another dimension of Horrobin's argument where he assumes that life has nothing but pleasures to offer. However, in reality life has both pleasures and pain. Even though tremendous progress in science and technology has been made which has made extension of healthy lifespan a serious matter, there is no guarantee that the extended life will always be pain free. This is because pain is both physiological and mental; both physical and mental factors are involved in one's experiencing of pain. Moreover, people differ in their perception and in their threshold of feeling pain. Hence it is difficult to predict that future life will be always free of pain. Even if all the known physiological causes of pain will be eliminated, that will provide no guarantee that people in the future will experience no pain at all because it is possible that pain can happen even if there are no physiological causes, such as when one feels pain in their phantom limbs. If this can be the case, then Horrobin's picture of someone living an extended life enjoying all sorts of pleasures may be too rosy. As pain will almost certainly be with us, it is possible that in the extended life there will be both

pleasures and pain. This seems to undercut Horrobin's argument that life is worthwhile because it gives us only the pleasures. When the pain is factored in, the worth of the extended life would be the same as the normal, unextended one. If one lives significantly longer, then one almost certainly experiences both pleasures and pain, just as one experiences both sensations when one lives the old style, unextended life. Thus the worth of the extended life is not augmented by the premise that there will be more pleasures. Since there will be both pleasures and pain, the two can cancel each other out, rendering Horrobin's argument vacant. If there is anything that makes the extended life worth living, it is not the premise or the promise that it will bring us more pleasure.

Another kind of sensation that could almost certainly happen to the extended life is boredom. This is easily understandable considering that one lives far more than what has been possible for humans up until now. If one were able to live for, say, three hundred years, one might enjoy all the pleasures and learnings that Horrobin talks about for a while. But what would prevent one to feel bored by all this? If there is seemingly indefinite time frame open up to someone, there might be at first a feeling of elatedness in realizing that one can now experience all those things which have not been possible before before of the more limited time frame. But if one feels bored by all of this, then the pleasures will not seem to be pleasurable any more. This can happen to anybody when they have too much of good things. The worth of those good things would seem to diminish. Furthermore, if the time available for someone would be almost indefinite, then it is almost certain that at some time in his or her extended life he or she will feel bored. It might take quite a while before they get bored, but since time is almost unlimited for these people they will get bored at some point or another. When one is bored, then all the pleasures and all the learnings that used to excited one will not be so pleasurable or exciting any more.

The situation is different that experienced by someone who lives in a more limited time frame. For those living the unextended life, they know that death is imminent. It can happen to them at any time. This makes them live their lives to the full, squeezing every moment as if it were their last. In this situation there is no time to feel bored; on the contrary one would *feel* very intensely, as if a whole lifespan could be compressed into only a few hours or minutes. This kind of life, however, is not available for those who have the extended lifespan, because they can always postpone any events to a future date.

The point is that the reason for the value of the extended life does not seem to lie in the putative fact that it can bring us pleasures. More often than not it will bring us boredom, which can be as bad as pain. According to the Buddhist perspective, the value of someone's life, or in other words the *meaning* of someone's life, lies in whether he or she has pure, altruistic motivation in living the life or not. The life can be short or long —Buddhism has nothing in principle against the development and use of lifespan extending technologies, which in fact are subsets of the human enhancement technologies that we have talked about earlier. In any case, the meaning and worth of life does not consist in how short or how long the life is lived, but it does consist in how *well* it is lived. If the development and use of lifespan extending technologies arise out

of pure and altruistic motivation, then Buddhism would have nothing against it and in fact would commend the effort. But if the development arises out of the desire to continue consuming the pleasures indefinitely, then Buddhism would strongly advise against the attempt. One reason for doing so would be that it is totally unreliable to predict that one's life extended in this way would consist totally of pleasures. At the very least boredom will set in.

Conclusion

In conclusion, I have tried to show that Buddhism has nothing in principle against either human enhancement or lifespan extending technologies. Everything depends on motivation. In the case of human enhancement technologies in general, the argument that enhancing humans is unethical because it commits an unnatural act is found wanting because it relies on the premise that the natural and the ethical are identical, which is not tenable. However, Somparn Promta's argument to the effect that in Buddhism there is no unnatural act is criticized because the argument conflates two different senses of "natural," one being natural law and the other presupposed in the premise that the ethical and the natural are identical. Then the chapter moves on to discuss the central idea in Buddhism concerning the emptiness of all things. Since there can be no essence or core of identity of anything, person or non-person, any argument based on there being a subsisting person whose body is to be enhanced or whose life is to be extended is based on an untenable premise. Thus Steven Horrobin's recent attempt to base the value of the extended lifespan on the ability enjoy more pleasures is also found wanting because the extended life will contain not only pleasures but also pain and boredom. Moreover, the value of life, either extended or not, lies more on how well it is lived rather than how much pleasures the subject can consume.[3]

Acknowledgement

Research leading to this chapter has been partially supported by a grant from the Commission on Higher Education and the National Research University Project, project number HS1025A and AS569A.

3 The chapter presents how a general tenet of Buddhism would look at these issues. However, there are obviously a variety of religious viewpoints in existence, some of which might be similar or different that of Buddhism offered here. It would be interesting to see how the values of other religions, such as Christianity, Islam or Hinduism, would look at the issues of human enhancement and extension of human lifespan. See, for example, Mark Hanson (1999) for a Christian (Protestant) perspective of human enhancement, and Athar (2008) for an Islamic perspective on the same issue.

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In: FNRE ISBN
0000000000
Editor: Editor Name, pp. 1-14

Chapter 2

OVERCOMING THE ACADEMIC DIGITAL DIVIDE: INTELLECTUAL PROPERTY RIGHTS AND CULTURAL INTEGRATION

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Abstract

Rankings of universities have become a global phenomenon. Not only are universities in the West caught up in this obsession, but so are universities in the developing countries. More and more administrators of universities in the developing countries are using ranking figures done by such organizations as the Times Higher Education or Webometrics to gauge their own performances, and political leaders are increasingly using these figures to measure the performance of universities within their own countries. It is clear that use of information technology has been widely used as key indicators in these rankings, and that the technology could be effective in raising the quality standard of universities in the developing world, a mission which will eventually benefit these countries themselves. This chapter aims at discussing the role of information technology in improving the performance of universities. According to Aguillo *et al* (2008) there is an "academic digital divide" between groups of universities within the West. However, this paper would like to look at the even more pronounced divide between universities in the developed and in the developing world. In order for universities in the developing countries to fulfil the mission assigned to them, effective use of information technology, among other factors, has to be integrated in their performance. The chapter will outline some of the salient factors that are necessary for universities in the developing countries to integrate the use of information technology, thereby reducing the gap. Hence these factors are necessary in implementing information technology effectively in higher education institutions in the Asia and Pacific regions. It is proposed that in order for such implementation to be really effective, the technology, the life and the culture of academia all need to be closely interwoven in one way or another.

INTRODUCTION

The tide of globalization has engulfed seemingly every corner of the world. Universities are no exception to this phenomenon. Universities around the world have found they need to adapt to this ubiquitous and powerful tide, lest they be left behind and no longer able to serve their community effectively. In Asia, the Pacific, North America, Europe and elsewhere universities found they need to interact much more intensely with one another, and they need to compete against one another more too. Perhaps the most serious thing that can happen to a university is that it is isolated. In that case, it has become clear that increasingly universities are not able to pursue their missions. Hence they will become less able to respond to the needs of their constituencies. Like it or not, in the early part of the twenty-first century universities have to interact with one another in various ways in order to survive.

The tool of this intense interaction can be none other than the various forms of communication made possible by information technology. The research mission of the universities in today's world would not be conceivable if not for the networking and communication between scholars residing and working in many different parts of the world. Even the teaching mission appears to benefit from the interaction, as scholar-teachers have increasingly found themselves benefiting from learning what their counterparts are actually doing in other parts of the world. Many universities, such as MIT in the US, have placed their course content online, which has potentially profound impact on how teaching and learning is done worldwide. Needless to say, the third major mission of the university, community service, also seems to benefit from this global interaction too in various ways.

Such global interaction of universities has not brought about all positive aspects. As promising as it may appear, global interaction of universities has not been a total panacea, and there appear to be both losers and winners in the game. The winners seem to be those who know how to surf the globalizing wave, navigating it in such a way that benefits them most. Nonetheless, there are also those on the losing side, consisting of those who do not navigate as well, or those who are so handicapped from the beginning that they do not enter a level playing field. Since globalization does not pay attention to national boundaries, those on the losing side seem to be the ones who do not benefit from globalization in the first place. Universities in the developing world have found themselves increasingly unable to respond to the needs of their own community and constituencies. As the world is getting tighter and more intensely interactive, universities in the developing world have largely been stagnant, performing relatively poorly in terms of either research, teaching or community service. Worse still, in many developing countries the leading universities in those countries are focusing their attention so much on 'catching up' with the global leading universities that they have neglected their own obligation toward other institutions of higher learning in their own countries, especially those in the rural countryside.

It is an aim of this chapter to discuss these issues and propose a tentative solution to them. More specifically, the paper will discuss what is known as the global 'academic digital divide', following the groundbreaking work by Aguillo *et al.* (2008). According to Aguillo *et al*, there is a divide between those universities who know how to surf the tide of globalization and ICT and those who do not fare so well. However, their focus is only on the disparity between universities in one country or another only. In this chapter, on the contrary, I will focus attention on the disparity between universities in different groups of nations. That is,

imitating the discourse of ICT policy scholars who talk not only about the digital divide within a country, I would like to emphasize the 'global' digital divide between different groups of countries, such as those in the developed North and the developing South.

The problem to be tackled in this chapter centres around the global academic digital divide: the situation where universities in the third world are so remote (in both literal and figurative senses) from their counterparts in the first world that it constitutes global injustice. I will argue that in order for universities in the developing countries to fulfil their mission assigned to them, effective use of information (communication) technology, among the other factors, has to be integrated in their performance. Instead of the situation where universities in the developing 'South' rush headlong toward the path of competition manifested in the global ranking systems, these universities should pause and reflect on their missions, which is first and foremost to serve the society in which they are located. Here intellectual property [IPRs] rights issues become important as there needs to be a scheme whereby the dichotomy between the rigid enforcement of IP rights and total lack of any enforcement is avoided. Achieving this requires that one understands the rather cloudy role that culture plays in framing the habits of thoughts of the people involved. It is proposed that for universities in the developing world to realize their missions more effectively, there needs to be more comprehensive understanding of how both information technology and intellectual property rights interact with the cultural milieu in which they are transplanted. They are 'transplanted' because both ICTs and IPRs are 'imported products' introduced to the milieu of the developing world from the West, and more importantly both of them seem to come complete with their own cultural and ideological baggage, which in many cases conflicts with those of the receiving society. Unpacking this difficult issue is a first step in realizing how an effective use of both ICTs and IPRs to overcome the academic digital divide can be achieved.

GLOBAL ACADEMIC DIGITAL DIVIDE

Aguillo *et al.* (2008) argue that measurements consisting of how much and how well academics are utilizing information technology in their works should be included as parts of the overall measurements of university performance in addition to the more traditional measures. Furthermore, they have found that there is an "academic digital divide" between universities in the US and those in the European Union (Aguillo *et al*, 2008). However, using Aguillo *et al*'s own data, it is also clear that there is a more substantial divide between universities in the West (both the US and the EU put together) and in the rest of the world. Among the top 100 universities worldwide, a staggering 96 are from either North America or Europe, leaving only 2 for Asia and 1 each for Oceania and Latin America. However, if we consider both Oceania and Latin America to be parts of the West for cultural reasons, then Asia has only 2 universities in the top 100, compared with 98 in the cultural West. Clearly if there is any kind of 'academic digital divide' then a wide gap exists between universities in the West and elsewhere. No African university exists in the top 200 in Aguillo *et al*'s chart, and only 3 are listed among the top 1,000.

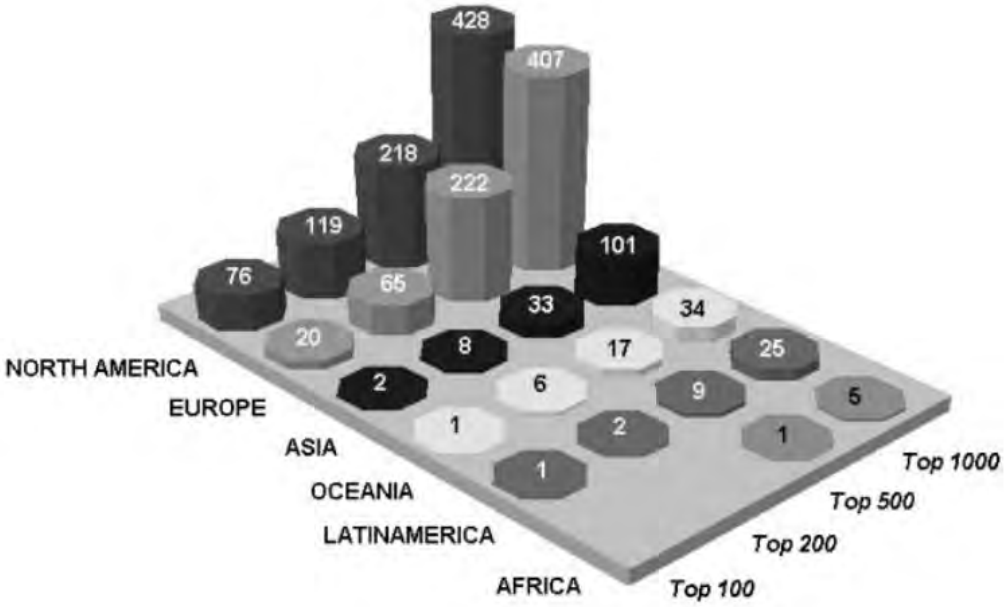


Figure 1. Webometric Ranking of World Universities (Aguillo *et al.* 2008).

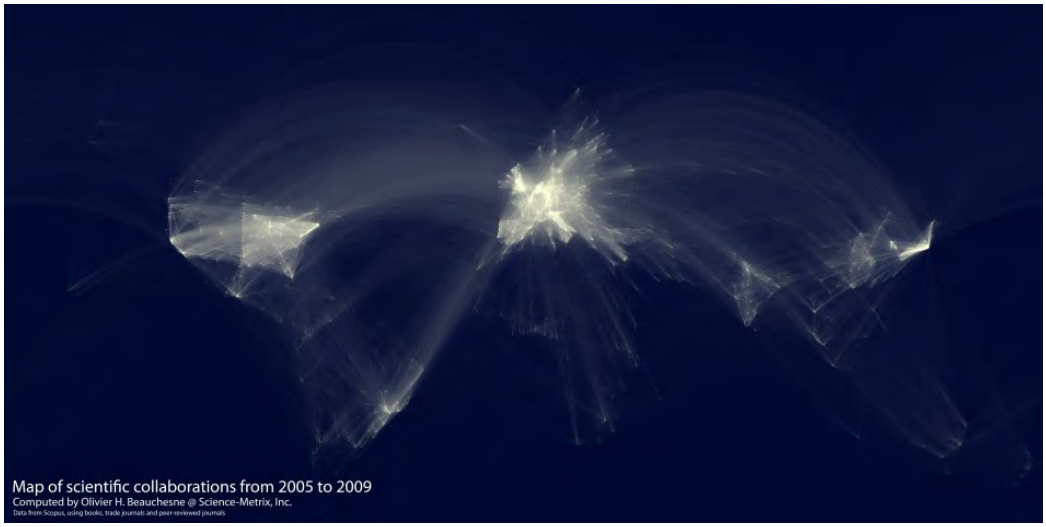
The institution that is responsible for ranking universities as to how well they are utilizing information technology is Webometrics (http://www.webometrics.info/). They rank the world's universities according to four criteria: size of web presence, visibility of their presence, number of rich files such as PDF, PowerPoint and so on, and the number of presences on Google Scholar, showing both number and citation records of web presence (See http://www.webometrics.info/about_rank.html). Among the criteria, visibility is given the most weight at 50 percent. The thinking behind this is that the number of external links to the sites of a university should indicate the quality of the content put up by that university. However, as far as ranking of universities goes, Webometrics is not as well known or well discussed as the ranking undertaken by THE and Thomson-Reuters (http://www.timeshighereducation.co.uk/world-university-rankings/) or by QS (http://www.topuniversities.com/). More specifically, Webometrics only measures the level of web utilization by universities, whereas both THE and QS are more wide ranging in using their criteria. Thus it can be safely said that Webometrics measures how well universities use their ICTs resources only, while the other two attempt to rank universities in their entirety.

