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Learning how to make links: The relevance of studying the concepts of Tibetan medicine and its teaching

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Abstract

Nowadays, in Western countries a major problem in science education is to teach the students how to organize and make links between different fields or different concepts. This problem does not appear to be an issue for Tibetan medicine teaching. Therefore, we studied the conditions of transmission and appropriation of knowledge of Tibetan medicine.

We show that Tibetan medicine keeps clear of both the positivism reductionism and of the “experimental method” which are still very much in use in Western medical studies. The concepts of the Tibetan medicine system illustrate Edgar Morin’s paradigm of complexity and systemic conceptions of nature, of the human beings and of their relations with the environment.

In addition, the Tibetan way of learning allows the conservation and the anchoring of complexity in the mind of the students. This is the consequence, not only of the construction of the training academic course, but also of the knowledge management through what one can consider the equivalent of “conceptual maps” in the form of trees of medicine. These trees, by allowing the visualization of complexity, help the students to progress with the knowledge, and, by preserving an approach at the same time total and rational, foster the emergence of a direction to diagnose, to advise and to treat a health imbalance.

Introduction

In Western countries, a general problem in education comes from the fact that the knowledge is presented in fragments. The students have great difficulties to establish links, for example in biological sciences (El Hage, 2005). Consequently, it is interesting and possibly helpful to study other systems of transmission and training in different contexts than those of the Western world. This motivated our interest in the Tibetan medicine training field.

For the last part of 20th century, researchers and teachers from the West have alerted on this problem of fragmentation of knowledge. Thus, Morin (1999a) wrote: “The separation of the knowledge in different disciplines makes unable to seize what is woven together”. Panikkar (1994) observes that “modern science is one brilliant system of “*catalogation*” (=classification system)... but reality cannot be cut out in pieces “. It is a problem which is also found in medicine training particularly nowadays with the development of the paradigm of “the Evidence Based Medicine” which characterizes a person only by statistical and iconographic data. Then the question arises: how to acquire knowledge and to preserve a medical approach which does not split up, which does not divide the mind and the body (this body which becomes more and more virtual, Sicard, 2002), and which is able to consider at the same time the person and the world? With this problem in mind we analyzed the teaching of Tibetan medicine based on the question: how do the Tibetan doctors favor the construction of conceptions of health which do not isolate the part from the whole?

Western bio-medical approach

Indeed, in Western countries, since Auguste Comte (19th century) and the positivist method, there is a division of the sciences based on a hierarchy of the disciplines. Furthermore, the inheritance of the paradigm of Descartes (17th century) leads to a mechanical conception of man governed by the law of reason. Nature is reduced to an observable and handling material and, in consequence, there is separation, exclusion and dissociation between man and the natural universe. The power of the experimental method used in the West has then a major drawback which is the unavoidable simplification of the studied object. For example, the study of the whole body becomes reduced to that of an organ, or of a cellular category, or even, of a type of membrane receptor.

In medicine and obviously in its training prevails a vision of an abstracted individual which is serialized and only put in figures and statistics. Bertola (2004) and Sicard (2004) analyzed well this approach in which the patient is often reduced to his disease or to his biological parameters provided by quantified statistical data and images. Thus, it remains only the facts and a body-object, object of diagnosis, object of therapies. The rule is the standard and not the person. However, nowadays, two opposite positions arise. First, there is an awareness of this simplifying situation which led to the proposition of a new paradigm: the paradigm of complexity, which has been defined by the French sociologist and philosopher Edgar Morin. He wrote, in "Les sept savoirs nécessaires pour l'éducation du futur" (1999a) the following report: "La parcellisation et la compartimentalisation des savoirs rendent incapable de saisir ce qui est tissé ensemble"¹. In the domain of life sciences and education, Trocme-Fabre (2006) emphasized the fact that: "L'acte de relier est le fondement même du vivant" "Savoir apprendre, c'est savoir se relier"². Finally, in the medical field, Sicard (2007) observed that "Nous sommes arrivés à un degré de parcellisation de l'être humain qui me semble extrême dans le sens où, par exemple, un cardiologue refusera d'entendre parler de neurologie et réciproquement"³. The second position, in medical sciences, is the focus on a deeper extent of the dissociation of man and its mechanical conception. It is illustrated by the EBM (Evidence Based Medicine). EBM presents a vision of the individual only characterized by his medical parameters (Sicard, 2004). In the end, there is a reduction of the patient to his disease (Khzami & Favre, 2002).

