

The latent esotericism in modern science and statistics

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ABSTRACT. The oft-prevailing attitude towards science from those working within anthroposophy or Waldorf education has at times fluctuated between self-suiting praise and open derision. In contrast, Steiner himself placed great importance on science and the scientific method, all-the-while alluding to limitations of imprisoning investigation in philosophical materialism and muddling percepts and concepts. After outlining four common prejudices against science (i.e., demonstration of the obvious, obsession with numbers, too reductionist, hypotheses represent bias), I then turn to discuss the science of statistics, which in recent years has taken on an increasingly esoteric, phenomenological form. Newer forms of science appear to have commonalities with Steiner's idea of four manifestations of being, which are subsequently outlined. Finally, parallels with and dangers upon this scientific, philosophy-of-freedom path are briefly alluded to.

The perhaps controversial motivation for this paper is the observation that, despite Rudolf Steiner's thorough scientific grounding, including attempts to develop anthroposophy in a modern spirit of openness and methodological rigour, too little has been achieved precisely in this regard. Furthermore, it is often bemoaned in anthroposophical circles that „science“ has ignored anthroposophy. Indeed, science is often criticised as being materialistic and closed to anthroposophical ideas. Despite this, certain scientific discoveries are often enthusiastically devoured and regurgitated by such anthroposophists, especially when these are thought to provide proof of supposedly anthroposophical ideas. The unfortunate consequence of such a superficial and self-selecting approach to science is that this bestows an increasingly unscientific and sectarian flavour on anthroposophy (e.g., see Pfeiffer, 1999, p. 160), thus constituting a departure from the carefully laid and hard-won experience-oriented epistemological foundation that Steiner sought to give anthroposophy (Steiner, 1918/1986; Steiner, 1996).

In the current paper, I explore whether and how the scientific path in general, and more specifically statistical methods, could provide an avenue to conduct research that (a) satisfies the demands of modern scientific standards of objectivity and transparency, (b) handles and sorts observed symptoms in a surprisingly phenomenological way, and (c) provides an objective and empirical basis through its inherent reliance on mathematics for the existence of non-physical realities.

Obstacles to the development of science in anthroposophy

In its essence, anthroposophy was intended to rise out of a deeper understanding of the world, which is only possible when the world is studied (or experienced) in all its details (Steiner, 1918/1986). This approach to (spiritual) knowledge, by virtue of its anchoring in physical symptoms, should give anthroposophy a thoroughly grounded character and prevent it from becoming a segregated movement that speaks in

vague abstractions. Indeed, Steiner is known to have bemoaned, for example, the lack of knowledge that anthroposophists have with regards to the sciences, such as anatomy (Pfeiffer, Meyer, & Ahrens, 1999) and he himself went to great effort to busy himself with the results of modern research (Lindenberg, 1997).

As a result of Steiner's broad knowledge in a number of fields and his original contributions to these, he could speak impressively on a broad range of subjects – but he had first earned the right to do so. I would argue that is therefore equally incumbent on anyone seeking to critique and improve current understanding to also first earn the right to speak with authority by thoroughly immersing themselves in the knowledge and development that humanity has acquired thus far. Because I believe that a failure to do this has presented a hindrance to truly advancing both Waldorf education and anthroposophy, I devote the first part of this essay to addressing some common misconceptions against a scientific approach. In a second section, I present a possibility of how advances in statistical methods may be used to conduct research that satisfies demands of objectivity, transparency, and a possibly also a spiritual phenomenology.

Misconceptions toward Science

Prejudice 1: Science demonstrates the obvious. In many instances, it is entirely true that scientific findings, especially in the educational and social sciences, do indeed demonstrate what was already obvious. By obvious, I refer to the demonstration of phenomena that can be otherwise won through practical experience or observing with a healthy judgment. Indeed in many cases, studies do report banal findings, which has the unintended effect of causing confusion through an explosion in the number of scientific publications.

However, the scientific method can be understood as a systematisation of observations, because percepts and concepts are subjected to a stringent range of controls and verification. For example, as with any exact observation, the scientific method seeks to determine the conditions under which a phenomenon occurs, what preceded this, what results thereof and through this, the phenomenon in its entirety becomes better understood by the scientist. To express this in the language used in Steiner's epistemology (Steiner, 1918/1986), through a constant process of refinement, an initially muddled mix of *percept* and *concept* becomes better sorted and organised. It is my belief that this procedure followed to its conclusion slowly reveals a distinction between percept, representation (which is a find of working hypothesis or theory), and objective thought-concepts representing a spiritual manifestation in thinking of the phenomenon itself. Thus, a scientific inquiry stopped prematurely or conducted without sufficient intensity and selflessness indeed results in a muddy mix of percept and concept - but this need not be the case!

