PRE-PRINT VERSION

CONNECTIVITY: AN EMERGING CONCEPT FOR PHYSIOTHERAPY PRACTICE.

ABSTRACT

Having spent their first century anchored to a biomedical model of practice, physiotherapists have been increasingly interested in exploring new models and concepts that will better equip them for serving the health care needs of 21st century clients/patients. Connectivity offers one such model. With an extensive philosophical background in phenomenology, symbolic interactionism, structuralism and postmodern research, connectivity resists the prevailing western biomedical view that health professionals should aim to increase people's independence and autonomy, preferring instead to identify and amplify opportunities for collaboration and co-dependence. Connectivity critiques the normalisation that underpins modern health care, arguing that our constant search for deviance is building stigma and discrimination into our everyday practice. It offers provocative opportunities for PTs to rethink some of the fundamental tenets of their profession and better align physiotherapy with 21st century societal expectations. In this paper we provide a background to the place connectivity may play in future health care, and most especially future physiotherapy practice. The paper examines some of the philosophical antecedents that have made connectivity an increasingly interesting and challenging concept in health care today.

Keywords: connectivity, physiotherapy, phenomenology, symbolic interactionism, structuralism, postmodernism

There is no need to fear or hope, but only to look for new weapons.

- (Gilles Deleuze 1992, p. 4)

INTRODUCTION

Having spent their first century anchored to a biomedical model of practice, physiotherapists have been increasingly interested in exploring new models and concepts that will better equip them for serving the health care needs of 21st century clients/patients.[1] Connectivity offers one such concept (Aguilar, Stupans, Scutter, and King, 2013; Praestegaard, Gard, and Glasdam, 2014; Schoeb et al., 2014; Shaw and DeForge, 2012; Wikström-Grotell and Eriksson, 2012; Wikström-Grotell, Broberg, Ahonen, and Eriksson, 2013). Connectivity centres around a radical alternative to the traditional medical and social models of health. It critiques the way that people are labelled as abnormal and 'other' in orthodox medicine, but also the perpetuation of these distinctions in society at large. Connectivity builds on a philosophical background in phenomenology, symbolic interactionism, structuralism and postmodern research to propose that it is people's connections with other entities (people, technologies, objects, environments, ideas, etc.), that define their abilities, not putative medical or socially-constructed norms. Accepting this alternative notion of embodied engagement in the world to that offered by biomedicine has important implications for physiotherapists, who have expressed dissatisfaction with currently available practice models (Bullington, 2009b; Nicholls & Gibson, 2010;

[1] We have used the generic term clients/patients throughout the text as a convenient device to refer to our clients, consumers, patients and service users. We are aware that each term carries particularly loaded meaning, but it is not our purpose to debate these here. For a discussion of issues of naming, see McLaughlin (2009).

Standal & Engelsrud, 2013). In this paper we examine some of the principles that underpin the concept, and propose some ways in which it may offer critical insights into physiotherapy practice.

BACKGROUND

Physiotherapy has been influenced by biomedicine throughout much of its history, and this affinity has contributed greatly to the profession's position as the preeminent provider of orthodox physical rehabilitation. In recent years, however, biomedical reasoning has been heavily criticised for its elitism and professional closure, its readiness to be the arbiter of normality, and its historical affinity with the Victorian notion of the body-as-machine (Clarke and Shim, 2011; Freidson, 2001; Keshet, 2009; Lupton and McLean, 1998; Slatman, 2014). Criticism has come from a wide range of health service users, most notably, women, disabled people and indigenous communities.[2] But criticism has also come from medical sociologists, practitioners and academics within the medical community itself. Much of this criticism has been levelled at the traditional 'medical model' which has long governed the organisation, delivery and evaluation of health care in developed countries (Bury and Gabe, 2013; Clarke, 2010; Morrall, 2009; Petersen and Bunton, 1997). The model centres around seven key principles outlined in Table 1 below.

Insert table 1 about here

[2] We have used the term 'disabled people' in preference to 'people with disability' throughout the text to be reflect the convention within the disability rights sector, which argues that people are disabled by physical environments and entrenched social attitudes rather than by the presence of an impairment (see, for example, Hughes 2007).