Tibetan medicine and complex thought

The paradigm of complexity of Morin (1990) is based on three principles (see below). Our analysis of the concepts of Tibetan medicine, led us to think that they are in accordance with the paradigm of complex thought (Nicolas, 2010).

The three principles of Morin's paradigm of complexity are named: the dialogic principle, the recursive principle and the hologrammatic principle (1990):

- The dialogic principle « allows to maintain duality in the unity » by associating two opposite terms which are complementary, and the subject and the object cannot be separated. Tibetan medicine considers that there are two states in every natural element, according to logic: if there is a poison, there must be a cure.

¹ The Seven Complex lessons in education for the future: "The fragmentation and the compartmentalization of knowledge make it impossible to seize what is weaved together."

² "To connect is the foundation of life". "To know how to learn, it is to know how to make connections".

³ "We have reached a degree of fragmentation of the human being which seems to me extreme in the sense that, for example, a cardiologist will refuse to hear about neurology and conversely" (^{1, 2, 3}=personal translations).

- The second principle is the recursive principle. According to Morin, a recursive process is « a process in which the products and the effects are at the same time the causes and the production of what produce them ». This principle breaks off the linear thought. In Tibetan medicine, we can recognize this principle in the way of how is considered the triggering and the treatment of a sickness in relation with the three humors. If a sick patient accepts to treat its unbalance by changing his diet or his behavior, there will be a recursive (feedback) loop, not only affecting the unbalanced humor, but also the two other ones which then will be back to work in balance.

- The third principle or hologrammatic principle considers that “The part is inside the whole and the whole is in the part”. This can be illustrated by the Tibetan practice of taking the pulse since the pulse reflects directly the state of the organ. If there is a problem at the level of an organ, the pulse changes and the doctor will diagnose it.

The Tibetan medicine concepts illustrate the paradigm of the complex thought in its design of the person within her/his environment as well as in the approach of its various components, each one functioning in a dynamic balance and in an interdependent way.

The paradigms of Western and Tibetan medicines can be schematically summarized in the table below:

Question	Western medicine (bio-medicine)	Tibetan medicine (Sowa Rigpa)
What is medicine?	<ul style="list-style-type: none"> - the standardized, statistical standard, coded, full of imagery, objective, measurable, - the prevention, the normalized, standardized risk, - not concerned (or rarely) with the psychological aspects of the health, - situation of activism: propose heavy treatments etc.... performance and efficiency: it is necessary to act. 	<ul style="list-style-type: none"> - global approach of the individual and the individual in his environment, - Tibetan medicine is individual, every individual is unique, - takes charge of psychological aspects of the health, - importance of listening to the patient.
How is the body considered?	<ul style="list-style-type: none"> - a mechanics, - coded data. 	<ul style="list-style-type: none"> - a dynamic and changeable stream every minute, always in relation, - humors and elements * in balance: healthy body, * in imbalance: sick body. <p><i>Note: the same concepts are present in Hippocratic medicine.</i></p>
What is the conception of man?	<ul style="list-style-type: none"> - I.... the other separated, - I....nature and environment ...separated, - a set of needs. 	<ul style="list-style-type: none"> - individual singular in his history and at the same time global, and a psychological and social individual.
What are the invariants?	<ul style="list-style-type: none"> - body – spirit physical and material structures (organs, functions). 	<ul style="list-style-type: none"> - 5 elements – 3 nyepas: not outside elements of the patient but qualities recognizable in the natural environment where human beings live, - their relations.
How is the sickness considered?	<ul style="list-style-type: none"> - a biological problem, - something foreign, abnormal, coming generally from outside. 	<ul style="list-style-type: none"> - a disorder, an internal imbalance which affects the whole person. <p><i>Note: same concepts as in Hippocratic medicine.</i></p>