Prejudice 2: Scientists are obsessed with numbers. One charge levelled at many branches of science, especially those of the mathematical-empirical kind, is that such researchers suffer from an obsession with numbers. This obsession apparently leads them to overly dissect and simplify the world, thereby eliminating qualitative experiences and preferring a kind of number-driven, performance-oriented cold reality, much like is seen in GDP-focused evaluations of societies (e.g., PISA studies).

Upon closer examination, the use of numbers in the social sciences serves at least four key purposes. First, this allows the broadening of concepts won from single case-studies to more representative and less sampling-biased larger studies. Second, numbers allow the comparison of strengths of relations between phenomenon. Third, mathematical relations provide a solid and universal language, which more readily enables tests of logical coherency in findings. Fourth, data expressed mathematically allow for powerful computational calculations, taking account of many factors simultaneously, for which there is no current qualitative equivalent (Tabachnick & Fidell, 2007).

Despite the obvious advantages of using numbers—some obvious dangers notwithstanding—there still exists a kind of prejudice against such work in educational and anthroposophical circles. Part of this arises out of a misunderstanding of the difficulty in conducting such work, part of this arises out of a misconception that humanities-style investigations are somehow more spiritual or holistic. Additionally, it is often said that interviews or so called „qualitative methods“ (Luttrell, 2010) are preferable (these generally still work with „data“ but often in the form of words and usually with very small sample sizes). In reality, any good field of

empirical enquiry is also built on a clear line of thinking and a broad range of methods, I am not intending to place one method over the other, but rather point out some key advantages of statistical and empirical methods.

Prejudice 3: Science is (too) reductionist. A further concern with the outlined statistical approaches and research methods is that they are overly reductionist. Goethe is known to have said that in the moment that a person seeking to study a rose cuts it off from the plant, he or she has failed in this attempt. This principle is undeniably illustrative of the importance of studying a living rose in its living context, which of course includes earth, sun, and rain. However, the same concern is recognised in educational and psychological research and is termed *ecological validity*. Caution is, for example, repeatedly urged against taking experimentally derived procedures and indiscriminately transferring these into the real-world settings.

Threats to ecological validity arising through reductionism is overcome only by studying phenomena from many sides and such an endeavour ends up providing a rich source of information about the effect of contextual variables and a more pure picture of the phenomenon under study itself. Again, the problem is not the scientific approach per se, but its one-sided application and interpretation. This empirical reductionism actually presents a challenge to constantly sharpen powers of perception and discrimination. By reducing and separating phenomena, it is possible to become more conscious of the unique nature of each part and how the various parts work in relation to each other.

Prejudice 4: Hypothesis = bias. Any given investigation is fraught with multiple sources of error that can compromise its findings. As a result, it is important that robust knowledge is acquired through a process of replication and extension, with studies building upon the previous foundation laid in earlier work. This has two implications, first, it is important not to overstate the findings of one single study until they have been verified or ideally falsified from other perspectives. Second, this can render it extremely difficult to introduce and embed novel lines of research in the current scientific discourse. In this manner, theory and hypothesis—which can serve scientific enquiry extremely well, growing this in a solid and verifiable manner—can also serve to imprison the enquiring mind into that which is already considered „Accepted Truth“.

However, it would be a mistake to believe that scientific enquiry should abandon hypothesis altogether. Hypothesis should be abandoned in so far as possible during initial, primary observations and studying of a new phenomenon, where it can lead to confirmation-bias and an absence of falsification (i.e., the attempt to disprove something that is believed to be true). However, a line of investigation nearly always begins with a particular purpose, so there are always at least hypotheses in the form of research questions. Additionally, a shift in modern research designs away from hypotheses in favour of research questions is observable in educational and psychological science, at least when prior knowledge is insufficient to allow formulation of hypotheses. Crucially, hypothesis and falsification are important tools in evaluating and advancing knowledge, so long as they do not hinder the researcher from examining the phenomena from new perspectives. It may be interesting to note that Steiner himself suggested that his work be initially treated as hypothesis (Steiner, 1990).

Modern Statistics: A Path to a Spiritual Phenomenology?

The field of modern statistics is one that draws much scepticism from representatives of anthroposophy and Waldorf education and often with good reason too. Yet, as I will argue, statistics has potential to uncover many esoteric, latent relations between complex phenomena that otherwise remain hidden (Tabachnick & Fidell, 2007).

Statistics serves at least three main purposes. The first, and the most elementary level, is that of „sorting“ the world. At this level, statisticians (both professional and lay) operate like collators of census data by sorting the world into measurements and categories. Obvious examples are figures such as unemployment lies at 7%, 45% of students attend university, or 30% of people in a certain village voted for the libertarian candidate. This level of statistics seems to be associated with a certain kind of spontaneous psychological

satisfaction in those who bandy such figures around, presumably because it allows a simplification of a complicated world into a few simple figures. Indeed, although sometimes useful, this represents a very superficial level of analysis. However, statistics at this level of „measure, count and weigh“--although clearly important in certain contexts--are not what I intend when I speak of the importance of statistics.

