

# Beyond evidence-based practice

## The example of physiotherapy

*There is an increasing emphasis on evidence-based practice within healthcare. Despite a growing body of evidence, there remains a 'knowledge-to-action gap' whereby health professionals struggle to innovate their practice based upon available knowledge. For example, critical decision making, interdisciplinary work, person-centred care, the emphasis on prevention and positive health perspectives have all generally yet to be incorporated into thinking and performance. Dr Paul Beenen, from Hanzehogeschool Groningen, explores the reasons for this gap, using the example of physiotherapy. Dr Beenen's work also looks further afield to other healthcare areas as well as to the wider spheres of science, scientific research and health.*

Physiotherapy originally functioned as an extension of a doctor's practice, gaining knowledge primarily from biomedical sciences and from emulating authorities within the field. This has changed in recent years, with the profession working more autonomously, being directly accessible in most countries, formulating its own diagnoses from a biopsychosocial health perspective, working with other health disciplines and striving for both quality and accountability in its practice. One of the main drivers of these changes is the increasing focus on evidence-based practice. There is now an increasing evidence base, derived from a wide range of different research areas, resulting in a large knowledge base within physiotherapy. This is overwhelming for individual physiotherapy practitioners and there are difficulties in knowing how to navigate this information and extract what is most relevant. The result is that new knowledge does not sufficiently translate into practice, preventing innovation in the field. In a deeper vein the validity

of knowledge is questioned more and more. The evidence base is considered to be objective and static/unchanging knowledge. Its use is demanded by financiers, through guidelines, which often do not match the complexity of daily practice. Dr Beenen's research focuses on exploring the reasons for this 'knowledge-to-action gap', which exists both in physiotherapy and in most other health professions.

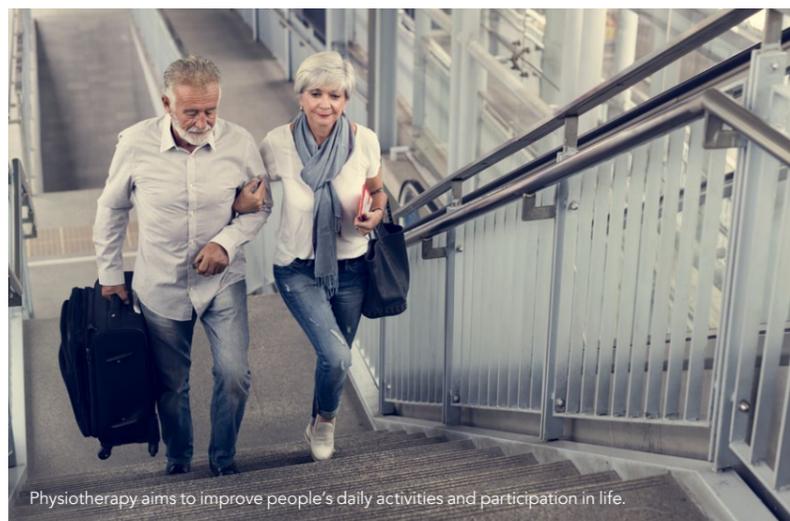
### EVIDENCE-BASED PRACTICE MOVEMENT AND PHYSIOTHERAPY

It has been suggested that the evidence-based practice movement is in crisis and that it is thus time for a renaissance<sup>1</sup>. The problem is that the evidence-based practice movement has become ineffective and expensive, unable to provide solutions for important health issues. This crisis is also visible within physiotherapy. The profession is struggling to remain on top of knowledge innovation, which prevents optimal care being provided for patients. There is also a failure to exploit necessary innovations, such as the use of more big data and digital health towards personalised positive health. It is clear that a rethink of the evidence-based movement is necessary. Dr Beenen has highlighted a number of consequences from this rethinking, including the acknowledgement of a complex world, different learning strategies and sophisticated versus naïve epistemic beliefs.

### LIVING IN A COMPLEX WORLD

We live in an increasingly complex

<sup>1</sup> Greenhalgh T, Howick J, Maskrey N. (2014). Evidence based medicine: a movement in crisis? BMJ (Clinical Research Ed.), 348(June), g3725. <http://doi.org/10.1136/bmj.g3725>



Physiotherapy aims to improve people's daily activities and participation in life.