Question	Western medicine (bio-medicine)	Tibetan medicine (Sowa Rigpa)
What are the causes of the physical disorders?	<ul style="list-style-type: none"> - physiological causes, often unique, - foreign agents, - often a single external agent, - linear causality. 	<ul style="list-style-type: none"> - multiple causes: plural and varied causes resulting from a context and a set of circumstances (immediate causes, distant causes, internal causes, behavior, character, environmental causes, karma), - NEVER an external cause – originally, the causes are in the mind, - recursive causality, complexity.
How is the treatment elaborated?	<ul style="list-style-type: none"> - organic care (medicines, surgery) - eliminate the symptoms 	<ul style="list-style-type: none"> - advice on life style, - advice on behavior, - then treatment by medicine, - making the patient aware of his responsibility.

In addition, one of the characteristics of Tibetan medicine concepts is that nothing, whether in the components or in the concepts is permanent. Morin (1990) notices also this impermanence when he writes “Living beings only seem to form solid and stable bodies”. Another characteristics as Dr. Donden (2001) points out is that, in Buddhist philosophy, “all the things exist in interdependence, and nothing is endowed of an independent nature”. Each individual is at the same time singular in his history and is connected to the others and his particular environment because, as Bitbol (2010) underlines “we cannot be extracted from the world... and of the relations which we maintain with the world”. The patient is seen like a whole in relation to the others, to the environment, to the various components of himself and of his history. There is distinction but not duality or exclusion between the body and the mind: the subject is a living being, a physical support which hosts a mental continuum. It is also “a receptacle for the transformation, not only of food during digestion, but also of our experiments of the ordinary life and our emotional answers” (Dorjee and al., 2005). This is in opposition to our Western way of thinking since our perceptions conceive and perceive the things in an opposite way.

Let us look more closely at the concept of health: in Tibetan medicine it is far distant from the Western one where the criterion of health is the capacity to work. Panikkar notes that, in traditional medicines, the health is not “a perfectly regulated machine which is operational but that an healthy organism expresses harmony within himself and with the universe and this allows him to taste the “*beatitudo*” which is the characteristic of the man” (Panikkar, 1994). And about this health/happiness or Sukkha, Matthieu Ricard (2005) specifies: “Sukkha, it is a way to be, a healthy state of mind which impregnates all the emotional states and remains solid and stable through the ups and downs that everyone can have to face during his life”. For the practitioners of Tibetan medicine, the best advice than one can give to somebody to be in good health can be summarized as follows (Dorjee and al., 2005): “Think before speaking, think before eating, think before deciding, think before acting” to which Dr. P. Dorjee adds: “smile at least three times a day”.

In bio-medicine, bodies and phenomena are identical from a patient to another (Sournia, 1982), whereas for Tibetan medicine, each patient is a unique case. Western medicine protects, fights against the attacks (virus or bacteria for example) coming from outside; it “manages”, it acts from outside to eliminate the symptoms and this appeared extremely powerful in many fields.

Then arises a question: how is taught this complexity in order to promote and to maintain a construction of the designs of health and the environment which does not isolate the part from the whole? We saw that the concepts of Tibetan medicine fit with the complex thought, and we will show now that the way of learning allows the conservation and the anchoring of the notion of complexity in the mind of the student.

Teaching and learning Tibetan medicine: educational practices. How is complexity integrated by the student?

In Tibetan medicine teaching itself there are different points we would like to underline:

- there is initially an **oral transmission** by the reading of the text, then transmission of the direction with the explanations. The emphasis is placed on listening and the attention.
- there are always **several presentations** of the text: initially in a condensed way (framework), then in a more detailed way (explanations), then come the instructions and, lastly, the synthesis to support the assimilation and to get an overall vision.