Aguillo *et al.* (2008) do recognize that using web data alone is not sufficient to measure the performance of such large and complex organizations as the universities. Nonetheless, the figure of how the web and information technology in general are being used by universities worldwide is a good indicator of how the universities reach out to the public and how effective they are at communicating their content to the public. It should be noted that the pattern of the global academic digital divide here is similar to that of the general digital divide that exists across countries. Countries that are doing well in terms of internet connectivity and traffic appear to be doing well in terms of their universities too. So it is possible to say that

the global academic digital divide problem is a subset of the more general digital divide problem. Solving the former then requires we find ways to solve the latter problem too.

Many studies have shown that the universities are crucial for developing economies to help fulfil development goals (Görandsson and Brundenius 2011); however, it is uncertain how simply injecting ICTs infrastructure alone will boost the performance of the universities so that they fulfil this important role. Another significant issue is that we should not think of the problem only in terms of a 'divide' between the 'have' countries and the 'have-not' ones. As I have tried to show elsewhere (Hongladarom, 2007), another no less important aspect concerns how information should also flow among the developing countries themselves in addition to between one particular country in the developing South and those in the developed North. This strengthens the ties among the developing countries themselves. More importantly it weakens the existing pattern of connection between particular countries in the North and South. Here a majority of the connections are between each country in the South to those in the North, and where there are a very small number of lines connecting Southern countries with one another (Hongladarom, 2007).

The following picture illustrates nicely the pattern of scientific collaboration globally; what is noticeable is how few the connections are among the countries in the developing world themselves:



Map of Scientific Collaborations, from
http://flowingdata.com/2011/01/27/map-of-scientific collaboration-between-researchers/

The illustration shows the links of scientific collaborations as white lines; so, an area with large number of collaborations will appear as a bright patch on the dark background. Judging from the contours of the bright patches we can see the outlines of the main collaborative areas in the world rather easily. The one on the left represents collaborations in the United States; in the middle is Europe and the bright smaller patch on the right is Japan. We can also see darker patches which represent Latin America (below North America), India and China (to the left of Japan). What is noticeable in the map is that in all areas, except for the three bright patches,

the links are from individual spots going back to the three main areas. This shows that collaborations in the rest of the world are almost exclusively those between individual countries and either North America, Europe and Japan. There are very few links between the developing countries themselves. The only developing areas where there is some internal collaboration are India and China, as we can see them as the less bright patches to the left of Japan.

Since scientific collaborations are marked by the flow of information, the map also shows the extent of information flow among the countries of the world too. In the map, the continent of Africa (the area directly below Europe) is almost invisible, showing that there are very few collaborations, either externally or internally. Thus the map clearly shows the global academic digital divide. Those countries enjoying the full benefits of collaborations and flows of information, which are of course made possible by information technology, are those which are brightly visible on the map, whereas those who are on the other side of the divide are almost invisible. In fact those with no collaboration or information flow at all will be totally invisible in the map.

A program of lessening this divide should be put in place, in order to advance global equity and justice. A program of increasing the number of intra-Southern linkages should also be supplemented by a program of developing a system where information technology is integrated into the lives of the people involved. For the universities this can be done in various ways. If anything, the universities seem to be in a more advantageous position than other organizations in the developing world. They have the energy and enthusiasm of the youth of a country who are typically very eager to innovate. Hence to introduce technology to the universities appears much easier.

GLOBAL UNIVERSITY RANKING SYSTEMS

The map of scientific collaborations shown above also closely resembles the ranking of universities according to most systems available today. Aguillo *et al.* (2008) have discussed one system that of Webometrics, where the main indicators are those concerned with utilization of information technology, as we have seen. However, there are some other systems. The more popular ranking systems include that conducted by Times Higher Education in collaboration with Thomson-Reuters (http://www.timeshighereducation.co.uk/world-university-rankings/). These organizations employ a wider variety of factors to gauge the performance of universities worldwide, such as research output and citation, teaching criteria, industry income and international mix. According to their latest figures, the US dominates all categories of the rankings. Seven US universities are in the top 10, and as many as 27 are in the top 50, and 72 in the top 200. In comparison the closest rival, the UK, boasts only 29 universities in the top 200. On the contrary, only eight universities from Oceania are in the top 200 list; of these, seven are from Australia, and only one, the University of Auckland, is from New Zealand.

Apart from US and European universities, institutions in Asia fared relatively well. Twenty seven Asian universities are listed in the top 200, of which 10 are from China if Hong Kong is also included. In fact, the University of Hong Kong is the third-highest performer outside of the US or the UK, and it is the highest-ranked institution from the rest of the world,

as the top two non-US and non-UK institutions are from Switzerland and Canada respectively. However, out of the top 200, only two are from Africa, University of Cape Town in South Africa and Alexandria University in Egypt. This shows how far apart universities in Asia and Africa, on the whole, are from those in the US and Europe if the same yardstick is applied as in the case of Thomson-Reuters and THE ranking here. Worse still, no university from South America made it into the top 200 at all.

Any attempt at ranking universities is naturally fraught with controversies. First of all, the missions and objectives of universities are vastly different from one another. While top universities in the US may focus on cutting edge research, others may put more priorities on teaching and community service, which makes them fare less well in the international rankings. It is not surprising that THE and Thomson-Reuters place more weight on the research capability of universities, as this is the most easily measured among all the performance factors. There are two criteria, research performance itself and citation records, and the weight given to these criteria is as much as 62 percent overall. Hence it is not a surprise at all that universities that do not put their main priorities in research production do not fare well. As for teaching, THE and Thomson-Reuters argue that their teaching criteria are given increased significance. However, the weight for teaching -- 32 percent -- is only about half when compared with research output and citation combined. According to the THE website, the criteria on teaching consist of reputation survey, staff-to-student ratio, ratio between Ph.D. to Bachelor students and income available to each teaching staff. While it is generally recognized that assessing teaching performance is difficult, it is unclear how these five criteria actually represent teaching excellence. Reputation surveys tend to be easily biased, and it usually favors famous, elitist, long standing institutions. While staff-to-student ratio might fare better than the other criteria considered here, the factor in itself does not automatically show that an institution with lower staff-to-student ratio will teach better than those with a higher number.

My own university, Chulalongkorn in Thailand, traditionally has a very low staff-to-student ratio, but that is a result of a general trend in Thai bureaucratic institutions, which favor employing a large number of people and giving them rather low salaries in order to absorb them into the workforce. Not much is expected in terms of their performances. As a result, the situation at my university is that many faculty members work also outside of the university in order to supplement their income. This certainly has an effect on teaching performances. Furthermore, the ratio between Ph.D. and bachelor students is also biased toward research-oriented universities, as smaller, especially liberal arts colleges with few or no Ph.D. programs would certainly be disadvantaged, even if the main mission of these colleges is excellence in teaching. The last teaching criterion, income available to teaching staff, is perhaps the worst one, as it blatantly favors richer universities over poorer ones. In itself it shows nothing at all about how well or how badly a university is teaching.

THE and Thomson-Reuters rankings regime does not pay much attention to how well the universities are employing information technology in fulfilling their missions. However, the Webometrics ranking system focuses almost exclusively on this issue. As data from Aguillo *et al.* (2008) show, even when the criteria are utilization of ICTs in various areas, the universities in the developing world do not fare well either. In any case, it is clear that no matter which system is used, both Webometrics and the THE rankings, list a disproportionate number of universities in the developed North compared to their counterparts in the

developing world. Certainly a global academic divide is there, and the divide is also digital too, as the Webometrics data show.

SOLVING THE GLOBAL AND LOCAL ACADEMIC DIGITAL DIVIDE

Many studies have shown that solving the digital divide problem cannot be achieved through simple injection of the physical infrastructure to those who need it (Hongladarom 2003; 2004b; 2007; Parayil 2005; Warschauer 2003). Even basic training on how to use the hardware and software may not be enough to raise those who are on the other side of the divide to the level of competent and effective users. Mark Warshauer has shown an effective solution to the digital divide problem does not simply consist in such an injection; instead, many more factors are involved, which should be geared toward "social inclusion," a concept that emphasizes advancing those who are marginalized so that they can accomplish their goals and maximize their life chances most effectively (Warschauer 2003, p.8–9).

However, there may be a question whether the attempt to increase the level of ICTs utilization in universities is really desirable, and whether this contributes to realization of a university's missions. After all, if Warschauer is right in saying that maximization of one's "life chances" should be the goal, then what if one's life chances do not include an extensive use of ICTs? If a university decided that ICT use is not among its top priorities as it envisions that ICT does not contribute to its realization of its goals, then what should one do? What if a university believed that its own 'life chances' did not include ICTs? In this case, one can only show that an increase in ICT utilization does not, in and of itself, lead to a universally desired goal. Nothing can achieve that because there is too much diversity in conceptualizing one's own goal and priorities. Nevertheless, this does not imply that a university can forsake ICT use if it is serious in realizing its missions. Even if the criteria specified by THE and Thomson-Reuters do not specifically include ICTs utilization in the way Webometrics does, many of their criteria, especially those concerning teaching and research do involve ICTs use in a very significant way. Furthermore, even when a university may argue that it does not want to enter the global game of ranking, it still has many stakes in developing its own ICTs effectiveness for the benefits of its own students and other stakeholders. The traditional missions of the university, that of teaching, research and community service, seem very difficult, if not entirely impossible, to accomplish without the help of ICTs. Furthermore, as collaborations among scholars and scientists are undoubtedly crucial, it is almost inconceivable to imagine any kind of quality work being done without any use of ICTs and the Internet.

Jeffrey James (2003) argues that there is a "global digital divide" that exists between groups of countries that enjoy the benefits of ICT's and those that do not. James sees the digital divide that exists between rich and poor countries as a continuation of what Singer (1970) calls "international technological dualism," a gap that exists between those countries that *own* the new technologies (in both the legal sense and the more figurative sense of being at home with them and knowing how to design, develop and make use of them in various ways) and those that do not. Certainly this divide is similar to the divide between the developed and developing world, and it also mimics the academic divide with which we are

concerned here. Universities in the rich and poor countries are also lying on opposite sides of the international technological dualism here.

James (2003, p.x), moreover, also recognizes the problem that internal divide that exists within developing countries too. This is the divide that exists, for example, between the urban area in a developing country that enjoys the benefits of ICTs relatively well, and those areas in the countryside that do not fare so well, a situation that can be called 'local academic digital divide'. In terms of the academic digital divide, this means that there are universities that enjoy the fruits of ICT use and those which are left out. The situation is particularly acute in a country such as Thailand, which has a very acute problem of income inequality. In Thailand, the country's premier institution, Chulalongkorn University, enjoys as much as ten times budget when compared to a typical public higher education institution in the rural area (*Summary of Thailand National Budget* [in Thai], available at http://www.bb.go.th/bbhome/page.asp?option=contentanddsc=%A7%BA%BB%C3%D0%C1%D2%B3%E2%B4%C2%CA%D1%A7%E0%A2%BBandfolddsc=29001). For example, the budget Chulalongkorn University received in the budget year 2011 was around 4.1 billion Baht, or approximately 1.37 billion US dollars, but the entire budget for the Rajabhat Uttaradit University, a small university in the rural area north of Thailand, was only 290 million Baht, or 9.67 million US dollars. Furthermore, Chulalongkorn sits on a very expensive plot of land in the heart of the business center in Bangkok and gains a very large amount of income through rental fees and land investments every year, which is added on top of the amount it receives from the national budget. Thus, solving the global academic digital divide would be incomplete if the *internal* divide within a country is not solved too.

Looking at the situation in Thailand, it is clear that if a rich and large university like Chulalongkorn uses more of its resources into helping the poorer universities to stand on their feet, then the country as a whole will benefit. This is in line with my earlier contention of increasing intra-South communication and collaboration (Hongladarom, 2007); only in this case it is to increase the communication between higher education institutions within a country. Taking Warschauer's argument as a clue, one then would need to find the context within which universities can effectively "increase their life chances" through the use of ICTs. This certainly has a lot to do with engaging ICTs with fulfilling the missions of the universities themselves. There is obviously no space in this chapter to point out all these issues in any detail, but at least we can grasp at some conditions that have to obtain in order for a university to serve their constituencies to the fullest extent. I would argue that these conditions have to do first of all with intellectual property rights and cultural integration.

Intellectual Property Rights

A growing number of studies show that instead of intellectual property rights acting as a means of providing incentives for innovation they act instead as a tool for those who are already rich and powerful to maintain the status quo, keeping those who are outside, at bay. Drahos (2002, 2003) has gone so far as to maintain that the current system of IPRs functions more as a tool for rent-seeking, IP owning companies to protect and widen the gap between them and those who do not own the IP, which makes the former resemble feudal lords who live on the labor of their subjects. In this sense the problem is more acute in the case of the global academic digital divide than the internal one, because the knowledge and technical expertise that are being protected by IPRs regime originate more in the West; thus, there have

been problems of organizations and individuals in the developing world standing in need of patented products but who are in not a position to pay for them in full.

As for the universities, there has been the trend of disseminating knowledge that has been produced through research to the public with no charge. This trend can be seen in the way universities, research organizations and professional societies publish peer-reviewed journals. The knowledge produced is offered to the scientific community, which evaluates it according to scientific criteria and certifies the result as part of the growing body of knowledge. However, with the advent of the IPRs regime, universities have been working more closely with corporations, with the result that there have been systems where the knowledge produced in the universities is worked upon by the corporations to produce marketable commodities, and the resulting profits are shared by the two organizations. With this trend, it seems more likely that the knowledge produced by the universities will no longer be shared among the community; instead, it will be kept as a secret and shared only by the university who produced it and the corporation who will market the products derived from the knowledge.

It is the second, emerging trend that appears worrisome for those who try to find ways to reduce the global academic digital divide. If the knowledge produced by leading universities in the West are kept secret and commodified (cf. Hongladarom, 2004b), then it will be very difficult for universities in the developing world to access it. Instead they will only become passive consumers of the products developed out of the patented knowledge. Universities become passive consumers when they do not produce their own knowledge that responds to the needs of their environment, but instead simply receive the finished products developed from elsewhere with little or no contribution of their own.

It is difficult to conceive how a university can benefit from claiming intellectual property rights from their own invention and research, unless they are partnered with private corporations. Usually the rationale of such cooperation is that the university can subsequently earn more money in an environment when most universities are suffering from budget cuts. In many ways there are in fact advantages to be gained from the partnership with corporations (Siegel *et al*, 2003; Poyago and Theotoky *et al*, 2002; Leydesdorff and Etzkowitz, 1996). Apart from the obvious benefit of sharing in the profits to be made, universities can also make a more direct impact on society through their inventions which have been made accessible to the market by the corporations. However, in the context of addressing the global academic digital divide problem, it is difficult to see how a university which manages its own intellectual properties and ties with private corporations can, just by doing so, help improve other, less fortunate universities, especially those in poorer countries. A simple reason is that managing intellectual property rights and the relationships with private corporations is focused only on the university that owns the IP, and no other university is in the picture. This problem does not seem to be addressed at all in the literature on ICTs and development.

