

CROSSDISCIPLINARITY

**An introduction and some application examples to enhance the
toolset of global knowledge**

How ancient Chinese concepts could improve the modern Western
natural sciences



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Deeply grateful to all who accompany and support me.

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Cover picture: «Unicorn» from © Olivia Vuong (2018). The unicorn is a mythical animal and an icon. It symbolizes the good. With this unicorn, this project gallops in good spirits towards the future.

*«If life had turned out differently, where
would we all be then? I miss you».*

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Preface

Everything began with the discovery of the connection between the teachings of Qi and quantum mechanics. It happened during an evening shift, working at the helpline of the University of Zurich and the Swiss Federal Institute of Technology Zurich, in September 2009.

Well, the author of «Crossdisciplinarity» is tempted to quote an old Chinese wisdom that could read as: «A worn knife must be sharpened again». The saying sounds plausible and one could easily declare that it, in fact, exists.

The same is true of her thesis, the method of crossdisciplinarity, which is different from interdisciplinarity. Crossdisciplinarity exists latently, but not manifestly. It has always been there, as long as humanity has been striving for knowledge and solutions. What is new about crossdisciplinarity is the coining of the term and its ambition. If the crossdisciplinary approach was met with scepticism, it would be a good sign. Why? Because the more unlikely an information is, the more informative it is.

If the worn knife stands for the modern Western natural sciences, then the whetstone stands for the ancient Chinese conceptions. For example, the ancient Chinese theory of the five elements may declare the existence of dimensions of matter to be true, that until now, have remained invisible, since the measuring tools were developed by inventors who looked through the lense of the modern Western theories.

This exposition clears the view to a universe that not only crosses subject boundaries and methods, but also travels through space and time in order to find answers to urgent questions of our time.

Introduction

Before Ambros Uchtenhagen (*1928) enrolled in medicine and psychiatry at university, he had studied philosophy and sociology. Since he approached psychiatry from a different perspective, he was able to establish a new and successful way to resolve the drug problem at Zurich's Platzspitz in the early 1990s. He stood for a pragmatic drug policy in Switzerland, proposing that addicts would be legally provided with prespecified doses of heroin and methadone.

This story shows that the way of thinking in a different discipline can help us to get rid of the blinders that experts often have when it comes to their own field. The achievements of two other scientists are further examples of how a fresh view can question already established knowledge. Alfred Wegener (1880-1930), who had studied physics, meteorology and astronomy, developed the theory of continental drift, which was vehemently questioned by geologists of his time. And Jane Goodall (*1934) found a new approach for behavioural research through her observations of chimpanzees in their natural habitat. Goodall began working in this field as a young woman without any university education. Her research was doubted by various academic groups¹.

Success stories like these, where outsiders prevail, serve as a silver lining on the horizon for this paper. The following text addresses crossdisciplinarity as a method that not only crosses subject borders and methods, but also wanders across space and time in order to

¹ Rosslenbroich, Bernd (2014): Evolutionsforschung im 21. Jahrhundert: von der Aktualität des goetheanischen Ansatzes. In: Heusser, Peter / Weinzirl, Johannes (Hg.): Rudolf Steiner. Seine Bedeutung für Wissenschaft und Leben heute. Schattauer GmbH. Stuttgart. S. 149-152.

draw from the unlimited resources of the whole human knowledge, of different models and experiences. In short: This paper suggests solution approaches on how to discover inspirations that could give answers to urgent questions of our time.

First, a definition of crossdisciplinarity and some insights into knowledge development will be given. Second, the initial ideas will be briefly described, i.e. the connections between modern Western natural sciences and ancient Chinese conceptions, and how they could enhance the global knowledge toolset. Finally, this paper will close with a mention of some application examples.

1. Crossdisciplinarity

Interdisciplinarity, so far, has generally confined itself to merely bring together subjects that are already close or related. As a result, it only combines related scientific methods and approaches. Its success stems from the affiliation as well as the expansion of borders between fields that are already close to each other. Interdisciplinarity stands for a temporary removal of subject borders. Unlike interdisciplinarity, transdisciplinarity promotes a science practice and order that permanently crosses borders, as can be seen in the permanent collaboration and common problem solving approach in the areas of ecology, health and energy².

Crossdisciplinarity, much like interdisciplinarity, must be as old as humanity, which has for ever been pursuing knowledge and solutions.

The use of graphical and mathematical methods in the social sciences in the early modern period, is an example of a successful application of crossdisciplinarity. The development and use of tables has made it possible to split content in various dimensions and to relate it with each other. This has led to new insights³. Moreover, statistics made it possible to join large amounts of data with mathematical operations in order to attest with statistical certainty the scientists' assumptions.

² Mittelstrass, Jürgen (2003): Transdisziplinarität – wissenschaftliche Zukunft und institutionelle Wirklichkeit. Konstanzer Universitätsreden. UVK Universitätsverlag Konstanz GmbH, Konstanz. S. 9-10.

³ Vgl. Desroisières, Alain (2005): Die Politik der grossen Zahlen. Eine Geschichte der statistischen Denkweise. Springer Verlag, Berlin.