For the teachers, transmission of medicine should guide the student in order to enable him to experiment the medical knowledge. But, there is also a knowledge which is not communicable by words and which is acquired only by experience. It is what Morin (2005) calls “to understand as a human” or “to understand as a subject” or to understand in the first person. Thus the master, the professor, is not only centered on the contents of the knowledge to teach, but on the learning and its relation with the contents. He transmits also values which the student needs in his practice of care.

The table below summarizes the main characteristics of the teaching in the Western and Tibetan medicines.

Question	Western medicine (bio-medicine)	Tibetan Medicine (Sowa Rigpa)
What is teaching?	- informative enrichment (simplifying thought), - juxtaposition of disciplines.	- changes of conceptions (complex thought), - creation of links.
What is taught?	- disciplines, - structures.	- what connects.
How?	from the beginning, learning by disciplines, by large fields (anatomy, functions ...)	1 st year students see everything, 2 nd year, they see everything, 3 rd year, they begin to go into details and they separate.
How is scientific knowledge elaborated?	- based on the exclusion: the subject on one side, the object of knowledge on the other one: dualistic approach of the world, - the object to be known is outside the subject, - focused almost exclusively on the physiological processes of the physical body (reductionism).	- no exclusion, intervention of the subjectivity, - the object to be known is the subject, - the knowledge is suited to a context.
What are the teaching methods?	- formal education, frontal type, - written notes, - case studies.	- formal education, frontal type, - reading the text = oral transmission, - then explanation = transmission of the meaning, - stress put on the attention and on the listening.
What has sense?	- the biological markers, outside references, - notion of cause is more and more replaced by the notion of risk.	- the person is never mixed up with her/his disease.
What are the ethics of medicine teaching?	- not explicit.	- way of listening to the teaching, - way of giving the teaching.

How are repetition and memory considered?	- accumulation of knowledge usually in a linear way.	- the non-forgetting of the known object and protection from the distraction (clarity and concentration), - considered as source of renewal and deepening, - deeper and deeper integration of the knowledge in each student's life (interiority).
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In Tibetan medicine training, it is necessary to establish the link between the knowledge obtained by the study (= intellectual understanding) and the links with the own experience of the student (= inward understanding, i.e. first person understanding). The most outstanding features of the educational practices are the importance of the transmission lineage and the emphasis placed on memorizing. In the first chapter of Basic Tantra of Gyud Zhi, there is an expression which comes repeatedly. It is an imperative injunction to the student: “LEARN and UNDERSTAND”.

What is understanding?

It has the meaning of the Latin « *comprehendere* »: to take together, to take with oneself, that is:

- listening to the teaching (notice that in Tibetan language, the verb to listen means also to remember),
- memorizing in order to meditate upon it, i.e. to become accustomed to it,
- understanding it as an instruction, in other words to integrate it completely,
- putting it into practice.

In other words, to understand has the meaning of “realization” i.e. result of the three main trainings: Study – Reflection – Meditation which, if they are correctly accomplished, led to the control of the mind.

What is learning?

To learn is not to accumulate knowledge. But in the same way that when a child learns how to read, he must pass by the stage of training on the alphabet, the Tibetan medical student has to pass the stage of training the Gyud Zhi by rote learning. Then, studying it and its strong bases will able him to practice his medical art. Because as Krishnamurti (1974) writes “To learn must never be an additive process. To really learn is an active process. ... There is an enormous difference between learning and acquiring knowledge. Throughout the world, education consists simply of this acquisition of the knowledge, and thus, the spirit blunts, it ceases learning. It is satisfied to acquire. This aiming of acquisition directs all our lifestyle and, consequently, imposes limits on the experiment. Whereas the fact of learning is unbounded”.