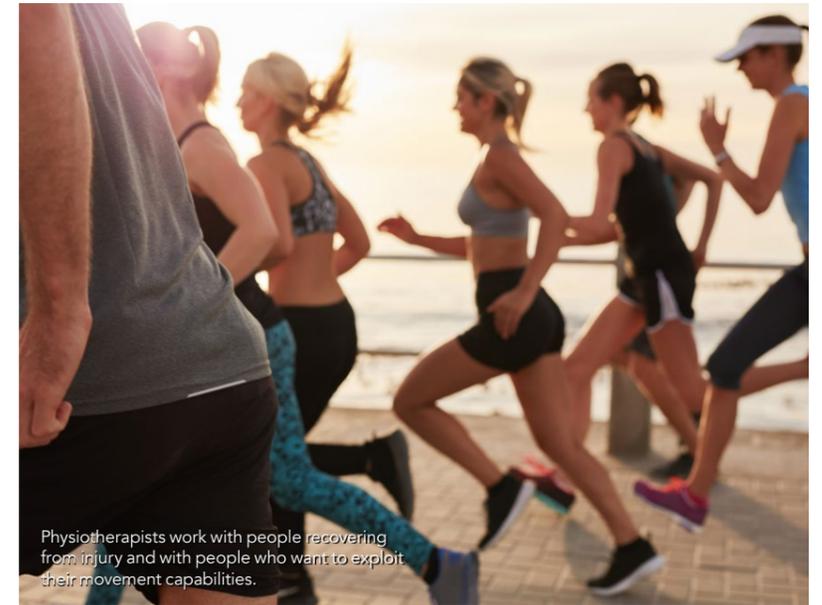
world, characterised by a great deal of uncertainty. Health care is slowly transitioning from a simplistic, 'reductionist' scientific worldview to a complex and dynamic 'holistic' scientific worldview. A world where knowledge is produced in and across society is known as a knowledge society. Within this knowledge society, it is necessary to have an active capacity to both create and navigate knowledge, a skill known as epistemic literacy.

### DIFFERENT LEARNING STRATEGIES

Knowledge is traditionally situated within education. Education is currently transitioning from a one-and-for-all qualification system based on authoritative knowledge towards a lifelong learning model, with a focus on contextualised, self-directed and flexible learning. These developments complement the complex and dynamic 'holistic' scientific worldview described previously. An understanding of practice is necessary for health care professionals to effectively and efficiently manage knowledge in this new model. This approach facilitates not using, but being in this world while understanding complexity, negotiating multiple perspectives, critical thinking, intercultural maturity, lifelong learning, and the capacity for interdependence with others.

### SOPHISTICATED EPISTEMIC BELIEFS

One aspect of the understanding of practice is the understanding of knowledge. Epistemology is defined as the theory of the nature and justification of human knowledge. Epistemic beliefs determine the ability to navigate knowledge both within professions, such as physiotherapy, but also between professions. Epistemic beliefs are 'naïve' when knowledge is assumed to be certain, unambiguous and dichotomous. Knowledge is perceived as being either true or untrue and is learned from an authoritative source. If an epistemic belief is naïve, it is difficult to adapt working practices according to evidence, which serves as a barrier to innovation. More sophisticated epistemic beliefs involve an acceptance of uncertainty, that truth evolves, and that knowledge is constructed rather than being a 'given'. If an epistemic belief is sophisticated, then it becomes natural to adapt (professional) behaviour based



Physiotherapists work with people recovering from injury and with people who want to exploit their movement capabilities.

**The profession is struggling to remain on top of knowledge innovation, which prevents optimal care being provided for patients.**

on the constant weighing of different resources of evidence.