Therefore, it appears that either the whole system of IPRs is inimical to closing the academic digital gap, or ways need to be found for the IPRs to benefit universities in the developing world. A way out of this impasse seems to be already there in the various attempts to modify IPRs so as to benefit the people more effectively. Lawrence Lessig's idea on "Creative Commons" (http://creativecommons.org/) is a good attempt. The whole idea is to vary the restrictions imposed by copyright and declare that the creative work is free to be used under some conditions. This system can be used to benefit the universities in the developing world by allowing the latter to share in the knowledge and the creative works that have been

produced by the more advanced universities without the former having to pay too much for the licenses. Another idea can be found in the movement for open source software. As is probably well known, open source software products are those whose creators do not claim any restriction in copying their source codes under certain provisions. For example, the copier may change the codes but they have to contribute back to the community after their changes so as the whole community of software developers and users can benefit. Thus, the knowledge produced somewhere can be more extensively disseminated and shared; hence, the model rather resembles the earlier one of scientists publishing their works to the community for feedback, revision and refinement.

Addressing IPR issues is not the only concern for closing the global academic divide. Even locally, the issues can well become relevant if the more advanced universities in the richer areas of a country produce knowledge and technical know how that could be beneficial to other universities in poorer areas. In the end, both institutions benefit, and ultimately it is the country itself that benefits, as there is a lessened gap between the richer and poorer areas of the country.

Cultural Integration

Another important area which can lead to solving the global and local academic digital divide problem concerns cultural integration. This is a more difficult issue than IPRs as it is more abstract. However, it is more important because culture represents the sum total of the way people think and behave. Thus, any effective institutional change such as what is required in closing the local academic divide actually requires this factor. In short, cultural integration here means that, in order for an organization such as a university in a rural area to benefit the most from the potentials of ICTs, they need to find a way for the ICTs to become integrated into the lifeworld of the universities and their community. An example of the integration can be seen when, for example, a typical Thai female merchant talks on her mobile phone to learn about the current market price of her produce. Penetration of mobile phones into Thailand is very high, and mobile technologies, including mobile broadband, has a very strong potential for creating a huge impact on Thai society than the desktop or notebook computers. Nowadays, Thai people of all levels, from the grassroots up to the urban elites, are adopting the mobile phones as if they were their new bodily appendage. This trend represents a very high level of integration.

In the university setting, a problem in integration can also be seen when, for example, a faculty member in a rural university uses social networking media as a forum to supplement his classroom discussion. Using social networking media such as Facebook and Twitter requires not only a basic level of computer literacy, but the media themselves carry with them strong cultural baggage that might conflict with the prevailing cultural situation in which his university is already embedded. More specifically, studies have shown that the most popular reason for Thai youths to engage in the social media is to play games or to chat with their friends. While there is nothing inherently wrong with that, to use the social media for serious academic work does not seem to be in sync with the way most Thai youths are approaching the Internet. Hence there is a conflict between what the youths expect of their social media and what is required by their professor. On the one hand, the youths have already been integrated into using ICTs as if they were their own bodily apparatus; but, on the other, what

is expected of them by the professor is not in sync with their usual expectations, and here a problem can ensue.

In my earlier work (Hongladarom, 2004) I outlined some of the ways in which cultural integration should be accomplished when science and technology themselves are to be fully integrated to Thai society and culture. Thus, for the problem of the academic digital divide, this would mean that aspects of the culture need to be identified and ways need to be found to integrate the culture that comes with ICTs on their own with those cultural traits that uniquely belong to the local context. As the example about the use of social media in classroom discussion shows, users of the social media appear to belong to one culture, which does not lend itself quite easily to another one introduced by the professor. In another area concerning reception of the technology itself, there is also a similar problem of people belonging to one culture (such as one that revolves around traditional ways of life) adapting to the new one (such as the culture that comes as a baggage of the new technologies). Perhaps Facebook can be used as a serious academic tool—there is nothing in the technology itself that prevents that, but to do so requires changes in the mindset, the beliefs and the resulting behaviours of the users. In the same vein, bringing the universities on the other side of the academic divide up and including them as partners in the nationwide or global partnership of universities requires ultimately the same kind of changes in the mindset and beliefs too.

Perhaps the most serious cultural trait affecting nationwide university partnership in Thailand is the traditional rivalries that exist among the universities. Unlike the rivalries that exist among universities in the West, rivalries among Thai universities have resulted in the universities not working together in any of the areas that would benefit from closer collaborations. For example, it is quite common for universities in the West to join forces in undertaking certain large projects which would be too large for one institution to work alone. The development of the Internet is a good example. Sponsored firstly by the US Department of Defense, the network has grown from an experimental one linking up only a few computers in a handful of institutions to the global network we are familiar with today in only a few decades. Without the close camaraderie and collaborations that existed among the scientists within the universities in the US, it was inconceivable that the Internet would have grown to be what it is today. In contrast, universities and other bureaucratic institutions in Thailand still suffer from what might be called an "isolation syndrome" where one institution believes that it alone has the authority to undertake a certain task and jealously guards its perceived territory preventing other organizations, even those belonging to the same government, to have a 'share in the pie'. The consequence is that no large projects ever get accomplished in Thai universities. The cultural trait behind this is that Thai people once mainly lived in close-knit, small communities. Each community was given a piece of a resource for them to work and live on; hence, it was understandable to see how each community would guard its own resource jealously. This pre-modern attitude still largely persists today in contemporary Thailand.

Changing culture is not easy; however, it is still possible. Since culture is a sum total of how a group of people think and behave, culture can change when enough people change their beliefs, their mindsets and their corresponding behavior. There is, however, a reason to be cautiously optimistic. Thailand is in the midst of a very profound and extensive transformation. And, perhaps, there is an opportunity that this transformation could engender

a kind of cultural change that could benefit closer collaborations among the universities so that the global and local academic digital divide can be closed eventually.

CONCLUSION

In 2006, my colleagues Chris Coward at the University of Washington Center for Internet Development, Colin MacLay from the Center for Internet and Society at Harvard and I undertook a project called "The Role of Universities in Information Technology for Development in Asia (U-ICT4D)" (The final technical report of the project can be downloaded at http://www.stc.arts.chula.ac.th/files/UICT4D-Final-Tech-Report.pdf. More information about the project can be obtained at http://cmsweb.idrc.ca/tehip/ev-97766-201-1-DO_TOPIC.html.) The project was funded by the Canadian International Development Research Centre (IDRC) and also involved scholars from many countries in Asia. The main conclusion we obtained from the study was that there was still a long way to go for the universities in South-east Asia to be a fully active player in the game of utilizing ICTs for development. Universities in the region focused their attention almost exclusively on teaching, and what they teach is mostly adaptations or copies of the knowledge produced in the West. This indicates that the flow of information, discussed above in the paper, goes only one way. In order for the vision of an increased flow among the universities in the developing world themselves be realized; however, this needs to change. I have outlined two main areas that need to be addressed, namely intellectual property rights and cultural integration. Certainly we have just barely started to scratch at the very complex issue here, but at least there is a start.

ACKNOWLEDGMENTS

Research for this paper has been partially supported by a grant from the Thailand Research Fund, grant no. BRG5380009 as well as the Commission on Higher Education and the National Research University Project, project no. HS1025A and AS569A.

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ARTICLES

Sex Change Surgery: Therapy or Enhancement?

SORAJ HONGLADAROM

Introduction

In the discussion on human enhancement, it does not seem likely that sex change surgery would count as an instance of "enhancement". After all, what is being enhanced? When one looks at sex change or sex realignment surgery, it is unclear at first what exactly is being *enhanced* instead of "changed" or "realigned". Yet there seems to be a sense in which to classify sex change surgery as a kind of enhancement would be ethically plausible. At the very least, what seems to be enhanced here are the physical and physiological aspects of the subject's own body that undergo transformation through the surgery, so that he or she now possesses the kind of body that he or she wants. In this sense, it is the aspect of the body that is in alignment with the subject's own view of what his or her body should look like that appears to be enhanced. If it is the case of a man changing into a woman, then obviously the breasts would be "enhanced".

In this article, I would like to argue that there is a certain confusion regarding whether sex change surgery is a kind of therapy or enhancement. My thesis is that this confusion stems from the deeper confusion surrounding the issue of therapy and enhancement in general. Those who argue against human enhancement usually say that the distinction between therapy and enhancement is a hard and fast one. While there is nothing ethically problematic with therapy, those who object to human enhancement typically argue that enhancement in general is ethically problematic precisely because enhancement is a use of technologies to transform either the physical and mental capabilities of the human body in such a way that is not intended by nature, so to speak. Hence, the argument is based on a strong separation between therapy

and enhancement (see, for example, "Distinguishing Therapy and Enhancement", 2002). What is precisely problematic is that human beings, in this view, should remain within the confine delimited by what is considered to be "natural." To use medical technologies in such a way that extends the capabilities of normal healthy persons would then be ethically objectionable because it goes against this notion of what constitutes the normal in humans. (Actually there are other issues such as the enhancement might benefit only certain groups and not others, but that is another issue. What is being considered here is the act of enhancement in itself.) However, as I shall try to make clear in the article, there is a set of conceptual confusions surrounding the whole idea of what actually is a *normal* human individual. The discussion of sex change operation offered in the article then serves as a case study on the larger issue of what I believe to be the untenability of the distinction between therapy and enhancement in general.

Thailand in recent years has become quite well-known around the world as a haven for those who want to have sex change operations, and the practice has been actively promoted in the country's attempt to become a medical tourism hub (Saniotis 2007). The quality and skills of the Thai doctors and surgeons are such that the country could well become a global hub in this field. The liberal attitude of the Thai people in general with regards to gender identity also contributes to the reputation.

The popularity of sex change surgery in Thailand led the Thai Medical Council to issue a set of rules that regulate the practice in the country. The purpose of the rules is to safeguard patients who might want to have the operation but might not be ready in one way or another. Doctors can perform sex change operations on patients only on these conditions:

- Patients must be at least 18 years of age. If they are between 18 and 20 years old, parental consent is needed.
- Surgeons can only operate on those who have been judged by two psychiatrists to suffer from "gender identity disorder" and to have met certain conditions for surgery.

And these conditions are:

- The patient must have lived "successfully" in the community of the desired sex for at least 12 months. This means that the patient has to be accepted as a member of the community of the desired sex for at least 12 months prior to the operation.
- Having been examined and approved by at least two psychiatrists, one of whom must be a specialist in this area.

- Having been treated with hormone to adjust the condition of the body before the surgery.
- Before the sex change operation, other surgery on other parts of the body not related to genital organ reconstruction, such as breast augmentation surgery, must have already been performed (Medical Council of Thailand 2012).

such that the procedure regarding sex change surgery should be safe and standardised. The medical profession seems to create a new disorder, namely "gender identity disorder" apparently as a response to the increasing demand for sex change operations. However, the focus on this article is not on the ethics of sex change operation *per se*, though that is a very interesting topic that unfortunately does not receive much attention from biomedical ethicists. Instead, the focus is on an analysis of the conceptual distinction between therapy and enhancement, using sex change operations as a case in point. Thus, I turn to this distinction in the next section.

Therapy or Enhancement?

The regulation issued by the Medical Council of Thailand cited above shows that the medical profession regards sex realignment surgery as a treatment for a condition known as "gender identity disorder." Writing on gender identity disorder in adolescents, Kenneth Zucker has the following to say:

> Adolescents diagnosed with GID [gender identity disorder] show a strong psychological identification with the opposite sex. More important, they also verbalize a strong desire to become a member of the opposite sex and indicate an extreme unhappiness about being male or female. The subjective experience of such youth can be characterized by the term 'gender dysphoria' (Zucker 2006: 539).

So "gender identity disorder" is a term that characterises the condition where the subjects feel that they are trapped inside the physical body of the wrong sex; the key here is that they express "extreme unhappiness" about being so trapped and want to become identified as a member of the opposite sex. The term for the subjective condition of such unhappiness is "gender dysphoria". Zucker also reports that this condition has been around for quite some time in history; however, it is only recently that advances in surgical and medical techniques have made it possible that the subject can actually have his or her body realigned, though there is no absolute guarantee that after the surgery the dysphoric feeling would disappear (Gender Identity Disorder 2012).

The question now is whether the medical attempt to realign the body of the patient so as to help treat gender identity disorder should be regarded as therapy or enhancement? Some scholars have problematised the whole distinction between the two, citing, for example, vaccination and asking whether the practice should be classified either as a therapy or a form of enhancement (Daniels 2000; Harris 2007; Bostrom and Roache 2008). The issue regarding sex change surgery hinges on whether the condition which the surgery is supposed to treat could be classified as a "disease" or a "disorder" or not (see also Bostrom and Roache 2008). In other words, is there actually a need for such a surgery, or is the surgery merely cosmetic and has nothing to do with any *medical* condition? The regulation of the Medical Council is based on the belief that the condition which sex realignment surgery is supposed to treat is a *medical* condition; doctors who perform the surgery have to follow these rules and regulations in order to ensure the professional standard of medical service. Hence, it can be seen that the regulation issued by the Medical Council, through their power given them by the Medical License Act (or similar laws in other countries that empower their medical councils to safeguard public interest through maintaining the standard of professional medical service), is to ensure that only licensed medical doctors may perform the surgery. As doctors are supposed to perform invasive intervention on the bodies of their patients only for the reason of treating some kind of conditions or disorders which are clearly undesirable, there is a clear reason to classify gender identity disorder as a medical condition requiring the intervention of licensed doctors only. However, those who disagree with this issue might argue that what is known as "gender identity disorder" or "gender dysphoria" is not a genuine medical condition because the bodies of those who are regarded as suffering from these conditions might not be "damaged" in any way. That is, the bodies of those who are regarded as being in need of sex realignment surgery might be perfectly normal; as gender identity disorder is more a psychiatric condition than a bodily one, so the argument goes that the surgery might not be able to help much anyway, and the conclusion is that what is called "gender identity disorder" may only be a rationalisation by the medical profession to medicalise the issue so that explicit professional standards can be formulated and applied (Juengst *et al.* 2003). This medicalisation or perhaps pathologisation does not need to imply that there is no real suffering on the part of those who suffer from the condition. It is precisely that some people suffer from the feeling of being trapped inside the body of the wrong sex that there arises the attempt to classify the condition as a medical one.

Viewed from the perspective of this argument, then, gender identity disorder is not a disease; hence no therapy is needed to treat it. What is

interesting is that according to this kind of argument, sex change operations could then be regarded as a kind of enhancement rather than therapy because what is being done is to enhance the feeling of those who want to change their sex as well as to enhance their ability to do certain things which they cannot do if they remain in the body of the sex they are born with. However, there seems to be a play on the meaning of the term "enhancement" here. Could a kind of medical intervention that is offered as a choice for those who like it be considered an enhancement? For example, if a technology was available which enables me to hear very high-pitched sounds that cannot be detected by a normal human ear, and I decided to have a surgery to install this device in my ears, would that be considered an enhancement? It would seem so. However, if I happen to dislike my thick curly hair and would like to have it totally replaced with soft, straight and flowing hair, and am willing to undergo a surgery (hair replacement surgery) for it, would that be also a case of an enhancement? Here we seem to enter into a semantic quagmire. On the one hand, there is a sense in which this hair replacement surgery could be an enhancement because there is something that is enhanced, namely my sense of well-being. I might feel much better with flowing hair than with the thick curly hair I was born with. On the other hand, what is enhanced seems to be only subjective and thus does not seem to qualify as a real case of enhancement. After all, having new hair is a far cry from having ears that can detect high-pitched sounds, not least because the latter is objective and tangible. Here objectivity and tangibility are used as a criterion to decide whether a case is therapy or enhancement. Having ears that can hear high-pitched sounds is an enhancement according to this view because sound is perceptible (tangible) and objective, whereas the feeling arising from having a new set of hair is only subjective. Of course those whose ears can hear high-pitched sounds can have their subjective feelings enhanced too, but the idea is that they now have the kind of ears that normal human beings do not have; whereas the one who has a new set of hair still has something that many people already have, because many people already have curly hair, but no one, except for those who have already had the same kind of surgery, do not have ears that can hear high-pitched sounds.