For Giordan (1998) to learn “is to organize a system of conceptions”, but also (Giordan, 2002) to learn “is not only to transmit or receive, it is also to transform the ideas, ways of reasoning”. The emphasis placed on memorizing points out the art of the memory such as it has been developed in Occident in the antiquity and the Middle Ages (Yates, 1966; Carruthers, 2002). In the Western countries, one considers in general that the repetition and the memory are used for the accumulation of knowledge, and this in a linear way, whereas Tibetan medicine teaching considers an organization of the knowledge with its origin, its history and its lineages. This allows to present and integrate the history of this medicine and the way in which the knowledge have been established and transmitted. This aspect stressing the connections with history is closed to what Morin (1999b) underlines: “the history should play a key function... while making it possible to the

student to incorporate the history of its nation.” Repetition and perseverance are characteristics of the methodology of training, associated with the attention and the concentration.

Role of memory and meditation in the process of training

Let us point out that for Carruthers (2002), memory has two distinct aspects during the Middle Ages, among the Greeks (Aristotle) or among the Latin (Cicerone): first the recording, the entry of information, *mnesis* in Greek or *memoria* in Latin and second, the recollection, the exit, *anamnesis* or *reminiscentia*.

In Buddhist philosophy, there are two meanings for memory. One is to remember, i.e. to make emerging in the mind a concept, a fact which was not present before; the other, is to avoid forgetting. This supposes that the object, the concept, is present in the mind and that one avoids forgetting it. It is what is active during meditation. The text is not considered as something that one should have on the shelf of his library (or nowadays in her/his computer) in order to be consulted, it must be totally integrated. In the Western world, memorization is not well considered because it is thought to only reproduce in a passive way a previous experience. But recent research starts to stress the importance of the memory and meditation in the training (Bjork, 2014). Recently in the West, meditation, in the form of mindfulness, has been advocated as a useful tool both for medical practice and for the training of medical undergraduates (Epstein, 2003). Indeed, it has been observed that medical doctors are uncomfortable when facing unfamiliar situations can lack empathy, and that undergraduates are experiencing anxiety resulting in reduced performances. Consequently, it is recommended that mindfulness would be used as a pragmatic tool to promote awareness, reflection and humility (for review, Lowell, 2012).

The lineage of transmission

With memorizing, another aspect to be underlined is the importance of the oral transmission of Tibetan medicine and thus of the transmission lineage (Meyer, 1988; Nicolas and al., 2011). In the West, the development of the “big science” led to an anonymous knowledge (Morin, 1990b) whereas this is not the case in Tibetan medicine. And this could be related to the construction of the Tibetan language itself which underlines this aspect. Indeed, it is the origin of the information which is important, and it is the verb (“being” which has the two forms in Tibetan) which gives the source of information. And thus, the first form of the verb “to be” is employed when personal information is expressed, and the second form when it is factual information (Tournadre & Dorje, 2009). The transmission lineage thus passes personal information, directly from master to disciple since the origins of Gyud Zhi. The medical knowledge is thus anchored in an history and has solid roots. And it is through the transmission lineage that the medical art history is preserved and transmitted.

The importance of ethic

Another striking aspect of the Tibetan medicine teaching compared to the bio-medicine one is the importance put on ethic, i.e. the manner of leading one’s life. A medical doctor must have at least six fundamental qualities: analytical mind, expression of compassion and a good heart, ethic, patience, effort and concentration, wisdom.

These characteristics are not only due to his commitment to take care for the body and the mind, but also to his motivation and his final goal: the liberation of cyclic existences (Drungtso, 2007). According to Dr. Choedrak (1996) a doctor must develop the following qualities: he must be able to

look after all the disorders, never be discouraged by the encountered difficulties. He must have a very strict discipline and look at his patient as he would his own parents. He must be creative and enthusiast, and to have a steadfast courage.

There is also in the education of the Tibetan doctor a dimension which is essential: it is what we can call the interiority. It is neither measurable, nor quantifiable. It is nevertheless the base of all educational action. As noted by Filliot (2007) “Oublier cette dimension essentielle, c’est réduire l’apprentissage à une mécanique sans signification humaine au profit du culte de la performance”³. The teacher passes on values, in particular the rules of ethics and behavior, to the future doctors, values which they will express themselves in their relations with their patients.