Essentially, there has always been an exchange of methods and knowledge of different subjects, as far back as we can think. However, the academic life was somewhat paralysed by its own success in the beginning of the 20th century. The structures of universities with their research traditions and professorships promote a tendency for conservatism – even if this tendency has produced some success.

Crossdisciplinarity could be practised in the following way: The humanistic mode of thinking more widely and in different patterns can lift the logical thinking of modern Western natural sciences onto a more general level. The mainstream of the natural sciences is a prisoner of its own thinking corset: Research and development only function within predefined rules that are set up by already established theories. Crossdisciplinarity can help loosening this corset, because the humanistic mode of thinking uncovers the view on contingency, on the fact that «it can also be different». Of course, this does not mean that we would deny, that an apple will fall, if we drop it. However, crossdisciplinarity can enrich the explanation and the view on this topic.

Science fiction weaves the latest knowledge of engineering and natural sciences into a fictional society to visualize future scenarios. It is sometimes hard to say who first brought up an idea – fiction or science – because inputs have come from both fields.

Unlike science fiction, which mainly draws on the latest knowledge and technological standards of science, crossdisciplinarity can even make use of ancient knowledge and non-Western notions. Thus, the motto is to stroll across space and time. Moreover, our horizon can be broadened when we read strange sources and when we consider information, knowledge and methods from different spheres of life rather than just from mainstream science.

Hence, crossdisciplinarity is nothing new. What is new about it is perhaps just the coining of the term and the ambition of the approach. It would be a positive sign, if crossdisciplinarity was met with scepticism. Because the more unlikely an information is, the more informative it is⁴. Nonetheless, new knowledge always depends on familiar codes and interpretations, as familiarity builds the bridge to viable innovation.

One impressive example for an almost unimaginable change is how the medieval estate-based society was replaced by the rational ideology of modernity. The status of a person in the medieval estate-based society was predefined by birth. Modernity, though, claims freedom, equality and fraternity for everyone. The worldview conveyed by the medieval estate-based society was overtaken by the societal and economic conditions. The world of the modern period had more professions and roles in store than the medieval estate-based society could have foreseen. Suddenly, birth no longer determined the social status of a person. The credo of modernity was constant transformation: Everything only stays the same if things change. Thanks to social and regional mobility, modern societies could cope with the new demands. Thus, the implementation of the societal, political and economic updates for modernity is constantly in progress. Changing society has, time and time again, required new visions. Sociology has been one of these new societal technologies.

⁴ Flusser, Vilém (1992): http://www.equivalence.com/labor/lab_vf_glo_d.shtml (23.07.2018).

In the beginning of the 20th century, the cultural philosopher Georg Simmel postulated that sociology's task was to «put a new line through [known] facts»⁵. Indeed, at that time, a lot of facts and data about society had already been collected. Hence, the solution was to put a new line through known facts. This implies combining data in a new way and defining new categories for the perception and grasp of reality. In short: New abstractions were needed.

Abstraction means combining and calculating information in a certain way. If we collect data, then the form of its presentation also affects the way we grasp the content. In general, successful abstractions and theories are vital models and components of our thinking, whereas imagination bridges the gap between model and reality. To visualize the link between a notion and the object of a notion, Buddhists use an imaginative line as a metaphor that connects the fingertip, which points to the moon, and the moon itself⁶. Conceptions, theories and models only work because we get involved with them and follow their hint, as when we're looking at the fingertip and see the moon. However, we can see the moon and point at it from a lot of different angles and corners. Crossdisciplinarity does not lose sight of the moon, even if it brings into focus the many fingertips that point to the moon in order to find solutions for problems of our time. Many answers are right under our noses, but we still overlook them.

⁵ Originally: «eine neue Linie durch [bekannte] Tatsachen legen». In: Simmel, Georg (1992): *Soziologie. Untersuchungen über die Formen der Vergesellschaftung*. Gesamtausgabe Band 11. Frankfurt am Main: Suhrkamp. S. 17.

⁶ Golzio, Karl-Heinz (2002): *Lankavatara-Sutra. Die makellose Wahrheit erschauen. Die Lehre von der höchsten Bewusstheit und absoluten Erkenntnis*. Scherz Verlag, Bern/München/Wien. S. 227.

2. Initial ideas

The initial ideas stem from one discovery: That there are similarities between modern Western scientific models and ancient Chinese notions. These connections nourish the hope to find, in completely «unexpected» fields, answers to most recent scientific questions and thus, to overcome established perspectives and their blind spots. In the following, the common features will be described in order to suggest further steps that could enhance the global knowledge toolset.

2.1 Relation between Qi and quantum mechanics

Western biochemists produce medicine by computing and changing the state of electrons. The teaching of Qi shows how to heal through the influence of energy gates. The common feature of both conceptions is the notion of regulating energy in matter.

