A Critical Realist General Theory of Interdisciplinarity and Disability Research
Roy Bhaskar meets Herman Hesse

NNDR 2017. Berth Danermark
CONTENT

Roy Bhaskar meets Herman Hesse
What is interdisciplinary research
Interdisciplinary research and meta-theory
Integration of knowledge
Praxis
Roy Bhaskar (1944-2014) meets Herman Hesse (1877-1962)
"Nobelpristagaren Hermann Hesses böcker var länge svensk standard i gymnasiestjaketter. Ett självklart steg i bildningsgången." (Nobel price winner Hermann Hesse's books were for long period of time a Swedish standard in high school students’ jackets. An obvious feature in the formation of an intellectual.) Dagens Nyheter 2005-11-03

Glasperlenspeil, Glaspärlespelet, The Glass Bead Game
The Glass Bead Game

The Glass Bead Game is the last full-length novel of Hesse. It was begun in 1931 and published in Switzerland in 1943 after being rejected for publication in Germany due to Hesse's anti-Fascist views. A few years later, in 1946, Hesse went on to win the Nobel Prize in Literature. The Swedish Academy said that the novel "occupies a special position" in Hesse's work. Playing the game well requires years of hard study and the game is essentially an abstract synthesis of all arts and sciences. It proceeds by players making deep connections between seemingly unrelated topics. The Glass Bead Game is "a kind of synthesis of human learning".
In this important book, the authors provide a much-needed general theory of interdisciplinarity and relate it to health/wellbeing research and professional practice. In so doing they make it possible for practitioners of the different disciplines to communicate without contradiction or compromise, resolving the tensions that beset much interdisciplinary work. Such a general theory is only possible if we assume that there is more to being (ontology) than empirical being (what we can measure directly). Therefore, the unique approach to interdisciplinarity applied in this book starts from ontology, namely that there is a multimechanismicity (a multiplicity of mechanisms) in open systems; and then moves to epistemology.
Some bullet points in *The Glass Bead Game*

The aim of the game is to overcome the *fragmentation of knowledge*

History, natural and social sciences and human’s experiences shall be brought together and create a new *holistic understanding* of the world.

Hesse’s ontology: the *reality is layered* which makes it possible to play the game, i.e. to unify the knowledge.

Hesse’s epistemology acknowledges that every level (storey) has developed its own language. And in the game we develop a *new mode of communication* which enable us to understand each other over disciplinary boundaries (in my words: crossdisciplinary understanding).
<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Problems</th>
<th>Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metatheoretical</td>
<td>No common team philosophy</td>
<td>A common metatheoretical approach unifies interdisciplinary teams</td>
</tr>
<tr>
<td>Theoretical</td>
<td>The idea of incommensurability; reductionism</td>
<td>Integration of knowledge; non-reductionism</td>
</tr>
<tr>
<td>Methodological</td>
<td>Methodological imperialism</td>
<td>Methods are specific to the level of the analysis (there is specificity and pluralism in methods)</td>
</tr>
<tr>
<td>Individual</td>
<td>No communication between researchers</td>
<td>Communication is based on mutual understanding of interdisciplinarity and respect for knowledge from other disciplines; individuals have an interdisciplinary education</td>
</tr>
<tr>
<td>Administrative</td>
<td>Universities tend to be organised along mono-disciplinary lines; lack of interdisciplinary career pathways and incentives</td>
<td>Universities have a supportive administrative structure; clear career pathways and incentives for interdisciplinary researchers.</td>
</tr>
<tr>
<td>Financial/Funding</td>
<td>Funding bodies cannot cope with interdisciplinary proposals</td>
<td>Interdisciplinary proposals are evaluated using transparent criteria informed by metatheory that is equivalent across disciplines</td>
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All scientific theories presuppose a set of philosophical assumptions about nature of reality (ontology), how reality can be known (epistemology) and what are the most appropriate methods to use to acquire that knowledge (methodology).

Figure 2  Structures, mechanisms and events

Source: Sayer 1992: 117
Heavy water, formally called deuterium oxide

A form of water that contains the hydrogen isotope deuterium, (D), contains protium isotope $^2\text{H}_2\text{O}$ or $\text{D}_2\text{O}$

This difference increases the strength of water's hydrogen-oxygen bonds, and this in turn is enough to cause differences that are important to some biochemical reactions
Disability and position on labour market – a biopsychosocial perspective ($E_3$)

Biological structures and mechanisms (e.g. hearing loss, psychiatric disorder)

Psychological structures and mechanisms (e.g. trust, self-esteem)

Social structures and mechanisms (e.g. discrimination, wage allowances, quota-system, accessibility)
Necessarily laminated system

(vii) normative kinds of mechanisms
(vi) cultural and
(v) socio-economic
(iv) psycho-social
(iii) psychological
(ii) biological, and more specifically physiological, medical or clinical
(i) physical