Then consider a case of sex change surgery. A woman who wants to become a man could feel that she is being "enhanced" when the surgery enables her to have a working penis that allows her to penetrate her lover as a man does. Visibly there is something that is "enhanced." The quagmire is whether this case of female-to-male surgery should be considered similar to the hair replacement surgery or the high frequency hearing surgery alluded to above. According to the criterion alluded to in the previous paragraph, there is

something that is obviously visible and objective in the case of female-to-male surgery, namely the constructed penis. Nonetheless, there is also something subjective, namely the "enhanced" feeling of well-being that occurs as a result of the surgery. But the constructed penis is not something new to the human race (every male already has a penis), so what is "enhanced" in this case does not extend the range of human capabilities in the same way as the ability to hear high-pitched sounds does. So we can safely conclude that female-to-male surgery is quite similar to hair replacement surgery. In the same vein, men who want to become women could also feel that they are "enhanced" when they can be penetrated by their lovers as if they were real biological women. Not only are the physical capabilities enhanced, their emotions will be enhanced too as they, as transsexuals, now are able to function almost as well as those who are born as their own sex. In this case too, what is exactly being enhanced is the subjective feeling of those who undergo the surgery. It is thus in the same category as hair replacement surgery too.

Thus, sex change surgery seems to be more akin to hair replacement surgery in that no concrete capability seems to be enhanced. Unlike the surgery that enhances the ear's capability to hear, sex change and hair replacement surgery do not seem to enhance any physical capability. What is "enhanced" is the patient's subjective feeling, his or her sense of mental well-being that results from having the desired physical change. However, there is another sense where sex change differs from hair replacement surgery. By becoming a man, one who is formerly a woman would not only feel that his physical outlook has changed, but his role and relation towards other people changes too. This is not the case with hair change surgery. The man in this case (formerly a woman) will act the role of a man; the relation between him and his girlfriend will be that between a man and a woman instead of one between two women, thus the nature of the relation is fundamentally changed. On the contrary, by having the hair replaced, no such fundamental change in relation with others can happen.

By fundamentally altering the nature of the relation between oneself and others, a sex change operation is then not a mere cosmetic change in the way that hair change surgery is. As a consequence, sex change surgery could be regarded as a case of concrete, objective enhancement because the nature of one's relation with others objectively changes. In this case, then, sex change surgery appears to be similar to high-pitched sound surgery in that there is a tangible, objective capability that is there as a result of the respective surgery which was not there before.

Therefore, there seems to be a fundamental confusion regarding the question of whether sex change surgery is an enhancement or not, or more

precisely, what kind of enhancement the surgery is. The issue discussed so far centres upon the question of whether the enhancement is tangible and objective or what is enhanced is one's subjective feeling only. This issue is separate from the one discussed earlier about whether sex change surgery is an enhancement or a therapy. As we have previously seen, the distinction between enhancement and therapy hinges on what is in fact a normal human being. In any case, there seems to be a sense in which gender identity disorder is a real medical condition for which sex realignment surgery is one therapy. In this sense, there seems to be a clear line between therapy and enhancement as the surgery is supposed to restore the normal healthy functioning which is somehow lost as a result of the gender identity disorder. Here we borrow Daniels' term "normal healthy functioning" (Daniels 2000: 316) as he applies it in the case of gender identity disorder. Daniels focuses more on physical health as the norm for the general population, but in our case here, what is "normal" concerns more a smooth alignment between one's perceived sexual identity and one's own body. However, it is difficult to see what actually constitutes this normal health function. To say that there is a "normal functioning" as regards to gender identity would seem to mean that the transsexuals do deviate from the norm. When what is normal is defined as a state where one's perception of one's own sexual identity and one's physical sex are in alignment, then transsexuals by definition deviate from the norm. There could then be a problem in regarding the transsexuals as being "diseased" because they may feel that they are healthy in every aspect, only that they just happen to live inside a wrong body.

So is sex realignment surgery a therapy or an enhancement? The answer may be that it depends, and here lies the confusion. If what is considered a normal healthy condition does not include gender identity disorder, then the surgery could be considered a therapy, but if it does — if the feeling that one is trapped inside a body of the wrong sex does not extend beyond what is considered to be a normal healthy condition — then the surgery could become a kind of enhancement. The confusion over whether sex change surgery is an enhancement or a therapy appears to stem from the more fundamental confusion between enhancement and therapy in general. More precisely, the question is whether gender identity disorder is a condition that requires medical attention in the same way an infectious disease or diabetes does require attention. If it is the case that gender identity disorder is a "medicalised" condition, i.e., that it is a condition that is created by the medical profession in order that they could issue a professional standard to standardise their own practice, then it seems that gender identity disorder is a constructed condition that comes to the attention of the medical profession only because there are

now technologies that enable doctors to perform the surgery. After all, one could imagine a situation where the technology for a sex change operation does not exist and cases where one feels trapped inside the body of the wrong sex are treated solely by changes in lifestyle and positive acceptance of transsexuals by society. In such a condition, it does not seem likely that there is a condition known as gender identity disorder, because the recognition that there is such a disorder appears to follow from the availability of technologies that make the surgery possible. (This way of looking at gender identity disorder as a construction is not unlike what Michel Foucault sees mental illness as: a construction of modern medicine when the latter medicalises the former. There might or might not be a real, objectively existing condition known today as "mental illness" — that is precisely the point of the confusion, but according to Foucault, its existence, or at least its recognition, owes more to the social and cultural conditions that prevail at a historical period than to any objective pathological condition (see Foucault 2006). But if gender identity disorder is a constructed condition in this sense, then the question of whether sex change surgery is a therapy or enhancement is based on a confusion because the distinction seems to presuppose a real existence of a disease, not just a constructed one. Furthermore, there can only be a real distinction between therapy and enhancement when there is an objectively existing condition that requires therapy (for example, a real disease such as Alzheimer's). But in the case where there is a confusion as to what should count as a disease, a disorder, or just a deviation from the norm of the population, but not as seriously as to qualify as a disease or a disorder, then the distinction between therapy and enhancement appears to be a confused one too.

Conclusion

The line between what is healthy and what is not, then, is not hard and fast, but indeed fuzzy and liable to differing interpretations depending on changing circumstances. However, that the line between therapy and enhancement is fuzzy and not entirely objective does not have to mean that all practices of enhancement are cleared of ethical conundrums. It is indeed the case that there are certainly conditions which need medical attention, conditions which normally call for therapy to ensure health and safety. But as medical technology progresses, what people *perceive* to be their health standard is liable to change. Nonetheless, there are certainly other issues, not least among which are the ones that concern equality and justice. If only certain groups of population can afford the enhancement while others cannot, would that lead to a situation where there are ultimately two distinct groups of human

population? Wouldn't that widen the already existing gaps among world population further (Buchanan 2009)? Would enhancement endanger the "human essence" (Fukuyama 2003)? These questions naturally lie beyond the issue of whether a sex change operation is a form of enhancement or not, and also beyond the debate about the line between therapy and enhancement, and thus should be a subject of another article.

Acknowledgments

Research for this article has been supported partially through a grant from the Integrated Innovation Academic Center, Chulalongkorn University Centenary Academic Development Project. I am strongly indebted to Ruud ter Meulen, Lisbeth Nielsen and Ben Capps for their invaluable comments and suggestions, and for inviting me to Singapore for the Enhancement Workshop.

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A Reflection on Nalanda Monastery as an Inspiration for Promoting Scientific and Technological Capabilities in Asia

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For many centuries Nalanda Monastery[1] was the most advanced institution of higher learning in the world. The monastery first took shape during the Pala dynasty around the fifth century C. E. and continued for almost a thousand years, until it went into decline and was finally destroyed by Muslim invaders in the thirteenth century. During this time, thousands of monks came from many parts of India as well as various parts of Asia to study there, making it a fully international university with its own vigorous cultural life.[2] According to traditional accounts, Nalanda became an important seat of learning since the time of the Third Buddhist council during the reign of Emperor Asoka. Then it was continuously supported by successive dynasties, especially the Gupta and the Pala, right until its final demise. Nalanda was one of the most important places where Buddhist teachings were transmitted to Central, East and South-east Asia, and continued to attracted scholars, such as the famous Chinese Xuanzang, who wrote a detailed account of the monastery when he visited there during the early period of the Tang Dynasty in the seventh century. The monastery complex taught not only the teachings of the Buddha, but also

1 In this paper I refrain from writing of Nalanda as "Nālandā," as is indeed proper form of Sanskrit transliteration because this proper name has become in effect known worldwide without the diacritical marks.

2 Pintu Kumar, "Cultural Life at Nalanda University," *The IUP Journal of History and Culture*, 4.1-2 (January & April 2010): 96-118, posted January 25, 2010. Available at SSRN: http://ssrn.com/abstract=1541842.

subjects such as astrology, music, grammar, rhetoric, medicine, perhaps the entire corpus of knowledge that was available in the world at that time. It is therefore not difficult to imagine that these intense academic activities included not only teaching of transmitted texts, but must also have included active interpretations of these texts, as well as very strong creative activities in producing new knowledge.

In this paper I would like to perform the task invited me by Arun Bala when he first asked me if I was interested in attending the workshop on the "Bright Dark Ages" in Singapore in 2010. His main concern, as I understood, was to look back to the past as a way toward gaining some insights or inspiration which could translate to more informed and insightful policies toward the present and the future. The "Dark Ages" in the title of the workshop was "bright" simply because when Europe relatively became stagnant after the Fall of the Roman Empire in the 5th century A.D., the period roughly coincided with flowerings of science, learning and civilization in both India and China, a period which lasted more than a thousand years. I propose, then, in this paper to look back at the famous Nalanda, not to dwell on the past and to appreciate its power and strengths of learning (which were indeed considerable), but to look at it in order to find out what, if any, source of inspiration toward these new ways of thinking could be gained. Hence, the overall tenor of the paper was not historical; I do not intend to aim primarily at forwarding a historical thesis, important as it may be. On the contrary my aim is more, broadly speaking, philosophical in that I try to answer the question how the institutional setting as well as the main tenet available at Nalanda could provide an inspiration for promoting science and learning in the context of Asian countries in the early part of twenty-first century.

With the caveat already mentioned, let us return to Nalanda. Xuanzang has the following words to say when he described the Monastery during his visit there in the seventh century:

In this way six kings in succession added to it more and more. A brick wall was

> then constructed around these (buildings) in order to make them into one monastery. In the wall a main gate was built and this opened into a series of separate compounds. There were eight main halls in the monastery. Ornamental towers were ranged around like stars and the decorated turrets faced one another like peaks. The temples loomed high in the mists (of dawn) and the main halls seemed to rise above the colored clouds (of the evening). Winds and clouds rose by the doors and windows, while the balconies and eaves (seemed to reach) between the sun and the moon. Thee was also a clear stream winding here and there. Blue lotus flowers bloomed in it and the trees or red Kanaka flowers *(Butea frondosa)* revealed their splendor all around. Further beyond, the groves of mango trees spread their scattered shade. All the main halls, in which were the monks' quarters, were four storys [sic] high. The storys had main beams with projections of dragon design, supporting beams of variegated patters, pillars ornamented with painted vermilion and carving, richly adorned balustrades, jade (colored) plinths and painted cross-pieces, decorated with brightly colored hanging. In India monasteries were numbers in thousands and myriads, but none compared with this one in grandeur, beauty and size.[3]

A more contemporary observer, also a non-Indian, Margaret Wiley Marshall, has the following words to say about the university:

> Between Patna and Bodhgaya is the site of the ancient Buddhist university of Nalanda, founded in 427 A.D. This university, housing ten thousand monks, was a center of Buddhist learning for about seven hundred years and was described in glowing terms by the Chinese pilgrim

3 Samuel Beal, *The Life of Hiuen-Tsang by Shaman Hwui Li* (London, 1884. Reprint. Delhi, 1969), pp. 111-112. Quoted in David Snellgrove, *Indo-Tibetan Buddhism: Indian Buddhists and their Tibetan Successors.* Rev. ed. (Bangkok: Orchid Press, 2004), pp. 321-322.

> Hiuen Tsang [sic], who traveled in India from 629 to 645 and spent five of those years at the already two-hundred-year-old Nalanda. The university attracted students from all over India, Southeast Asia, and China, who lived in dormitories whose ground plan and drainage system can still be traced by today's visitors. Many brick walls and stairways are intact, and one can identify the dimensions of bedrooms, classrooms, and assembly halls. Facing these buildings on the west is a collection of stupas, large and small (reliquaries of the Buddha's remains), whose state of preservation varies inversely with their size. Some of the impressive sculptured figures of the Buddha and Boddhisattvas are still in situ, and others are to be found in the nearby museum. The broad expanse of the old "campus" is today a smooth lawn, dotted with bright flowering trees and watered by a half-hearted sprinkling system, but one can easily imagine the intellectual and spiritual vitality that abounded there as recently as eight or nine hundred years ago.[4]

In this paper I intend to provide a brief sketch as to how the energies that existed at Nalanda University many centuries ago could be brought back and modified in order to provide a guiding light for future development in knowledge production and technological innovation in Asia. This attempt perhaps looks at first sight a strange one, because Nalanda was after all a religious institution. Those who studied there were all Buddhist monks aiming at achieving the ultimate salvation, a tradition which is still alive in Tibetan monasteries all over the world. How could such a religious institution provide an impetus for scientific and technological development? What I will try to show, however, is that such an impetus is indeed possible given that Nalanda was not only a center for studies and practices of Buddhism, was a "university" in the real sense of the word, i.e., a place

4 Margaret Wiley Marshall, "Bihar Universities--New and Old," *The Journal of Higher Education* 32.9(December 1961): 503-506, pp. 505-506.

where knowledge was produced and transmitted to the younger generations.

In fact it is being increasingly recognized that the teachings of Mahāyāna Buddhism, which were the core of Nalanda, can provide insights which lead to much further developments in science and also in technology. More specifically, the teaching on "Emptiness" (*Śūnyatā*) could be adapted and interpreted so as to create breakthroughs in how science is conducted.[5] However, in this paper I aim rather at pointing out ways in which the dynamism existed at Nalanda as well as the main teaching on Emptiness could be brought to bear on science and technology as tools for economic and social development, especially in Asia. As I have said, this looks a little strange because Buddhism seems to many to be a world-renouncing religion and hence appears to have little to do with economic development. Nonetheless, I intend to carry on my earlier project of building up scientific and technological capabilities for economic development through reliance on indigenous sources and integration of these sources into the kind of mindset that is beneficial for science and technology for development.[6] Nalanda's position as a religious institution is also significant in that it can provide us with insights as to how the enterprises of science and technology *should* be conducted. As the world is now plunging toward absolutely total reliance on science and technology, and as science and technology have become so powerful as to change to nature of life itself and to make environment fully pliable to our desires, the need for the ethical dimension is greater than before. This insight into the ethical aspects of science and technology is perhaps Nalanda's greatest contribution.