2.2 Relation between five-elements-theory / fengshui and physics

Force is a precise dimension in western physics. From matter, physicists blind out everything that has nothing to do with the dimension «force». The Chinese five-elements-theory (wood, fire, water, earth, metal) captures broader dimensions of matter. Both systems of thought have in common the belief that matter has vibes / force / effect and that matter interacts with one another.

The teaching of fengshui, which is fundamental for Chinese architecture, builds on this belief. In the Western hemisphere, architects use notions of art for their work, e.g. the simultaneity of space and time which leads to transparency. The Western and the Chinese way of constructing buildings and landscapes share the idea that a spiritual basis and theory is vital to shape material forms.

2.3 Relation between «accounting of good deeds» and epigenetics

In the Chinese system of faith, people believe that the good deeds of parents have an effect on the life of their offspring. As a result, people try, as good as they can, to achieve a positive accounting record. Epigenetics, on the other hand, postulate that one's lifestyle has an effect on the genes which will be passed on to the offspring. Both conceptions share the belief that at the very least, the way how ancestors and parents have lived does have some kind of effect on their offspring.

2.4 Enhancement of the global knowledge toolset

The latest state of the relation between modern Western natural sciences and ancient Chinese conceptions, e.g. traditional Chinese medicine (TCM), consists of transferring features and phenomena that the TCM postulates into the modern Western science system. But only what Western measuring instruments can seize will be acknowledged as effective and serious. Undoubtedly, this is a safe method and approach to check the credibility of a different system from one's own standpoint.

However, crossdisciplinarity goes one step further. It aims to make ancient conceptions visible and graspable on the ground of the current state of our knowledge. For instance, Western instruments mostly measure the concepts of force, voltage and power, or chemical reactions. In contrast, the teaching of the five elements implies that matter has more vibes and effects which modern Western measuring instruments cannot capture. This gap could be filled by the invention of new knowledge tools and supplementary terms. A solution is to develop terms and tools that both integrate and are derived from ancient Chinese concepts. Potential seems to lie in the chemical and biological indicators and measuring techniques. Perhaps, a collaboration of physics, biochemistry and ancient knowledge would work.

Furthermore, the reverse approach, to control energy gates from the outside, has not yet been pursued or explained by modern Western theories. How can the teaching of Qi and the quantum mechanics be united?

Epigenetics, too, follow the way of details and theory through the inside, whereas the «accounting of good deeds» is based on phenomena that can be observed mostly from the outside. Medicinal statistics combine the two ways: First, with statistical records about biographic lifestyle information and diseases that can be observed and registered mostly from the outside. But then, second, the amount of the collected disease data doesn't allow conclusions through simple contemplation, it rather requires theoretical assumptions and mathematical operations which, in turn, are the way of details and theory through the inside. On the other hand, the «accounting of good deeds» opens a door for a spiritual dimension which has been once for all banished from the modern Western sciences.

The enhancement of the science vocabulary and its measuring instruments could change the foundation of already established knowledge. Hence, existing problems could be explored by posing new questions and therefore, new perspectives could arise, too.

At the moment, there are two different time systems: They exist independently from one another. In China, the lunar calendar is used, while in the West, people structure time on the basis of the sun. A lunar year has 354 days, whereas a solar year has 365 days. Hence, different measures for years and for dates exist. A calendar which integrated both systems would be a new time measurement system. Such a new common time measurement system could be a further step into the direction of universality. Perhaps, the clear structuring through our familiar perception of time will then turn out to be obsolete. Although a new structuring today is unimaginable, it could, if it were possible, make the text of the revelation in the New Testament comprehensible and clear.

3. Some application examples

From the perspective of crossdisciplinarity, one can derive some application examples: They could enhance the established modern Western science system, since new insights structure new worldviews and new knowledge leads to change in people's daily life. Although, the suggested changes seem unworldly at first, they could, if implemented correctly, make the traditional principles look old-fashioned.

Below, application fields are listed, in which crossdisciplinarity could induce fundamental innovation and enhancement of the modern Western natural sciences. Applications in areas that are not natural sciences have not been considered yet.

- New measuring instruments
- The soul fills the gap between the spirit and the matter
- New time measurement

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About the author

Ly Vuong, born 1980 in Sumiswald, Switzerland, is the youngest of eight children of a Teochew-Chinese refugee family from South Vietnam. She graduated as third best from the grammar school in Langenthal. At the Swiss Federal Institute of Technology Zurich, she studied architecture for four months. She is an alumna of the University of Zurich in sociology, sinology and media science.

Some of her works are: graphic arts, shortest stories, translations and poems in several languages, children books («Eine Giraffe lernt tanzen», «Wenn Kinder um die Sonne streiten», «Oma passt auf mich auf»), comics («Mutterfreude» published 2011 in *Rosa – Die Zeitschrift für Geschlechterforschung*, «Tabubruch bei den Mickys» published 2016 in *Rosarot – Zeitschrift für feministische Anliegen und Geschlechterfragen*) and more than 300 newspaper reports for the *Limmattaler Zeitung*.

The present work uncovers the view to a universe that not only crosses subject boundaries and methods, but also travels through space and time in order to discover answers to urgent questions of our time.