A second layer of statistical analysis concerns trying to identify coherency and belongingness. This type of analysis asks questions such as: whether height and weight relate to one another, whether smoking links to lung cancer, or whether experiences in nature result in fewer attention-deficit symptoms in children. The strength of such relations can be represented mathematically by a common metric, and if so wished, compared to one another (e.g., do walks in the forest result in greater attentional control than taking Ritalin?). Through such methods, subtle yet crucial relations between phenomena can be detected that otherwise might have remained hidden. Moreover, it is possible to investigate the relation between many variables to one another (e.g., does smoking relate to lung cancer after considering air pollution, diet, stress, and alcohol consumption?).

This second level of statistics leads to a third level developed in recent decades, which investigate *esoteric* aspects of existence. Unlike in the physical sciences, in the psychological sciences and all sciences of the soul (including education), the phenomenon of interest can seldom be measured or observed directly with the usual senses. Clear examples are consciousness, intelligence, love, happiness, achievement, and stress. In some cases, more direct correlates can be measured, such as cortisol levels in the case of stress, however, this represents only a biological marker related to stress, and not the *feeling* of stress itself. In a similar vein, a rating on a scale or a verbal report is only a representation of an internal state, not the internal state itself.

To deal with the problem of being unable to measure the factors of interest directly, modern statistics (or psychometrics) has developed the following solution. The variables of interest that are not directly visible with physical instruments are then called „constructs“ or, for the current paper more aptly termed, „latent variables“ (latent meaning hidden, not-yet-observable). In contrast to latent variables, a category of „observed“ or „manifested“ variables exists, which can be directly seen and more directly investigated (Byrne, 2010).

Interestingly, in terms of Steiner's epistemology alluded to earlier, there are clear parallels between latent variables and concepts on the one hand and observed variables and percepts on the other. No serious psychometrician would claim that school achievement is the same as scores on the PISA achievement tests in maths, science, and reading. Instead, performance on these tests *represents* performance on observable parameters that is indicative of the latent, esoteric variable of achievement. Intelligence is, similarly, not the score on a given intelligence test, which is only a composite from various subtests. Crucially, through mathematical procedures (Byrne, 2010), it is possible to estimate whether certain observed and latent variables relate well to each other. Thus, an objective exoteric science is provided that can investigate esoteric phenomenon and questions (e.g., is intelligence related to morality? Are there four temperaments, or five, or none, or two? Is temperament separate from constitution and personality?).

At this juncture, at this third level of statistics, science becomes decidedly phenomenological. The researcher needs to sharpen his or her tools of observation, collect the relevant data through selection of appropriate instruments and then to think precisely, in phenomenological supra-symptomatic manner. If the correct symptoms or observable variables have been included, corresponding mathematical procedures can be used to group the data into their respective phenomena. Thus, it could be theoretically investigated using this method whether certain dietary preferences, health problems, and personality characteristics relate to certain temperaments, as thought to be the case in anthroposophy (Steiner, 1924). This process is however not strictly bottom-up, that is, the data are not simply thrown together through abstract computer calculations, but need to be guided and verified by top-down procedures, thought-driven processes. Needless to say, such research requires a great deal of care and responsibility alongside much replication and falsification to avoid confusing cocktails of percept and concept. However, it has the potential to satisfy the twin demands of modern science and also Anthroposophy, namely, those of openness and esotericism (i.e., investigating the previously hidden...).

Statistical phenomenology?

In some of Steiner's last work, published as *Leading Thoughts*, he writes of four levels of manifestation of beings or phenomena (Steiner, 1924-1925). The first he termed „accomplished work“ (Werk), the second „working“ (Wirksamkeit), the third „revelation“ or „manifestation“ (Offenbarung), and the fourth „Being“ (Wesenheit). It is my opinion that he intended to point out how different layers of experience relate to different layers of reality. In terms of the current discussion, I am astounded by the parallels between Steiner's fourfold conception and the outlined statistical and scientific approach, which is summarised in Table 1.

Table 1: Steiner's idea about manifestation of being and phenomenon, reversed and related to statistical-esoteric and esoteric-scientific levels of knowledge and experience.