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5 See, for example, B. Alan Wallace (ed.), *Buddhism and Science* (New York, NY: Columbia University Press, 2003).

6 Soraj Hongladarom, "Growing Science in Thai Soil: Culture and Development of Scientific and Technological Capabilities in Thailand." *Science, Technology and Society* 9.1(2004): 51-73.

In an article on "Renewing the Nalanda Legacy: Science, Religion and Objectivity in Buddhism and the West,"[7] Joseph Loizzo points out some of the ways in which Buddhism could contribute to breakthroughs in science. Going against the probably mainstream view among Buddhist circles that Buddhism is a "scientific" religion which fits well with the findings and theories of modern science, Loizzo first acknowledges that Buddhism rejects the divine origin of nature, arguing instead that the natural world arises out of causes and conditions which lead far back in time indefinitely. Source of knowledge is one's own perception and understanding, rather than scriptural revelation.[8] However, the "empirical" method used in Buddhism is broader than what is used in the West, since Buddhism allows for one's own inner insights through meditation as a source, while modern science rejects this as being unverifiable. This points to what Loizzo recognizes as a distinction between Buddhism and modern science. Whereas the models of perfect knowledge for the West are mathematics and physics, whose standard of rigors provide a methodological foundation of what is to be considered a science and thus real knowledge, Loizzo indicates that in Buddhism the standard or model of knowledge is to be found instead in the contemplative method, consisting in regulation and focusing of one's own body and mind in order for one to be able to perceive things directly and more distinctly than possible when the mind is not as focused.[9] Recent attempts to measure the functions of the brain while the subject is meditating, such as ones done by Richard Davidson,[10] is seen by Loizzo as only an attempt to reinforce the notion that only the methodology of modern science—experimentation, observation and quantification—is reliable as indicator of

7 Joseph Loizzo, "Renewing the Nalanda Legacy: Science, Religion and Objectivity in Buddhism and the West," *Religion East and West* 6(2006): 101-120.

8 Loizzo, "Renewing the Nalanda Legacy," p. 102.

9 Loizzo, "Renewing the Nalanda Legacy," p. 103.

10 See, for example, Zara Houshmand, Anne Harrington, Clifford Saron and Richard J. Davidson, "Training the Mind: First Steps in a Cross-Cultural Collaboration in Neuroscientific Research," in *Visions of Compassion: Western Scientists and Tibetan Buddhists Examine Human Nature*, Richard J. Davidson and Anne Harrington, eds. (Oxford University Press, 2002), pp. 3-17.

knowledge. This seems to obscure the role of contemplative and meditative methods as reliable methodology.

Furthermore, Loizzo clearly points out the differences in the goals of both modern science and Buddhism. He says that goals in Buddhism is essentially to change us for the better, both from the inside and outside. While physics perhaps believes in the "Holy Grail" where all the problems of the natural phenomena can be solved, Buddhism instead believes that no investigation into the phenomena can be conclusive.[11] In addition, the goal of the biological sciences is not only to understand how the phenomena function, but how one could become evolved into a higher level of consciousness. In short, while science aims primarily at understanding and explaining phenemona (with the implicit aim of developing technologies out of the knowledge to cater to human needs and desires), Buddhism looks at "knowledge" or "science" only as a means by which ones achieves one's ultimate goal in living.

Thus, Loizzo sees the legacy of Nalanda University to provide a kind of alternative to the mainstream belief and practice system that is still prevalent in the scientific community today. Instead of relying solely on the hypothetico-deductive method, testing and observation with the aim of predicting and controlling phenomena, insights from Nalanda could be brought to bear so that there be more methodological openness. This could open up a way toward further understanding and realization of hitherto unknown phenomena. The contemplative method used in Buddhism, where practitioner examines and observes her own mental state through meditation, could lead to a breakthrough in scientific knowledge.

What this breakthrough looks like, however, is a matter of speculation now since the idea of expanding the methodology of science to include contemplative activities is very new and undeveloped. Nonetheless, we can venture into such a speculation, which is in fact not a totally idle exercise, but one that could well be realized in the future. In order for us to understand how the contemplative and meditative method could be

11 Loizzo, "Renewing the Nalanda Legacy," p. 104.

beneficial for science, let us look at the role of modern science and its methodology and its roots. In fact modern science is defined by its own methodology; the two giving rise to each other, so to speak. When Galileo refuted Aristotle by dropping two pieces of metal balls, one light than the other, from the top of the Pisa Tower (or so the legend goes), he did more than just demonstrate that Aristotle was wrong, he showed that movements of bodies in the physical world can be summed up through mathematical formulae. Galileo wanted to understand the language of nature, which is constituted by mathematics. This idea gives rise to the view that for a methodology to be scientific it needs to be demonstrable and quantifiable. Instead of the old version of the natural world where things have their natural place and internal dynamism. Things according to Galileo became mere inert matter, mere variables in the mathematical formulae, or geometrical figures in the outline only. This way of viewing the world persists today as a methodological bedrock of modern physics and science as a whole.

Such a way of viewing the world brought us tremendous benefits, as we all know; however, it also led to some insurmountable problems that science cannot solve because of its very constitution. For example, when things are divorced from their "natural places," they are in effect divorced from their "meanings." Of course modern science would say that there is essentially no teleological meanings in nature, but this belief is a logical result of its own methodology which is justified ultimately through some other concepts such as efficiency and accuracy in prediction, but not truth, since in science truth is defined in terms of accordance with the methodology any way.[12] Hence when science comes up against some intractable problem such as how to explain consciousness, it faces

12 Or perhaps truth is defined in such a way that science does not arrive at it totally, but only approximates it or getting closer and closer to it. In this case truth functions, in Pierce's terms, as a regulatory goal of the functioning of science. This is the crux of the debate in philosophy of science between the realists, who believe that there is such a thing as truth which is not dependent on conceptual schemes, and anti-realists or instrumentalists, who believe that the notion of truth functions only as a regulative means. The point being made in this paper, however, does not imply either of these positions.

tremendous difficulty because its own methodological system prohibits any treatment of consciousness as it really is. Instead when it studies consciousness it does so in a roundabout manner where effects of consciousness are studied instead of consciousness itself.

This preclusion of what happens at the first person level then represent a lacuna in science which science itself, left to its own traditional devices, cannot fill.[13] It is here then that the Buddhist way of contemplative and meditative science comes in. The idea, briefly speaking, is that investigation into one's own mental episodes and inner lives can yield something profound, the details of which are explicated in the Buddhist canonical literature; this, however, is something that is not explicable in science because of its methodological constitution. For example, the Buddhist literature talks about insights into the interdependence of all things and into the nature of things itself, in fact the very idea of "thingness" such that it is only an imputed concept with no real foundation in nature. This can be demonstrated only through the meditative method because in order directly to perceive interdependence and lack of subsisting thingness of all things, one has to be able to perceive things absolutely directly without any intervention of conceptual thoughts. This is totally impossible in scientific method, and the traditional scientific belief would argue instead that such a perception is not possible *tout court.*

It is this direct, non-conceptual perception into the nature of things as lacking any inherent "thingness" that is known as perception of the emptiness of all things. For Buddhism the goal of such perception is to gain realization into the nature of phenomena so that one eventually becomes released from the bonds of suffering which bind one to the cycles of life, death and rebirth or *samsāra.* Nonetheless, the direct perception of Emptiness here could open a new avenue for scientific studies, one where there is more direct connection between spirituality and reality. This is highly speculative at this point, but according to Buddhist belief this material body of ours contains another, more subtle body

13 See Francisco Varela and Jonathan Shear, eds. , *The View from Within: First-Person Approaches to the Study of Consciousness* (Bowling Green, OH: Imprint Academic, 1999).

which can be perceived only by highly advanced meditation masters. According to the Dalai Lama, the subtle body here is responsible for connecting one lifetime of a sentient being with another so that the traces of karma, or fruits of action, can be carried over from one lifetime to the next.[14] Furthermore, the perception of the subtle body could be useful in realizing the accomplishments of advanced masters that were mentioned in the canonical literature but look impossible in today's world, such as instantaneous travel, levitation, and so on. The reason why these accomplishments look hardly possible today is perhaps because we are still mired in the mindset of traditional scientific paradigm which precludes direct perception of the subtle body and its world, which according to Buddhism is open to highly skilled meditation masters. An integration of ancient knowledge and modern science could also be developed when modern science opens up its methodological assumptions and acknowledges that perhaps what is considered "science" does include the individual, first-person perspective which according to the scripture does lead to many amazing accomplishments. An concrete example of these accomplishments is perhaps instantaneous movement. According to the Buddhism the mind has no barrier at all for its movement. We can think of being on the surface of Mars and then the mind suddenly is there in no time at all. It would take many seconds at least for light to travel there. So the mind travels faster than light, and if a way can be found to link up the mind and the natural, material world then instantaneous travel might be possible. However, this would not be possible at all if the methodological mindset is not open up to the possibility of high level meditation yielding a new kind of knowledge.

This of course is highly speculative. The idea here, nonetheless, is to look at the main doctrine of Buddhism which was taught and practiced at Nalanda and find out how to use this as a guide toward blazing new trails in scientific research. In fact many scholars and scientists are already exploring this possibility. However, retrieving the energies of

14 See, for example, Zara Houshmand, Robert B. Livingston, and B. Alan Wallace, *Consciousness at the Crossroads: Conversations with the Dalai Lama on Brainscience and Buddhism* (Ithaca, NY: Snow Lion Publications), pp. 46-47.

Nalanda University in order to find it as a source of inspiration does involve more than reinterpreting the key doctrines; it also involves finding out how the institutional dynamism existed at Nalanda could be used as a basis on which epistemic and cultural dynamism could be further enhanced in Asia. In order to begin this discussion, let us look at what Amartya Sen has to say about the University. In his *The Argumentative Indian*,[15] Sen mentions the Chinese monk Xuanzang, who attended Nalanda and stayed in India for many years in the early seventh century. During his time at Nalanda, Xuanzang so distinguished himself that when he was about to leave for China, his colleagues tried to persuade him to remain there. Sen has the following quotations:

> The monks of Nalanda, when they heard of it [Xuanzang's plan to return to China], begged him to remain, saying 'India is the land of Buddha's birth, and though he had left the world, there are many traces of him. … Why then do you with to leave having come so far? Moreover, China is the land of mlecchas, of unimportant barbarians, who despise the religious and the Faith. That is why the Buddha was not born there. The mind of the people is narrow, and their coarseness profound, hence neither saints nor sages to there. The climate is cold and the country rugged – you must think again.[16]

Xuanzang, however, replied by emphasizing the universalism inherent in Buddhism. The Buddha, he said, would not want his teachings to be limited only to one place or one people. He also praised his native land, mentioning a number of its good and worthy aspects. Then he asks how one can say that the Buddha did not go to his country.[17]

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15 Amartya Sen, *The Argumentative Indian: Writings on Indian History, Culture and Identity* (London: Allen Lane, 2005).

16 Joseph Needham, *Science and Civilization in China* (Cambridge: Cambridge University Press, 1956), vol. 1, pp. 209-210. Quoted in Amartya Sen, *The Argumentative Indian*, p. 174.

17 Amartya Sen, *The Argumentative Indian*, p. 174.

Nonetheless, after he had returned to China, Xuanzang still maintained ties with Nalanda. Once he received a letter from his old friend, Prajñādeva, who was at Nalanda, together with some small gifts. Prajñādeva also asked Xuanzang to send a list of books or manuscripts that he wanted from Nalanda. Xuanzang replied by expressing his sadness that his teacher, Silabhadra, had died; he thanked Prajñādeva for offering to copy the books and sent a list of the books and manuscripts that were lost when he was on his way back to China.[18] Thus it is interesting to know that in an age when international traveling was difficult and hazardous, there was this kind of dialog and exchange between Xuanzang and his colleague back in India.[19] The kind of exchange we find here is very similar to what we find nowadays among colleagues who collaborate internationally on a daily basis. The difference seems to be that we scholars today use the Internet and emails for communication, while in Xuanzang's time it took months for news, books and people to travel across distant lands. Nonetheless, we can see the intellectual vigor and dynamism that was present at Nalanda during Xuanzang's time. Books and treatises were constantly written; their content expounded to learned audience who evaluated their content as to their quality. There were numerous debates and discussions. Monks and scholars were genuinely interested in learning, as we can see from Xuanzang's request of books that had been lost during his journey back to China. At Nalanda we can imagine classrooms where student-monks studied with their masters, timetables of lectures, students deliberating on which classes to attend, which professors' lectures they should attend. Undoubtedly there were many, many books housed in libraries where the students and faculty could make use

18 Amartya Sen, *The Argumentative Indian*, p. 175.

19 The exchanges and dialogs did not take place only across geographical or cultural boundaries. According to Radhakrishnan, the exchanges also happened across creeds and belief systems, and it is this mixing of different ideas made possible institutionally by Nalanda that constitutes a cornerstone of democracy (Sarvapalli Radhakrishnan, *Report on University Education* (Delhi: Managers of Publication, 1950), pp. 300-302. Quoted in Shiv Visvanathan, "Democracy, Plurality and Indian University," *Economic and Political Weekly* 35.40(Sep. 30 - Oct. 6, 2000): 3597-3606, p. 3599.).

of. So it is clear that Nalanda was not only a place where knowledge was transmitted, but also one where new knowledge was constantly produced. The subjects taught and produced at Nalanda were not limited to Buddhist ones, but all kinds of knowledge available at that time—grammar, logic, medicine, and so on—were available. One can also imagine a student thinking of which discipline he (it was always a 'he') should specialize. A monk could easily contemplate a career as a scholar, and it was a highly rewarding one also given the infrastructure at Nalanda.

There was also a story of the Buddhist master Shantideva,[20] whose work *Bodhicaryāvatāra* (A Guide to the Bodhisattva's Way of Life) was one of the most widely loved and studied in the entire Buddhist literature.[21] Shantideva was a prince, who became really interested in Buddhism and became a student at Nalanda. However, while he was studying there he did not show any sign of talent or diligence at all. Instead of going to the library or reading the texts, all Shantideva seemed to be doing during his time at the University was, in the words of his classmates, "eating, sleeping, and shitting."[22] As a result, Shantideva was asked by his fellow students to give a lecture on any subject he had studied to an assembly of monks. It was customary at Nalanda for monks to give lectures at this regular assembly, which was likely to be held once every fortnight according to the recitation of the vows of the monks as ruled by the Buddha himself. Shantideva's friends asked him whether he would like to talk about a topic which was already known, or something that was entirely new. Shantideva said it was the latter. His fellow students did not believe him much, as Shantideva did not show any sign of scholarly inclinations or accomplishments at all. So they waited for the time they could really humiliated him.

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20 His name, spelled in the Sanskrit transliteration form, would be *Śāntideva*, but his name has also become quite familiar to those outside of the Buddhist Sanskrit studies circles too.

21 There are many editions of Shantideva's *Bodhicaryavatara*. A more recent one is translated by B. Alan Wallace and Vesna A. Wallace (A Guide to the Bodhisattva Way of Life by Śantideva [Ithaca, NY: Snow Lion Publications, 1997]). The story of Shantideva's life is taken from this book (pp. 11 – 13).

22 "Introduction," in Shantideva, *A Guide to the Bodhisattva Way of Life*, p. 12.

However, when the time for Shantideva's lecture came, he expounded the whole text of the *Bodhicaryāvatāra* entirely out of memory. The profundity of the content and the sheer beauty of the lyrical verses were so stunning that the monks listening scampered to find pencils to take down the verses. They later asked Shantideva for a copy of the text, and then the text became a standard in any Mahāyāna monastery until today.