### EPISTEMIC BELIEFS OF PHYSIOTHERAPISTS

Dr Beenen has explored the epistemic beliefs of physiotherapists in 10 countries across Europe using an online survey. The complexity and variety of resources

used in evidence-based physiotherapy practice demand more sophisticated epistemic beliefs. However, Dr Beenen found that epistemic beliefs among physiotherapists in Europe were only moderately sophisticated. Interestingly, there was not a linear increase in the sophistication of epistemic beliefs with higher levels of education. Although

## Epistemic Views

### Naïve

#### HOW DOES ONE VIEW THE WORLD?

- Reductionist - Static albeit complicated systems

#### WHAT IS KNOWLEDGE?

- Certain, unambiguous
- Decontextualised

#### HOW DOES ONE COME TO KNOW?

- Through authority

### Sophisticated

#### HOW DOES ONE VIEW THE WORLD?

- Holistic - Dynamic and complex systems

#### WHAT IS KNOWLEDGE?

- Temporary and developing
- Situative

#### HOW DOES ONE COME TO KNOW?

- Critical and justified from multiple resources

Sophisticated epistemic beliefs make it easier to adapt professional behaviour based on evidence.

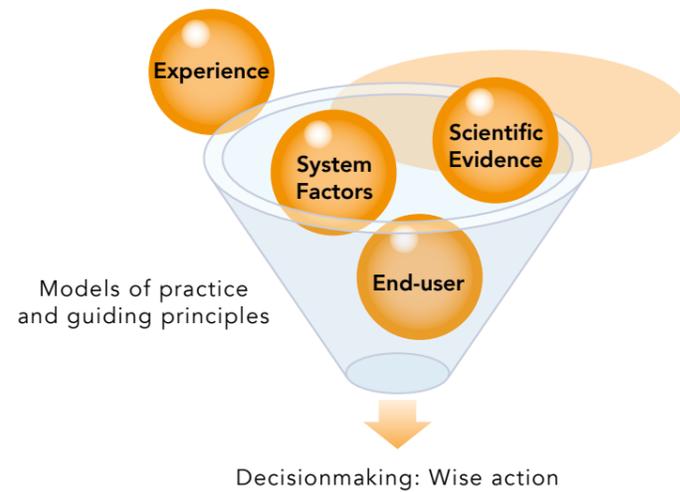
education may allow professionals to better articulate their understanding of knowledge, it may not influence their existing intuitive beliefs about knowledge. Results suggest that physiotherapists would benefit from interventions to improve the sophistication of their epistemic beliefs.

### TRANSLATING KNOWLEDGE INTO PRACTICE

Translating knowledge into practice is not only dictated by epistemic beliefs of practitioners but also on the characteristics of the knowledge itself. Dr Beenen and colleagues have also conducted a review of research review methodology in order to help determine the most optimal way to synthesise different types of knowledge into physiotherapy practice. One of the key principles in conducting research review should be the focus on external validity, which refers to the generalisability of results. Most contemporary review methodology tends to focus on internal validity, which is the extent to which the conclusions of the research are warranted based on the findings. A lack of internal validity would occur when results may be attributable to other factors.

Dr Beenen and colleagues suggest that improving external validity could be achieved if researchers translated findings differently into guidelines. Such guidelines would need to account for the complexity of the world in which physiotherapists operate, or better yet where the patient lives, which differs significantly from the environments in which research is typically conducted. Dr Beenen and colleagues highlight a need for greater reflection of how physiotherapists think, which would better enable knowledge to be integrated into their daily practices. Implementation strategies should be developed which reflect these practices. Research should move beyond a knowledge-to-action model and instead develop strategies which acknowledge the multifaceted

## Evidence-informed practice



Evidence-informed practice as critical decisionmaking within the specific context.

nature of knowledge and the importance of context. The focus can then move from a transference of knowledge towards a co-creation of knowledge. Such approaches have been successful in other disciplines, such as policymaking and business.

A more critical and sophisticated understanding of knowledge, evidence and the role of science is essential for lifelong learning among physiotherapists. It is imperative to acknowledge and discuss different views of knowledge to facilitate a critical evidence-based practice. It also opens the door to reposition a diagnose-instruction based profession towards a profession truly able to support human movement in the complexity of people's daily lives: not only in response to a problem, but increasingly also to optimise the human movement capabilities to be able to do, and keep doing, what people want to do<sup>2</sup>.

### BEYOND PHYSIOTHERAPY

Traditionally, the focus of the education community has been on individual knowledge, echoing naïve epistemic beliefs. The social nature of evidence-

based practice offers challenges for use of knowledge within networks and for the ability to quickly and creatively obtain and contextualise relevant knowledge at the relevant time. Some new learning theories are developing in line with these ideas, such as social learning systems, connectivism and design thinking. Dr Beenen is beginning to explore such beliefs within the education system.