Roy Bhaskar & Berth Danermark: Metatheory, Interdisciplinarity and Disability Research: A Critical Realist Perspective
REDUCTIONISM and INTERDISCIPLINARY RESEARCH

In a classic intellectual dispute between E. O. Wilson and Stephen J. Gould:
Wilson: Interdisciplinary coordination involves reducing problems of study in the social and cultural world (e.g., social behavior, art, and technology) to their basic bio-chemical components (e.g., the neurological categories that might explain the social or creative experience).
Gould critiques Wilson’s proposed reductionism and argues that the best interdisciplinary work recognizes the intrinsic differences in disciplinary forms of knowledge, each embracing a unique [and often complementary] form of explanation.
Physicalism (First published Tue Feb 13, 2001; substantive revision Mar 9, 2015)

Physicalism is the thesis that everything is physical, or as contemporary philosophers sometimes put it, that everything supervenes on the physical. … The general idea is that the nature of the actual world (i.e. the universe and everything in it) conforms to a certain condition, the condition of being physical. Of course, physicalists don't deny that the world might contain many items that at first glance don't seem physical — items of a biological, or psychological, or moral, or social nature. But they insist nevertheless that at the end of the day such items are either physical or supervene on the physical.

(Source: Stanford Encyclopedia of Philosophy)
Imagine Mary, a famous neuroscientist confined to a black and white room. Mary is forced to learn about the world via black and white television and computers. However, despite these hardships Mary learns (and therefore knows) all that physical theory can teach her. Now, if physicalism were true, it is plausible to suppose that Mary knows everything about the world. And yet — and here is Jackson's (1986) point — it seems she does not know everything. For, upon being released into the world of color, it will become obvious that, inside her room, she did not know what it is like for both herself and others to see colors — that is, she did not know about the qualia instantiated by particular experiences of seeing colors.

Following Jackson (1986), we may summarize the argument as follows:

P1. Mary (before her release) knows everything physical there is to know about other people.

P2. Mary (before her release) does not know everything there is to know about other people (because she learns something about them on being released).

Conclusion. There are truths about other people (and herself) that escape the physicalist story.

(Source: Stanford Encyclopedia of Philosophy)
Structures (S) enables mechanisms due to their virtue

Mechanisms (M) have to be understood as working in interaction with other mechanisms, Context (C), producing an Outcome (O)

\[ S + M + C = O \]
Levels

Integration

Praxis

Effective epistemic integration of knowledge in a holistic perspective
Suicide attempts (%)

USH1 non-work: 22.7
USH1 work: 8.7
Ref non-work: 3.1
Ref work: 2.1

(Source: Ehn, M. et al. Work in progress)
## Summarize (Interdisciplinary research on Ushers syndrome)

<table>
<thead>
<tr>
<th>Level</th>
<th>Central S+M (exemples)</th>
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<tbody>
<tr>
<td>Physical</td>
<td>Mutations (DNA)</td>
</tr>
<tr>
<td>Biological</td>
<td>Time of onset and pace of deterioration</td>
</tr>
<tr>
<td>Psychological</td>
<td>Working memory, Ontological security</td>
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<tr>
<td>Psycho-social</td>
<td>Social recognition</td>
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<tr>
<td>Socio-economic</td>
<td>Distribution of resources</td>
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<tr>
<td>Cultural</td>
<td>Discourse and Social Representation</td>
</tr>
<tr>
<td>Normative</td>
<td>Justice</td>
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Ontology (intransitive dimension)

(disambiguation)

Epistemology (transitive dimension)

The object for interdisciplinary research

Integrated knowledge about the object

Disciplinary/reductionist phase

Multidisciplinary phase

Interdisciplinary teamwork phase

Integrated understanding/result

(t0) Discipline 1
(t1) Discipline 1
(t2) Discipline 2
(t3) Discipline 2

Epistemic emergence

(t0) Discipline 3
(t1) Discipline 3

(t0) Disciplinary/multidisciplinary integration
(t1) Integration
A tentative critical realist informed definition

Interdisciplinary research is any study or group of studies undertaken by scholars from all relevant levels that are needed in order to answer the research question. The research is integrating analysis of structures, mechanisms, and outcomes at these levels by using study design and methodology that are most appropriate for respective levels. The output is knowledge emergence, which requires the use of skills of the involved researchers throughout multiple phases of the research process.

PRAXIS - INTERVENTION

Change the structure
Abolish boostering mechanisms
Create counteracting mechanisms

Doing this presupposes knowledge based on S+M+I+C=O
Roy Bhaskar meets Herman Hesse: some important commonalities

Ontology-epistemology-methodology connections
The deep structure of the world
Levels
Interdisciplinarity
Crossdisciplinary understanding
Etc
Take home message:

Disability research needs an ontology of interdisciplinarity (levels, structures, mechanisms, emergence etc.)

Epistemologically against any kind of reductionism

Disability interdisciplinary research needs disciplinarity and cross-disciplinary understanding

Disability interdisciplinary research should be characterized by methodological specificity


Thank you for your attention