What is interesting for us is how similar Nalanda is to top institutions of higher learning today. Universities in our times usually hold regular seminars where guests from far away are invited to give a talk, or members of the department share what they have been working on in order to get feedback. The subject matter being researched on and discussed was cutting edge. One cannot listen to the likes of Shantideva anywhere in the world in the eighth century except at Nalanda. Shantideva and his colleagues were at the forefront of Buddhist scholarly and literary activities anywhere in the world.

This represents the core of our problem, which is how universities in Asia could bring back this genial atmosphere that existed centuries ago. Centuries of colonialism and the West's rapid rise in science and technology have resulted in Asian universities lagging behind in all aspects of intellectual life. Nonetheless, that is only a historical phenomenon resulting from a number causes and factors dating back for centuries. But as all historical phenomena are liable to change, then we can lay out a chart by means of which Asian institutions of higher learning and research institutes could be preeminent again.

Perhaps what is most interesting from the Nalanda experience is that all the monks and scholars there were totally free to explore any research topics that interested them and to push forward new frontiers of understanding and knowledge without fear of reprisal due to conflict with previous thoughts or with established, traditional systems. I think a case can be made to explain why Nalanda eventually became an important center of tantric Buddhism beginning around the eighth century right up until the end of the university in the twelfth century. For those who are steeped in the traditional form of Buddhism, tantric Buddhism is very shocking indeed. On the surface tantric Buddhism is a

complete reversal and rejection of everything that the Buddha taught and required his disciples to follow. For example, one of the precepts for the monks is that monks need to refrain from drinking alcohol. But in many forms of tantric Buddhism alcohol is not only allowed but also encouraged as a means by which one could transform one's mental continuum in such a way that one gets closer to becoming liberated. This, however, does not mean that anybody who takes alcohol suddenly becomes an *arahat* or vanquisher of all defilements. But according to tantric Buddhism partaking of alcohol is only a 'skillful means' (*upāya*) through which liberation is ultimately achieved. This cannot be accomplished by a layperson who has not undertaken serious practice and study, for that would mean that the layperson become addicted to alcohol itself with no chance of liberation. On the other hand, those who know how to make use of the tantric principle would be able to transform alcohol into a nectar of liberation.

However, this paper is not one where the tantric principle of Buddhism is explained and defended in any detail, but the purpose of partaking of alcohol in tantric Buddhism is intended to illustrate the *creative* minds that were at work within Buddhism itself. Without the institutional infrastructure of Nalanda and other monasteries-universities in the era, this creativity would not find concrete realization and expression at all. For the traditional Buddhist, drinking alcohol is a serious offense; it is explicitly a violation of the monks' monastic rules laid down by the Buddha himself. It would never have occurred to the traditionals that alcohol could in any way be transformed as to become an aid toward realization of Nirvana itself. But that is precisely the point of tantric Buddhism. Without the creative minds which dared to think outside of the received traditional system, tantric Buddhism would not have been possible. Moreover, history has shown us how tantric Buddhism has given Buddhism itself a lot of vigor and ability to respond to the changing world. Without the infrastructure provided by Nalanda, all this would remain only in the minds of the scholars and practitioners only.[23]

23 See David Snellgrove, *Indo-Tibetan Buddhism: Indian Buddhists and their Tibetan Successors* (Bangkok: Orchid Press, 2004) for a detailed history of the rise of tantric Buddhism in India.

So the idea is that Nalanda made it possible for daring, original minds to put forward their visions and to realize them. Certainly there has to be some form of quality control; otherwise any ideas at all would be pursued, with likely disastrous results. This encouragement and support of daring, out-of-the-line creativity is perhaps Nalanda's greatest contribution to our deliberation on how past Asian institutions belonging to the "Bright Dark Ages" can give us insights into how we should proceed in the future. The creativity behind the rise of tantric Buddhism belies the typical picture of Asian culture as bound by traditions and reluctant to change. Nurturing scientific and technological development in Asia would certainly entail developing the kind of creativity that existed at Nalanda many centuries ago.

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How can the creativity be developed? Perhaps a necessary condition is freedom for the practitioners and scholars to pursue their visions unhindered. This is most certainly what happened at Nalanda. Supported by generations of kings, the scholar-monks at Nalanda were given freedom to develop their own unique ways of thinking. They were able to read, write, and teach everything they saw fit; there was apparently no injunctions against the kind of subject matter they could investigate. This must have been the case; otherwise the rise of tradition defying tantrism would not have been possible. It is true, however, that tantric Buddhism was esoteric in the sense that it was taught and transmitted only to the select, initiated few. But that was perhaps due to the very nature of the tantric teachings themselves. If one were to teach that alcohol could become a liberating drink to a large public gathering who were unprepared, more harm would certainly arise than good. The monks who taught this to the public would certainly face censures from their fellow monks as well as the public at large, and tantric Buddhism would not have taken hold. It is clear, in any case, that tantric Buddhism represents a bold new way of employing the

skillful means, a way which was used extensively by the Buddha himself.

Thus, if we are to search for a way in which the Nalanda tradition of creative, daring thinking to be implanted here in contemporary Asia, we need first of all to ensure that the scholars and scientists are given total freedom to pursue their visions. The scholars and monks of Nalanda faced a problem of how to make the Buddha's message relevant to those who were of certain disposition, the kind of disposition that they later realized that the tantric teachings were suitable to. The monks had a mission of getting the Buddha's message across and they searched for a way to accomplish it, even though on the surface it ran counter to the Buddha's overt teaching. So scientists and scholars in today's Asia could also come up with a way to respond to the challenges facing us today and recapture that sense of creativity and extreme daring thinking in order to find the solutions.

However, providing freedom alone is not enough. It is not the case that once freedom is given to a group of people then they will suddenly become creative. Perhaps one of the most outstanding features of Nalanda was its tradition of excellence. Those who aspired to enter its vaunted gate needed to pass an "entrance examination" set by the "gatekeepers" who asked the aspirants a number of question. Only those whose answers satisfied the gatekeepers were allowed to enter. Once inside, the scholars also needed to prove themselves continually, as we have seen in the case of Shantideva. We could regard this as an ancient system of peer review or quality control. This was the absolute necessity for Nalanda to maintain its reputation as the world's premier academic center, and if its tradition is to be emulated then this aspect has to be taken into consideration.

Another necessary factor is material endowment. Nalanda was able to maintain its reputation because it had received generous support and endowments from generations of kings who were themselves devout Buddhists. It is also very plausible that the laypeople at the time were benefactors. This material support acted as a magnet to attract talents from all corners to come to the university in order to learn and to share their thoughts and findings. Nalanda was a very rich institution, and it is undeniable that if we are to build an

institution of higher learning of the same calibre as Nalanda a huge amount of investment would be needed. Of course we can no longer rely on patronage from kings, since the source of economic wealth in our time comes more from private corporations than from the nobility. Consequently, universities should foster stronger ties with private corporations. Indeed this is what universities in Asia should be doing more. The typical mentality of universities in Asia is that they look at themselves as teaching institutions only.[24] Their main mission appears to be only to produce manpower for either the public or private sectors. But it is now widely recognized that in order to create and maintain economic growth, a strong tie between the industry and the university needs to be forged. It is beyond the scope of this paper to lay out in detail what the ties between the industry and the university should be, but at least the university should be a place where knowledge and technical know how is produced, and this knowledge and know how then becomes tools for wealth production by the private companies. The wealth created by the private companies then return to the university to facilitate creation of more knowledge and technology. Furthermore, the tie can be made tighter when the corporations themselves become knowledge producing entities and the universities becoming more like corporations through their increased emphasis on wealth creation. The wealth created, however, needs to be fed back into the missions of the university itself.

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24 I have conducted a research project, together with a number colleagues in some ASEAN countries and the US, on how Asian universities are using information and communication technologies as a tool for development, both inside their campuses and as agents of change in the outside world. A main finding of the project is that Asian universities still have a long way to go regarding transforming its mission from being teaching institutions into one where research plays a larger role. See, Soraj Hongladarom, "The Role of Universities in Information Technology for Development in Asia (U-ICT4D); Final Technical Report," available at http://www.stc.arts.chula.ac.th/files/UICT4D-Final-Tech-Report.pdf (retrieved August 1, 2011).

So we have research freedom, commitment to excellence and material endowments as necessary conditions for modern universities in Asia to emulate Nalanda and carry on its tradition of excellence. However, the Nalanda legacy would never be complete if one neglects another aspect which is absolutely crucial, the ethical aspect. Nalanda was after all a religious institution. As such it had the primary duty to "enlighten" the world through its religious teachings, and this duty remains very much central to the mission of the contemporary university. The need for ethical considerations become all the more greater in today's world where the advances in science and technology have become so powerful that humans now literally have the power of gods. But power always comes with responsibility and understanding. Thus for humans really to become gods, they need to think, believe and act like gods too. That is, they have to learn to let go of their egoistic, acquisitive attitude and regard all things as parts of themselves. Thus, instead of using the newly found power, such as the power to modify genetic constitution of living organisms, to create seamless human-computer integration, or to enhance their bodily power in order to defeat their fellow human beings in sport arena or in competition in the workplace, human beings should use the power instead for the benefits of all nature, such as using technologies to help restore the balance of the global environment or to find way to harness clean, efficient and sustainable energy. A key principle in Buddhist teaching is interdependence (*pratityasamutpāda*) of all things. That is, all things are naturally related to one another. A thing is what it is only in virtue of its connection with other things. Hence human beings, having the power of the gods, need to learn that they themselves are parts of the natural world and they have a sacred duty, as gods, to use the power provided by science and technology to the benefits of everything, not only themselves or just some groups only.

The role of the university, then, is to inculcate the sense of ethical responsibility in their students. Furthermore, when it conducts research, the ethical understanding and practice needs to be there too. According to the Nalanda legacy, the key element in the

ethical sense is the realization that all things are interdependent such that no thing can stand alone and derive its very essence and identity from itself alone. Another crucial element from the Buddhist legacy is the realization that all of the unethical actions that human beings used to perform through the millennia do stem from selfish attitudes based on the misunderstanding that there is a self, an 'I' that one needs to cherish and protect. Hence humans have become enslaved to their own mistaken sense of the 'I' here, which according to Buddhism is the cause of all evils and all the miseries in the world. As Shantideva, one of Nalanda's most illustrious alumnus, said: "All those who are unhappy in the world are so as a result for their own happiness. All those who are happy in the world are so as a result of their desire for the happiness of others."[25] This is perhaps Nalanda's most enduring legacy.[26]

25 Shantideva, *A Guide to the Bodhisattva Way of Life*, Chapter 8, Verse 129, p. 106.

26 Research for this paper has been supported in part by a grant from the Thailand Research Fund, grant no. BRG5380009, as well as another grant from the Commission of Higher Education. I would also like to thank Prof. Arun Bala for his invitation and for the wonderful workshop in Singapore.

Ubiquitous Computing, Empathy and the Self

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0. Abstract

The paper discusses ubiquitous computing and the conception of the self, especially the question how the self should be understood in the environment pervaded by ubiquitous computing, and how ubiquitous computing makes possible direct empathy where each person or self connected through the network has direct access to others' thoughts and feelings. Starting from a conception of self which is essentially distributed, composite and constituted through information, the paper argues that when a number of selves are connected to one another in the ubiquitous computing network, a possibility opens up where the selves can directly communicate with one another. This has a potential finally to solve the problem of other minds, and in fact any philosophical conundrum based on the supposed distinction between self and the world. When selves have direct access to others' thoughts and feelings, they know the content of others' mental states directly without having to make inferences or employing some other indirect methods. As they are interconnected through the ubiquitous network, and as they are essentially constituted through information, the selves then are spread out across the network. What this implies is that any boundary between a self and another is not as hard and fast as hitherto may have been understood. Toward the end the paper also discusses how freedom and autonomy are still possible in this ubiquitously networked world.

Keywords: ubiquitous computing, self, empathy, person, identity, freedom, autonomy

1. Introduction

Ubiquitous computing is a new kind of computing technology where the computing power resides not only in the computers with which we are all familiar, but also in everyday, familiar devices not usually thought of as computing. A refrigerator, for example, is not usually thought of as a computing device, but with ubiquitous computing technology the refrigerator can become enmeshed in a wide ranging network that receives and sends signals through wireless networks. In this sense the refrigerator becomes "smart" in the sense that it can "make a decision" to send out signals to the grocery store if certain segment of the stuff inside is running out. If allowed, this signaling can take place without the owner being notified, just as certain programs in today's computer can update themselves through the network without having to ask for permission explicitly from the owner every time. According to Mark Weiser (1991; 1993a; 1993b), the technology should make itself disappear by weaving itself into the fabric of everyday life. This is to say that the computing technology will become ubiquitous through having thoroughly and imperceptibly permeated into our lives so that, in effect, computing devices and our normal lives will become one.[1]

In this paper I would like to discuss ubiquitous computing and the conception of the self, how the self should be understood in the environment pervaded by ubiquitous computing. I would like to start from a conception of self which is essentially distributed and composite (in short a "Buddhist" conception of the self), and argue further that when a number of these selves are connected to one another in the ubiquitous computing network, a possibility opens up where the selves can directly communicate and hence be directly empathetic toward one another. The point about the

1 There are currently many terms that refer to closely related phenomenon. Apart from 'ubiquitous computing,' another phrase that is being used is 'pervasive computing.' According to the National Institute of Standards and Technologies (NIST), *pervasive* computing refers to devices which are numerous, casually accessible, often invisible; thus it is essentially the same kind of technology as ubiquitous computing. In fact the two terms are being used interchangeably in the literature (NIST, 2001).

self—the actual referent of the first-person pronoun 'I'[2]— being composite is not new in the scholarly literature. What I am presenting here, in other words, is that when these selves are connected with one another they can communicate directly which has strong implications for empathy and the hitherto intractable philosophical problems of how to know other minds. I argue that a way emerges, through the conceptual possibility of ubiquitous computing, that allows for these selves to have empathetic knowledge and feelings of the other selves which is not possible before. In other words, the selves connected through the network can have direct access to one another's thoughts and feelings. That is, ubiquitous computing provides support to the idea that the self lacks a core identity in such a way that there is no actual mental or physical entity that functions directly as someone's self. Furthermore, as many selves are able to be connected through the network, they can directly communicate with one another so that real empathy can result.

Following the works of psychologists Jerome Bruner, I call this kind of self "distributed self" (Bruner, 1990, p. 107ff; Stevens, 1996). According to Bruner, the self should be understood not as a unitary entity that stays fixed, but essentially social and contextual (See also Gergen, 1991; 1994; and Shotter, 1993).[3] However, the difference between the psychologists' conception and the one offered here is that my version of the distributed self extends over the technological network rather than through a social one. More importantly, the distribution is not there only within an individual self, but the selves in themselves are being distributed on the network in such a way that there are distributions of many individual selves which are communicating and interacting with one another. What connects the distributed self with ubiquitous computing is that the former is constituted through a set of information, and as information can be

2 In this paper I take the self to refer to the referent of the first-person pronoun, namely what is being talked about when one refers to oneself using words like 'I,' 'me' or 'mine.' It is this sense which is the basis of the philosophical problem surrounding the self. It is this referent of 'I' which is the subject of knowledge and subject of moral deliberation.

3 This view finds its support in Buddhist philosophy, which argues basically that the self as commonly understood does not actually exist. See Mark Siderits' "Buddhist Non-Self: The No Owner's Manual" (2011) and also Siderits (2007; 2003). However, this position is criticized by Dan Zahavi in the same volume (2011). See also Zahavi (2009).

manipulated across widely distributed networks through ubiquitous computing, the self can be distributed too. Hence one could consistently say that the self does exist across the network.