### CONCLUSIONS

One of the key consequences of the 'knowledge-to-action gap' within physiotherapy is that patients do not receive the best practice available. Closing this gap requires an understanding of the complexity of the world, the need for contextualised, self-directed, flexible learning and the acknowledgement of the importance of sophisticated epistemic beliefs. Furthermore, the nature of evidence also needs to change to ensure that it is easily translatable into practice. This requires a greater understanding of the nature of physiotherapy practice. Such an approach is best described as evidence-informed practice. This terminology accounts for the diversity of types of knowledge and the importance of context in daily practice. Evidence-informed practice also refers to the collective orientation of the profession towards research and management of knowledge in its models of practice.

**The complexity and variety of resources used in evidence-based physiotherapy practice demand more sophisticated epistemic beliefs.**

<sup>2</sup> Nicholls D.A. *The end of physiotherapy* Taylor & Francis Ltd, 2017; Huber, M. How should we define Health? *BMJ* 2011;343:d4163 doi: 10.1136/bmj.d4163.



# Behind the Research

## Dr Paul Beenen

E: [p.c.beenen@pl.hanze.nl](mailto:p.c.beenen@pl.hanze.nl) T: +31640185204 W: [www.hanze.nl/nld/user-profile/352b63c7-0f92-4587-85a7-fe777c3fb25b](http://www.hanze.nl/nld/user-profile/352b63c7-0f92-4587-85a7-fe777c3fb25b) [www.linkedin.com/in/paulbeenen](https://www.linkedin.com/in/paulbeenen)

### Research Objectives

Dr Paul Beenen from Hanzehogeschool Groningen looks at how epistemic beliefs influence innovation both in healthcare professionals and more widely.

### Detail

Dr Paul Beenen  
Hanzehogeschool Groningen  
Zernikeplein 7  
9747 AS Groningen  
Netherlands

### Bio

Dr Beenen is a physiotherapist and health scientist with a masters degree from the University of Maastricht and a PhD from the Catholic University of Portugal in Lisbon. He has worked in the practice, education and innovation of health services for the last 20 years. Currently he is doing research and leading a transdisciplinary Master in Healthy Ageing with the purpose to reposition and organise care for health differently in society.

### Collaborators

- Prof Dr Castro-Caldas

### References

Beenen P C, Filiputti D, Meyer E R, Carballo Costa L, Ophéy ..., Epistemic beliefs as a determinant in evidence-based practice in physiotherapy - A multi-country (Europe) cross-sectional online survey study, *European Journal of Physiotherapy*, September 2017

Beenen P, & Castro-Caldas A (2017). Synthesising knowledge for physiotherapy practice. Key steps towards review methodology. *International Journal of Therapy And Rehabilitation*, 24(5), 211-217.



### Personal Response

#### Why are naïve epistemic beliefs so prevalent?

“ I believe we have been hugely successful in considering our world as a complicated system, especially in health care. However complicated, like rocket science, it always follows the same steps and will arrive at the same outcome. This reductionist view allows us to analyse linear and unidirectional and detect all kinds of causal relations and intervene on this. It gives the added bonus of the feeling of control since the outcome can then be predicted. To accept a holistic worldview, we have to embrace complexity, and that means accepting uncertainty and loss of control. For professionals, this implies an immediate loss of status as their knowledge is no longer absolute. For many professionals this is a daunting prospect. Managing complex systems is like raising a child, you can't control the outcome. It is necessary to embrace this uncertainty in order to understand and really be in this complex world. However, it doesn't make life easier. ”

#### What inspired your research in this area?

“ I noticed in practice and the education of health professions and specifically physiotherapy, that very little of the much talked about ambitions were truly incorporated in our profession. For example; becoming more critical in our thinking, being more person centred, having a more holistic view on health. Our profession seems very locked in and thus not very innovative. My search is for keys to unlock true innovation in these areas. Just repeating the same ideas in different ways, for example by focussing on implementation research, seem to merely optimise a fundamentally wrong system of thinking. I felt the understanding of practice, and of knowledge itself, could be important determinants for real change in both practice and in education. ”