Steiner's Term	Scientific method	Corresponding scientific activity
Accomplished work (Werk)	Measure, count and weigh; investigation of symptoms	Observation and experience of symptoms
Working (Wirksamkeit)	Correlation and Experiment; first stages of hypothesis and theory; investigation of how various symptoms co-occur	Experimental manipulation and analysis
Manifestation or Revelation (Offenbarung)	Logical thought; Theory when elevated to the level of mathematical clarity, grounded in reality	Thinking and intuition
Being (Wesenheit)	Intimate understanding and appreciation of phenomenon in its totality	Experience of non-perceptible side of phenomenon

At the first level, the scientist busies him or herself with the symptom. In previous times, many would have been content that the observed symptom is the phenomena itself - which undoubtedly led and still leads to misunderstanding (e.g., a child's performance on a test is not his ability, but simply performance at a given time, under given conditions, on a given test - each of which has its limitations). However, as outlined above, this level of symptom is now better understood as the manifested layer only of some overarching phenomenon.

Through experimental work, such observed symptoms can be arranged and manipulated to determine how various symptoms affect and relate to one another. Thus, the next level of inquiry, or in Steiner's terms, the next level of manifestation is „working“, which for the scientist is experienced through studying cause and effect. At the third level, after a sufficient degree of involvement with symptoms and cause and effect, ideas, theories and intuitions are shaped and inspired - the objects of investigation reveal themselves ever more to the investigator. Here it is possible to experience the thoughts that construe the phenomenon. Through repeated experience and a deep immersion in the topic under study coupled with a constant gathering and refinement of concepts, the investigator experiences moments of intuition, breakthroughs, so called „ah-ha“ experiences.

Although my position here is a little more controversial, I also believe that many scientists who tread the path of the first three steps with conscientiousness and earnestness, a kind of experience of the „being“ of the

phenomenon ensues. Often this manifests very subtly, and due to prevailing materialistic conceptions would seldom be recognised as such an experience. However, there are instances when a scientist is presented with a view of a phenomenon that he or she has studied deeply - be it alcoholism or semantics or something else altogether. Then, when the scientist in question is presented with a description of, say alcoholism or semantic development that is incorrect, it jars somehow and not merely at a thinking level. Instead, it feels as if the piece of information is being incorrectly conveyed about a *being* that is falsely understood. The ensuing feeling is similar to that experienced when a person who is truthful by nature is being denigrated by another as dishonest. Although, the possibility for self-deception at this level is great, what I seek to describe in this feeling is my claim that this indicates that the first three levels of knowledge have been extended into a fourth level, a knowing of the phenomena, albeit somewhat unconscious in many cases. Again, I reiterate that this generally only applies when the person in question has literally „lived and breathed“ the phenomenon under study, and I believe to have seen this level of knowledge acquired from this path in a few rare instances from top scientists.

The path from anthroposophy to science and back again...

It seems that 100 years of anthroposophy bear witness to the idea that, for whatever reason, on the surface anthroposophy and science have existed in parallel, with the former finding little acceptance in the latter. For many, anthroposophy's methods and framework are too different to that which is currently accepted as tenable practice. Confronted with this reality, we have two choices. Either we develop anthroposophy in parallel or we focus more effort on developing science. The danger with developing anthroposophy in parallel is that it is then removed from scientific discourse and comes to be viewed as a kind of separate stream, sometimes even unkindly termed a "sect".

This second option is one that can be termed, in so far as I have been able to observe regarding anthroposophy, the path less travelled. In this approach, Steiner's work can still be poured over and received with the great enthusiasm and thoughtfulness that it deserves. The many challenges to established ideas and the many insights provided therein, constantly prod and provoke a questioning of one's own world view. Steiner's descriptions of the cosmos and his epistemological work, including the esoteric aspects, can also be studied into their detail, this helps with viewing the world in a more complete fashion. At this point, however, a danger presents itself, whereby the erroneous belief can arise that just because one has read and been enthused by anthroposophy, one has the right to then speak out of this work as if one had acquired the knowledge first-hand oneself (Pfeiffer, 1999). Here it seems to be important to carefully sort percepts from concepts and representations, the "known" from the "believed" and the "experienced", which can be both a painful and a liberating experience. The least that can be acquired through such a process is an impetus to take life more seriously, observe more closely and with less bias and more openness. Perhaps additionally, which is also of particular benefit for scientific endeavour, a changed relationship to the world of thoughts and ideas might be noticed, an increased receptiveness to the surrounding world, which can then sharpen and accelerate further inquiry.

The described scientific path is not without parallels to other paths described by Steiner for personal development (Steiner, 1987). Such a path may initially seem cold and devoid of the artistic and it also brings with it great dangers of developing narcissistic attributes (e.g., how important one's own research is). However, if carried through with openness and a love for the phenomenon under study—typified by the ability to abandon a life's work for a better explanation when and should this come along—can equally cultivate a deep sense of humility. Most importantly, such a spirit opens up fields of activity in communion with, and not in opposition to, one's contemporaries.

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