It should be noted, however, that distribution of the self through some kind of technology is not new. For example, writing a letter is a form of distribution of the self of the writer because when the writer is writing her letter, it is certainly possible that she is pouring her heart and soul into the letter. The writer's heart and soul, metaphorically speaking of course, is there in the letter, and since heart and soul are what constitute the self of the writer, it can be said that the self of the writer is also found in the letter. In this regard, the ubiquitous network, which allows for instantaneous transmission and reception of information, does extend the self in the same way, though it is much faster. And when the self is thus extended, it touches other selves, the selves of other people. In the old time, empathy resulting from observing others' outward behaviors, such as grimaces on the face showing pain, but in the era of ubiquitous computing, there is a possibility that such means of empathetic knowledge can be direct. Information related to the state of someone's thoughts and feelings can be transmitted directly on the network to be picked up by others. Instead of a nightmarish scenario where individual privacy is threatened, I would like to say that this augurs a positive context where empathetic knowledge can be demonstrated conclusively.

The phenomenon I am discussing here has a profound implication on what it is to be human in the age of pervasive or ubiquitous computing (Weiser, 1993a; 1993b). A consequence of the ubiquitous or pervasive computing phenomenon is that we seem to be witnessing a merging together of what is essentially human, the self, with the network. Not only is information created on someone being distributed throughout the network, but information directly pertaining to one's physical body itself can be so distributed too. Sensors attached to our skin, for example, can monitor our bodily information such as blood pressure and so on and send it out across the network. This seems to imply that what is human might not be limited to the extent of our skin any longer. Moreover, the merging of human bodies to the physical computing network has an interesting implication on how human beings communicate and interact with one another. Without the ability to get connected in this way, humans have had to imagine

what it would be like to be in someone else's shoes, so to speak. We have had to depend on our imagination to think what it would be like to be someone else, to think the thoughts the other is thinking and to feel what the other is feeling. This ability is not only useful for actors, but everyone benefits from this as there is a recent research showing that empathy, the ability to know others' thoughts and feelings, is a key ingredient in lessening evil (Baron-Cohen, 2011). Thus the connection also has a very strong positive impact on our lives. Furthermore, the situation may give rise to a concern that there is a danger of loss of autonomy. As machines are growing stronger and becoming more capable of analyzing and manipulating data intimately related to our bodies and minds, they are becoming more like us.

I would like to show, on the contrary, that humans still have the ability to make autonomous choices. These choices, however, will be more mediated by the machine, since the two are beginning to be merged together. A point I am making in this paper is that the fear of humans losing their autonomy is tenable only if one draws a clear line between humans and machines. When the line is fuzzy, it is more difficult to see exactly who is losing autonomy to whom. The point is this: Even if we humans all migrate to live inside a silicon-based body, we still keep our autonomy because in a sense the machines are *us*. If this is the case, then the basic question of autonomy will shift from whether humans can be autonomous, or whether machines can really be autonomous, to whether the human-machine hybrid that will emerge will ever become autonomous. I would venture to say, in a qualified way, that the answer is yes. There does not seem to be anything wrong for a machine or a human-machine hybrid to be autonomous. (There is certainly another sense which is widely in use where a robot can be 'autonomous.' In this sense the robot is capable of acting on its own to a certain extent without human guidance; an example is a robot car which can drive and navigate the road on its own. However, the sense of 'autonomous' I am using here is much deeper. It refers to the capability of acting on its own and taking responsibility for it, which can only be the case if the agent is fully conscious and self-aware.) The issue depends on a conception of consciousness and the self, but if there is ever a scenario where machines behave exactly like us in every way, then there does not seem to be a point where humans can deny that the machines are conscious.

2. Ubiquitous Network and Distribution of the Self

In my earlier paper (Hongladarom, 2011a), I have sketched a notion of the distributed self where there is a sense in which the self, in a certain sense, is spread across the ubiquitous network. This notion is rather similar to that proposed by psychologists such as Bruner (1990), Gergen (1991; 1994), Shotter (1993) and Stanton (1999). According to Stanton, "[t]he self is heterogeneously distributed because a coherent self emerges from the interconnection of structures of diverse sorts, which together facilitate the experience and manifestation of a coherent identity" (Stanton, 1999, p. 155). Here I would like to present further arguments in support of this conclusion. In the earlier paper the argument is that the self is constituted through information and when information is distributed across the network, it can be said that the self is distributed too. An obvious rejoinder to this argument is that it does not make much sense to say that the self can exist outside of the body. I argued in that paper that the self could in a certain manner be found in other places outside of the body where information pertaining to the self is found. For example, when an artist creates a piece of creative art which reflects her own personal thoughts and feelings, it can be said that the artist's self is there in the work (See, for example, Manzotti, 2011). In the same vein, with ubiquitous computing when information about a person is being distributed through the network, it can also be said that the self is so distributed. The rejoinder would be that the artwork does not constitute the self of the artist, for the artwork can certainly survive even if the artist is no more. The fact that we have numerous artistic works which survive their creators obviously shows that the selves of the artists are not there in the works.

In a sense this is clearly the case. Much depends on what is understood with the term 'self.' If the self is understood to be limited at the skin of the body, then obviously the creation cannot be the self. In other words, if the self and the body are coextensive such that what lies outside of the body cannot be the self, then there is no sense in which the artwork can be part of the artist's self. However, there is another sense of talking about the self where one says that the artist's own personality, her thoughts and feelings,

are there in the work. One might object that this is only a metaphorical way of speaking, but metaphors are based in deeper reality which ground the similarities that are being compared. In this sense, the work constitutes part of the self of the artist just as the artist's thoughts and feelings, expressed in words, are part and parcel of her own self. We know what the artist is thinking and feeling and many things else through understanding these expressed thoughts and feelings. In a way these expressions are the windows through which one can get into contact with the self of the artist. Even when the artist herself is no longer there, we can still get a glimpse of her inner thoughts, her emotions, dreams, desires, memories, and so on, through these expressions. And what more could one expect from someone's self beyond these thoughts and emotions?

Perhaps the problem lies with perspectives. In objecting to the idea that the self can be distributed through the expressions of thoughts and desires or through other forms of information, one seems to presuppose that the self must be seen from first-person perspective. That is, if anything can be a self, it somehow has to be able to function as a standpoint from which a kind of first-person perspective is based. I know that I am a self because I am thinking and feeling, and I know that the coffee cup in front of me is not a part of my own self because it just cannot be conscious, let alone be conscious as *me.* Thus to say that the self is distributed across the network would be, in this view, tenable if a node that contains some information about someone's self can be conscious and can view the world from *its own* perspective. Nonetheless, there are a growing number of researches and philosophical arguments purporting to show that the first-person perspective is only a way in which the self is represented, and does not *constitute* the self.

According to Damasio (2003, pp. 207-208), the self is nothing more than a way the organism represents itself to itself, which is an expedient way for the organism to group the representations it is making together in such a way that they belong to one organism, namely itself. Without a sense of self it is hard to imagine that advanced life like that of a human being can be properly managed. This is because the sense of self relates the thoughts, emotions, feelings that occur as a result of the brain's activities so that they respond to the same organism, the same one that is the owner of these thoughts and feelings from the beginning. Without this ability, thoughts, feelings and emotions

would have no means to bind them together and so become ineffective in helping the organism navigate and survive in the environment. According to Damasio, what the sense of self brings to this picture is one of orientation where large-scale integration of different sense modalities can be performed (Damasio, 2003, p. 208).

What emerges from Damasio's analysis of the self is that it is not a thing as perhaps commonly understood; rather the self is what is referred to when the organism is referring back to itself as one and the same thing over time. What is exactly being referred to is in fact composed of many components and it is entirely possible that there is not one single, enduring thing that remains as the core referent of the orientation. What is being referred to here when an organism refers to itself might be its mental episodes, or its bodily parts, or a combination of the two. But if the self can be more accurately understood as emerging from an orientation, then perhaps there could be an orientation to episodes outside of the body proper where calling them a self might not be too inappropriate. A consequence of ubiquitous computing is that the boundary between the body and what lies outside it is becoming blurred. As one refers to one's "self" when one uses the first-person pronoun, 'I,' 'me,' or 'mine,' what is being referred to can be an episode of the mind, or a part of the body, or some kind of combination of the two. When a body or a mental episode is referred in this way, then it becomes part of the self of the one who refers. When information can be transmitted automatically from the body to the network, in effect it is the body itself that is spreading through the network. In other words the body itself is becoming a node in the network; hence when information is exchanged freely between the original body and other nodes, parts of the body can be found in the other nodes too. Thus it is quite plausible that the components that make up a self do not necessarily belong to the body of the organism. This linking of the body and the network will be more pronounced and visible when more information is exchanged and when the original body itself interacts physically with the network. When there is a linking between the body and machines, for example, in effect the machines then become parts of the body. If I have a prosthetic limb, then it becomes a part of my body; and if there is a network connection between some mechanical parts attached to my biological body to some computing device in a remote location such that I can somehow control the remote device merely by willing it,

then the device in effect also becomes another part of my body. In other words, there could be an orientation where the remote device can become a part of my own self too.

In this way, then, my body can be extended through the network. If I can will a remote device to work according to my wish, and if I become so good at it that I am not conscious any more than it is a remote device that is not part of my original body from the beginning, then it for all intent and purposes becomes a part of my body. In fact my ability to control the remote device according to my wish also shows that my mind is also distributed over the network. A natural consequence of this is that I grow an attachment toward that part. I would say, this remote device is mine, or even is "me." This is certainly plausible if the device and I become so merged that I am not always conscious of the fact that the device is not part of my body from the beginning. But if the remote device can become "me," then my own self is certainly extended across the network.

This extension of the body, the mind, and the self mentioned here seems to work because I can control the remote device. This is certainly possible with pervasive or ubiquitous computing and human-machine interaction. But what about the more mundane issue of sensors attached to the physical body sending out signals to a server? There is no way I can control the server which processes my bodily information in the same way as I can control my prosthetic limb, so is the server or the sensor parts of my body or my self? But if it is the case that information that is being sent out constitutes my self, then it seems clear that the self is extended across the network in this way too. But how is the self constituted by information?

2.1 *Self Constituted by Information*

Susan Blackmore has argued for the existence of memes that constitute conceptions of a self in an individual (Blackmore, 1999; 2003). Memes are self-replicating ideas which compete with one another for survival through successes in copying themselves. Hence memes are analogs of genes which also compete among themselves to get replicated so that they can pass on their genetic heritage to the next generation of biological organism (Dawkins, 2006). Blackmore also agrees with many

other scholars and scientists that there is no such thing as an independent, subsisting self that stands over and above the mind's representations, and for Blackmore these representations themselves are memes. According the Blackmore the illusion that there is a self over and above one's representations arises when the memes arises when the memes see an advantage in doing so. Believing that there is an 'I' who owns the representations or the memes and tie them up together to form an enduring self so that I can cherish and pamper it helps in propagating the memes which happen to belong to "me." Memes that are taken to be "mine" stand much better chance of getting replicated that memes that are not (Blackmore 2003). In this sense the self is nothing but a bundle of memes all competing with one another for the chance to get replicated. There is a meme which might be called an 'I' meme which is very advantageous because it can conjure up all the memes and form an existing self. The 'I' meme then functions as the controller of all the memes that are taken as "mine." All those memes which are on the opposite side, those that are taken to be inimical to the 'I' are then banished very rapidly from the system (called "selfplex" by Blackmore [1999, p. 231]) since they threaten the existence of the self itself.

According to Blackmore, "[t]he self is a vast memeplex – perhaps the most insidious and pervasive memeplex of all. I shall call it the 'selfplex.' The selfplex permeates all our experience and all our thinking so that we are unable to see it clearly for what it is – a bunch of memes. It comes about because our brains provide the ideal machinery on which to construct it, and our society provides the selective environment in which it thrives" (Blackmore, 1999, p. 231). And the memeplex is a group of memes that come together for mutual advantage (Blackmore, 1999, p. 231). Hence, for Blackmore the self is nothing over and above the memes and memes themselves are constituted by information, because they are able to be copied and transmitted through some kind of medium. It is clear at any rate that both genes and memes are constituted by information. A gene encodes certain amount of information which enables it to pass down instructions for, say, brown eyes or fair skin; in the same vein, the memes also encode information. This is clear when we learn from one another and copy ideas from one another very rapidly. Dawkins himself says in his book, "[w]hen you plant a fertile meme in my mind, you literally parasitize my brain, turning it into a vehicle for the

meme's propagation in just the same way that a virus may parasitize the genetic mechanism of a host cell" (quoted in Aaron Lynch, 1996, p. 27). Thus Lynch calls the memes "information viruses." The point is that: If this is the case, then it is a short move to the conclusion that the self itself is constituted by information (Floridi, 2011).

Let us summarize what has been said so far. I have argued that the self is distributed through the network when information pertaining to the self or constituting it is spread there. In the example of my having prosthetic limbs or connection with some kind of device that I was not born with (such as a remote control device), I can sense that the devices belong to me and even become part of my body, hence by extension part of my own self when the interface and interaction between my mind and the device is seamless so that I am not normally conscious of the device as something that has been added on to me, but instead a part of my own conception of my own self, in the same way I am now feeling that my two hands and ten fingers are parts of my body and my self as I am typing this paper on the keyboard. My brain, my two hands and ten fingers are working seamlessly together so that my thoughts are translated into mechanical action of the fingers typing on the keyboard. Hence, if there is a remote device or a network device that blends seamlessly with my mind and brain then the device itself can well become part of my sense of self. Furthermore, as the self is constituted by information, when this self-constituting information spreads around the network, there is also a way of saying that the self itself spreads through the network too.

3. The Human Being in the Ubiquitous Computing World

If the self is distributed in the network, then it seems that the human being is distributed too. In the likely scenario in the future when the body itself is merged with technological device, what it is to be a human will increasingly be technological. Our bodies will be more a product of design than biological evolution. Instead of the blind process of evolution, we humans appear to be in grip of the ability to create ourselves, not just narratively and conceptually, but physically according to our wishes. Here the technology of ubiquitous computing is part of the human enhancement technologies in general. One way of enhancing the human would be to equip them with the ability to

engage with the environment through the network and to have the abilities of the body extended through the network. In being a part of the so-called "internet of things," the human body will be enhanced in many ways.

What does it mean for the human being to be able to spread his or her body and the sense of self and the person throughout the network? One thing is that the boundary between one human being and another will become less clear than before. At present our body and sense of self is limited by our skin, and what separates one human being from another is that I have my own body and you have yours, and the two bodies do not mix as each is encased and enveloped by the skin. However, with the ubiquitous computing network and the merging of the body, many human beings can become parts of the network and since each of the bodies will be distributed, then there will be many instances of touching and merging among the humans that are on the network. In fact this is already happening when millions of humans are interacting with one another through social networking websites and various other forms of electronic communication. Here there is a sense in which each user projects his or her self into the social networking site which then interacts in various ways with their "friends." There is a growing number of research analyzing the ontology of these online "selves" (Floridi, 2011b; Olson, 2011; Ward, 2011; Richardson, 2011; Hongladarom, 2011b; Floridi, 2011c) ;among the questions that are being asked are whether the online selves are one and the same with the normal, offline ones or are there any significant differences. I have argued that the online and offline selves are not essentially different from each other, and the philosophical and conceptual tools that have been used to account for the normal, offline self can be used to analyze the online one too (Hongladarom, 2011b).

However, an interesting aspect of the self being distributed through the network is that there arises the possibility of network bodies interacting and mixing up with other bodies and other distributed selves in a way that can scarcely be imagined before. Without the ubiquitous network and the equally ubiquitous use of social networking sites such as Facebook, it is impossible for an individual to become engaged with other individuals in such an intensive manner. When bodies and selves are spread throughout the network, their interaction will not be merely the case of two skin-encased bodies

talking with or touching each other, but in a sense it will be the case of two network bodies fusing and merging with each other.