In the West, ethics is often reduced to an ethic of normality with imposed standards from the outside or lies on “ethical dilemmas”, not directly related to a conduct of life (Bertola, 2004). On the contrary, Tibetan medical practitioners put at the center of their concern the subject who is unique. They develop an ethic which “approaches more the wisdom than the reason. It is a question of understanding what is to be good rather than to have a correct judgement. A wise (or virtuous) person is the one who knows what is the good and who does it spontaneously” (Varela, 1996). It is what the medical student (amchi student) must develop. In France, according to Sicard (2007), the re-introduction of ethics in medical studies is “a necessity” and, recently, in a few medical schools, courses on ethics are now proposed to the medical students (Khan, 2009).

Management and communication of knowledge with a complex approach: modernity of Tibetan medicine trees: trees of knowledges or conceptual maps

The management of the knowledge is one of the most acute questions at the university education level, i.e.: how to master the information, the knowledge of medicine, its concepts, in order to have at once a global and precise organized vision of it?

In other words: how to make links? One of the main answers is mapping.

In Western medicine, there has been recent creation and development of a whole family of tools to organize the spatial representations of concepts, because (according to Tricot, 2006) “the problem is not any more the indexation of the information, but that of a global apprehension of the knowledge”. It is what is called mind mapping, knowledge mapping, abstract map or concept map. The concept maps (Novak & Gowin, 1984) are maps of organization of ideas or concepts and they are not a linear representation of the information. They visually express the concept of interrelation, an essential concept in any learning, and they allow to show and to visualize the links.

In Tibetan medicine there is a specific example of a concept map: the trees of medicine. These are innovations of the methods of teaching since they are supposed to have been used as soon as the Gyud-Zhi has been written. Drawn and formalized with colors as they are in the thanka by Sangye Gyatso, in the 17th century.

The tree is an ideal metaphor allowing to showing, at a first glance, a set of items which are interrelated. In the West, the idea of the tree has also been developed around the 13th century, but their conception is different than that of the Tibetan medicine ones. They often show a complete symmetry. In the Tibetan trees of medicine, this symmetry does not exist. In these didactic constructions, there is exposure of the knowledge in such a way as to see, immediately the numerous factors taking place and associated to (for example) maintain balance or produce imbalance. The structure of the tree establishes a model which allows to showing the complexity, illustrating that everything exists only in connection and relation with other phenomena. These trees are spectacular illustrations of a non-simplifying teaching which develops the complex thought by

⁴ “To forget this essential dimension, it is to reduce the training to a mechanic without human significance with the profit of the worship of the performance” (personal traduction)

allowing the contextualization of knowledge (Nicolas and al., 2011). Moreover, they are associated with an oral transmission which teaches awareness and contextualization of one's knowledge. This illustrates the path to pertinent knowledge, proposed by Morin (1999a) in the « Seven Complex Lessons in Education for the Future ».

Conclusion

In summary, we observed that the concepts of Tibetan medicine are in accordance with the contemporary paradigm of the complex thought that Morin supports and promotes. Moreover, the way and the methods of learning allow the preservation and the anchoring of the complexity in the mind of the student. This procedure is substantiated with a pedagogic tool "the trees of medicine", which can be compared to the contemporary mind mapping or concept mind. Finally, the way of teaching Tibetan medicine, follows the requirements defined by the UNESCO (Delors, 1997) in the four pillars of education which are: learning to know, learning to do, learning to be, learning to live together.

If Western medicine, due to its too numerous separated disciplines, has difficulties to take into account all the aspects needed for its comprehension, the Tibetan doctor knows to preserve and to have from the beginning of his studies an integrated vision and a systemic approach of the person in her/his environment. Tibetan medicine and its teaching offer us an example of thinking. It appears to us as an illustration of a lively complexity, taught and always operational and operative in Himalayan context. We think that the West, in its own context, could find profit in considering and taking into account this approach.

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