3.1 *Uniqueness of the Self*

But if this can be the case, then what about our individuality and our uniqueness that has defined each of us as a unique person? The fact that we humans have been encased in skin-based bodies for so long may have given us a sense that our uniqueness and individuality, our sense that the 'I' in each of us feels that he or she is separate from all other 'I's' out there, is palpably there for us because we all have a body that is distinct from others. After all, we humans are not composite organisms that get together physically to accomplish a common task, such as a sponge which is composed of millions of small, independent organisms getting together to form a large organism which can achieve tasks that each single organism cannot do alone. Our bodies are not naturally attached to each other to form one giant superorganism. That is certainly a biological fact. However, with the advent of social networking sites and the fact that millions are cooperating, collaborating, communicating with one another on such an intensive scale, our selves seem to be merging with one another already even without the ubiquitous computing network that I am talking about in this paper.

We can understand this point better if we realized that our sense of individual self is not based on any kind of ontological reality. Instead it is a construction that our minds have created because it gives the mind certain advantages. If Blackmore is right in saying that our "selves" are nothing but memeplexes, then certainly memeplexes can fuse with one another and any kind of boundary separating one memeplex from another is necessarily contingent. Still, some may object to this point, asking what would happen to our sense of being a unique person with such a fusion is possible. One person, so the objection goes, is different from another, but if fusion is possible, then would that imply that our unique persons would be forever lost in the network so that we ourselves would disappear. Isn't that a very frightening situation? It would be frightening only if there is a self-subsisting, independently existing self that exists as a metaphysical entity; if this kind of self is lost then there is a reason to be frightened because this self is

exactly who we really are. But if who we really are is constituted by a variety of factors none of which can claim to be the core of the self, then it is more difficult to say when my own self is lost. In fact the interaction and the possible fusion between the selves has already happened for a long time in the actual world outside the network. When we share ideas, feelings and thoughts with another person, we in effect are changed by the sharing because the new ideas and thoughts coming to us would be lodged inside of us that have not been there before. Since we have seen that the self is constituted through information, this sharing of ideas and thoughts will then change our own selves in significant ways. In this way the merging of the selves on the network is only an acceleration of what is already going on in the non-network world. When the selves and the bodies of many persons are spread throughout the network, a consequence would be that it would be much easier for one person to have empathy toward others in the network. It would be much easier for one person on the network to know what others are feeling and perhaps thinking, thus enhancing the empathy that one naturally feels toward others. As empathy is a necessary ingredient in one's feeling of compassion toward others, the enhanced empathetic feeling that is enabled by the network then will contribute greatly to a better, more compassionate world. In other words, as Baron-Cohen has shown, the world will become less evil because evil results from lack of empathy (Baron-Cohen, 2011).

Another objection against the idea of fusion of the selves on the network is about the locus of the subjective orientation. Each of us has the central place from which we view the world. It provides us with a perspective from which the world comes to us and seems to give us a distinction between us who are experiencing the world and the world that is being experienced. If the self is distributed across the network and is fusing with other selves, then where is this central place of self-orientation? One consequence of the idea that selves can fuse with one another is that it will be possible to shift this center of orientation. In other words, it would be possible for each of us to experience the world as experienced by another. At present when our persons are located inside our own skin-based bodies, the only way one can know what others are feeling is through imagination. We have to imagine what it would be like to be in the other's situation and to experience the world as she does. The fact that our interaction and communication

and understanding of one another's feelings and thoughts is totally necessary for effective functioning of us human beings as a community and society shows that even without the ubiquitous network this sharing of thoughts and feelings is already happening. It is only through the radical separation of the subject and the object that we seem to think that it is not possible to know what others are feeling. Believing that our subjective self is cast inside our own body, we believe that it is only possible to know exactly our own thoughts and feelings and impossible to know those of others. However, with the selves being distributed throughout the network, it becomes easier for a self to know what others feel. There is, nonetheless, always the sense that, even if my brain is hooked up with the nervous system of another person, what I experience is still *my* own experience that not that of the owner of the nervous system because it is *my* brain that does the experiencing. There is no way of discounting this possibility because there is no way to show conclusively that the perspective from which one view the world is a contingent matter and not essentially related to one's feeling that there is a self to which one is attached. If one always bases one's thinking on the idea that there must always be a self, a cogito, that is separated from all other things in the world, then no matter how much distribution on the network is available, one would still hold on to this self. However, if one believes that what one has been thinking of as one's own self is only one possibility among many, if, in other words, one believes that viewing the world from another perspective is possible, then it becomes easier to experience the world not as oneself, but as another. This is a key component of empathy.

There are many arguments showing that viewing the world from the perspectives of others is certainly possible. Apart from the arguments offered in Buddhist philosophy (see, e.g., Hongladarom, 2007; Siderits, 2007), which purport to show that the self as is commonly understood is a mere thought construction, there are also the famous argument by Spinoza to the effect that the mind and the body are essentially one and the same, as attributes of one and the same God, or nature (Spinoza, 1985, pp. 408-446; Nadler, 2006). Both the Buddha and Spinoza take a different route toward basically the same conclusion that what is taken to be an individual self is nothing over and above a thought construction. According to Buddhism, what is taken to be the core individual self is analyzed to find its components, and these components then are further analyzed

so as to find that there is nothing substantial in any of them (Collins, 1982; Siderits, 2007). The self, then, is constructed out of the fleeting components, a result of what Buddhists call *avidya* or ignorance, which leads to a mistaken belief that what is constructed as the self is ultimately real. In Spinoza the individual self is understood to be a union between an individual body and an individual mind. Since everything is essentially one as indivisible part of the one God, any division of the one reality into individuals, such as persons, must be based on a kind of conceptualization that putatively separates an individual from its surrounding, and also an individual person from another person. As Spinoza believes that body and mind are essentially one and the same thing (as God), there is a strong connection between the two and thus what is understood as an individual self is a result of conceptualization that demarcates it from its environment, all of which are in the deeper nature one and the same. The point is that if the self of an individual A is a result of a demarcation, so must be the self of another individual B; hence there is a clear sense in which the selves of A and B are essentially one and the same. In this way the argument I am forwarding on the implications of the ubiquitous computing network and the self is just another aspect of the arguments about the self already made in Buddhism and in Spinoza. When the selves are distributed on the network, it merely seems to illustrate what Buddhism and Spinoza have already shown.

3.2 *Empathy and the Selves*

If the self is constituted through information, and if information can travel easily throughout the ubiquitous computing network, then it seems only a short hop to the conclusion that when there are many selves on the network, these selves are bound to contact, connect and communicate with one another very intimately and directly.[4] A result is that knowledge of other minds would be on the same status epistemologically

4 My argument here, then, is different from one offered by Dan Zahavi (2007), who argues that the leading accounts on the problem of other minds, namely what he calls the 'theory-theory' and the 'simulation theory' both suffer from a deficit stemming from the presupposition that one has to infer the content of others' minds. In the account being offered here, there is obviously no need to infer, because the content of others' mental episodes can be accessed directly via the ubiquitous network.

with knowledge of one's own mental content. A long tradition in Western epistemology is that the knowledge of one's own mental content has a special status because it is believed that a person always has a "privileged access" to his or her own mental content. This is so because when I have a mental content, say, an itch resulting from a mosquito bite, only I can have direct access to this itchy feeling. If you would like to know what my particular itchy feeling at this particular spot on my skin at this particular time feels like exactly, there is no way for you to be absolutely certain. All you and I can do is for me to try to describe the itch and for you to try to imagine it. This idea of first-person privileged access knowledge is central to Western epistemology because it underpins the idea that the individual is the starting point of knowledge. According to Descartes, for example, true knowledge always originates with the individual ego that has just this privileged access to first-person knowledge. According to this tradition, knowledge is always an individual enterprise. However, it has led to all kinds of familiar problems that have beset Western epistemology for centuries. The most notorious of these difficulties is the knowledge other minds: How is it possible that I can know that you are feeling something or are even conscious?

The problem of other mind is but a version of the problem of general skepticism (the problem that we cannot know the content of the external world). When the basis of knowledge is taken to be individual mental content, it is impossible for one to know the content of the mental content of the other. All one can do is to infer from the other's behavior, which always leaves a possibility open that the other might be faking it. However, ubiquitous computing seems to do away with this difficulty. When the self is constituted through information and when many selves are connected with one another on the ubiquitous computing network, information pertaining to one self's thoughts and feelings can be accessed directly by another. This is still very far-fetched and futuristic, but as in other areas of philosophy it is useful as a thought-experiment that demonstrates a problem with the long tradition of first-person privileged access. If it is conceivable that selves connected with one another on the network can have direct access to one another's thoughts and feelings, a way opens up to know the content of other's feelings

as directly as the content of one's own. This would be the beginning of the end of the problem of other minds and with it the problem of general skepticism.[5]

Having direct access to others' thoughts and feelings means that one can have full empathy toward others. In the world where one has to infer the content of others' thoughts, empathy seems secondary. One infers from the contortion on another's face that she is suffering. But with the possibility of having direct access to the other's suffering pain, one can have full empathetic feeling toward the other. One knows directly and first hand that the other is indeed feeling and how she exactly feels. Empathy is only possible when one can either imagine or have direct experience of another's feelings, so this possibility opened up by ubiquitous computing makes having empathy toward one another all the more likely. And as we have seen, empathy is a key ingredient of solidarity and compassion, thus having direct empathetic feeling can be actually a significant step toward a less cruel and evil world (Baron-Cohen 2011).

3.3 *Freedom and Autonomy in the Networked World*

If the selves and the persons are composite entities distributed over the ubiquitous computing network, then what implications does this have on freedom and autonomy? This is an important part of the question on what is the nature of human beings in the ubiquitous computing environment. According to the standard view found, for example, in Western epistemological and political thoughts such as those of Descartes, Kant and Locke, freedom and autonomy are properties of the free and independent individual who can think on her own, view the world from her own unique perspective, who is free to act according to her own wishes. It seems, according to the

5 An obvious rejoinder to this proposal is that it seems to do away with the existence of the selves all together. If a self can have direct access to another's first-person feeling, then it would seem that any boundary between selves would disappear, since our commonsensical notion is that the first-person access defines a boundary between the selves. However, even though selves can have direct access to each other's feelings, they still exist separately because they belong to different places or nodes on the network. Metaphysically speaking, since the very notion of a self is a construction, this implies that any putative boundary between them would be a construction too. That a self is a construction does not imply that it does not exist.

standard picture, that freedom and autonomy requires a free and autonomous individual. Furthermore, an individual cannot be free and autonomous without possessing an independent self that is capable of making its own decisions and of standing there in opposition to all the forces in nature that seem to conspire against it. This is a very familiar picture of human beings. Thus, the distributed self view seems to undermine freedom and autonomy of individuals because it undermines that existence of the independent, self-subsisting self, or so the objection goes.

Nevertheless, it is not necessary for freedom and autonomy to depend on the existence of independent, self-subsisting self. Freedom and autonomy do not have to be properties only of the independent self, for they can also belong to the distributed self. The basic idea of freedom as belonging exclusively to the independent self is that of a self deliberating for oneself which choice she should make, whether to turn right or left, for example. Thus freedom seems to depend on deliberation that the self is making. When the self is conscious that she makes the decision without being coerced to do so, when she realizes that she is fully free to make the decision, then she realizes that she is free to do so. Freedom depends on the ability of the mind to deliberate on its own and to be self-conscious. However, these abilities can also be performed by the distributed self. There does not seem to be anything in principle against the possibility of a distributed self to make decisions without any coercion and with full consciousness of oneself thinking freely. Making a decision, such as deciding whether to turn left or right, is just another representation that the mind presents to itself. There can also be numerous other representations as well. Making representations in this way does not require that there be a substantive self that functions as the one who calls all the shots and manages everything.

If this is the case, then the question whether humans who are connected to the network in this way will remain autonomous can be answered. One of the anxieties that many have felt as a result of the rapid advances in science and technology is that we humans will lose our autonomy. As machines are taking over our traditional tasks and as we appear to depend more and more on them, many have feared that humans will no longer be an autonomous agent. The fear is that without being an autonomous agent, there would be no human beings as we know them. We will all become zombies.

Nonetheless, I don't think there are any justified reasons for the fear. As the argument above has shown, human autonomy does not seem to be threatened by the possibility that humans can have their bodies and mental capacities extended through become a part of the network. When one human makes a decision, such as when she arrives at a crossroad and is making a decision whether to turn right or left, her freedom is there when she feels deep down to her bones that she is not compelled in any way. She is deliberating whether to go right or left solely on her fully autonomous condition. The fact that she is now attached to a ubiquitous computing network does not have to threaten her autonomy any more than having two arms attached to her body does. She feels that she can move her arms freely within the limit imposed by her physical constitution. The physical constitution does not constrain her freedom; it is not that her being unable to extend her arm to grasp something twenty meters away is a constraint on her freedom as a human person. So should not her attachment to the ubiquitous network be any constraint. So long as she can freely deliberate and act on autonomous understanding, she is free, and I have tried to show that she can also do the same with the ubiquitous network.

4. Conclusion

So let us summarize again. I have tried to show in the previous section that the self distributed over the network does not have to imply that our cherished notions of freedom and autonomy have to be jeopardized. I have also shown that the idea of there being more than one distributed selves connected to a ubiquitous computing network means that the selves who are connected in this way are in a much better position to connect to one another. In a way the selves will be physically connected with one another; instead of having to imagine what it would be like to be in another's shoes, one can literally feel what others are feeling without having to imagine it because the information pertaining to everyone's bodily conditions will be able to travel around the network. As Baron-Cohen has shown (2011), empathy is very much connected with compassion and the lack of cruelty in humans. Empathetic people are much less likely to commit cruel acts than those who are less so, and those who do bad things typically

are less empathetic. Exceptions are only those with conditions such as autism or Asperity syndrome which prevent them from having adequate empathy but still they won't commit cruel acts either (Baron-Cohen, 2011). Empathy is the ability to feel and think what others feel and think. With the distributed selves across the network, empathy will be a result not only of imagination but of the physical network itself.

So what do all these imply for being a human being in this technology-saturated age such as ours? It is quite certain that the notion of what is a human being that has been in operation throughout history needs to change. Many research from different academic fields concur that the idea of the inherently existing self, one that presides over the body and functions as the referent of each use of the first-person pronoun, exists only as a result of kind of orientation, to use Damasio's term. When the orientation changes its course, then this type of self no longer exists. Hence this kind of self does exist in the same way as latitudes and longitudes exist on the geographical field: They don't exist in themselves, but they do exist as a result of our map making and drawing coordinates on the map. The self thus exists also in Searle's sense of "social reality" which gives certain monetary value to a valid bank note (Searle, 1997). A note is valued, say, at 20 British pounds simply due to the fact that it was issued by the Bank of England and passes as a legal tender. Physically speaking the note itself is nothing but a sheet of paper. In the same vein, the putative self passes as a self, i.e., a referent of the first-person pronoun, not in virtue of its possessing the absolute quality of being a self, but by being taken up and agreed by all concerned to function in this way. Hence the self, in Searle's language, is also a part of social reality. What I have added in this paper is that this kind of social, relational self is also found in the distributed network enabled by ubiquitous or pervasive computing technologies. Vastly different philosophical traditions such as Buddhism and the thought of Spinoza concur in maintaining that the idea of an inherently existing self is not tenable.

Acknowledgments

Research for this paper has been supported in part by grants from the Thailand Research Fund, grant no. BRG5380009, and from the National Research University

Project, grant no. HS1025A and AS569A. I also would like to thank the anonymous referees of this paper, whose comments and criticisms led to many improvements of the paper and corrections of many mistakes.

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