These principles have, individually and collectively, been vital in many of the remarkable achievements of western medicine, but they are also divisive, with critics arguing that they can be used to discriminate and marginalise the very populations they are designed to serve. Normalisation - the principle most relevant to this paper - functions to separate those who do not conform to socially-defined norms in order that we may cure, remedy or rehabilitate them. Abnormality or otherness becomes intolerable, and it is the role of medicine to return the ill, mad, sick, handicapped, malformed and deficient to 'normality.' Resistance to the power that came with the medical profession's ability to be the arbiter of abnormality began in the middle of the 20th century, and has been sustained ever since, most notably from disability rights activists, who argued that it was not impairment that disabled people, but the creation of disabling attitudes and environments(Hughes and Paterson, 2010; Owens, 2014; Shuttleworth and Meekosha, 2013). The social models of health, along with other counter-narratives that emerged after World War II, sought to give voice to people who had previously been marginalised and silenced, especially children, disabled people, elderly, indigenous communities, mental health service users and people in poverty (Marmot, Friel, Bell, Houweling, and Taylor, 2008). But in recent years, social models have also come in for criticism because they also rely on the identification of people as 'other' in order that we can advocate for them, thus perpetuating discrimination, marginalisation and stigma at all levels of society rather than ameliorating it.

In recent years we have seen the emergence of new approaches to the traditional medical and social binary that are opening up radically different ways of

engaging in health care practice. These approaches are particularly exciting for physiotherapists, because they centre around the body and the ways we are challenging traditional beliefs about what our bodies can do, where bodies begin and end, and how we might relate to other people, objects, technologies and ideas in the future. The development of new touch-based technologies, consumer robotics, adaptive bioengineering, and human-computer networks, alongside the emerging field of trans-humanism, all point to a radically different conception of the traditional limits of human form offered by biomedicine and the social sciences.

Connectivity is one such approach. An amalgam of philosophical sources, including the phenomenology of Merleau-Ponty (Merleau-Ponty, 1962/2002), the symbolic interactionism of the Chicago School (Blumer, 1986; Mead and Morris, 1934), Actor Network Theory (Latour, 2005), the postmodern writings of Gilles Deleuze, Felix Guattari and Manuel De Landa (DeLanda, 2006; Deleuze and Guattari, 1987), and the poststructural feminism of Donna Haraway (Haraway, 2006), connectivity explores how we become embodied through our connections with other human and non-human entities.

Various expressions of connectivity have emerged in the literature in recent years, including in economics (Stromquist, 2002), environmentalism (Crooks & Sanjayan, 2006), gender studies (Hawthorne & Klein, 1999), information technology (Webb, 2007), media studies (van Dijck, 2013), metaphysics (Laszlo, 2003), organisation and management (Unhelkar, 2009). Each of these share a common concern for the complexity of contemporary life and a desire to find new ways to connect human and non-human agents.

KEY PRINCIPLES OF CONNECTIVITY

Connectivity refers to any assemblage, interaction or linkage between one's 'self' and an other (or others) (Gibson, 2006). The 'other' referred to in connectivity need not be another person. Animals, other people, tools, technologies, even ideas and concepts are all recognised as 'others,' and all entities are considered equal.

This is a vital distinction, because in the past, people's utilisation of other entities has been one of the ways in which we have labelled people as abnormal, deviant or disabled. For example, if a man uses a guide dog to help him navigate around town, he is considered disabled under the medical model because he has an impairment requiring an adaptive technology. Under the social model the man is disabled by an environment that is not universally accessible. But with connectivity, he is no more disabled than the shepherd who uses a sheep dog to herd his flock. Both use a mediating technology (in this case a dog) to engage meaningfully in the world.

This distinction is not frivolous. Under traditional health care, the man might be given a label (blind, disabled, handicapped even); he may experience social isolation and judgement about his ability based on prejudice and misunderstanding; and he could be expected to conform, willingly or otherwise, to a medical system designed to diagnose and fix physical deviations, with the societally-acceptable goal of returning him to 'normal.' Many other arbitrary distinctions are made about people in health care today, and many of these are contributing to stigmatising judgements of people's abilities, ratcheting costs of

potentially unnecessary care, and many are putting unnecessary constraints on practitioners who might be able to serve their clients/patients better if they were less constrained in their practice ideologies.

Many other examples exist in health care and the social world at large. Arbitrary distinctions are made between people who employ a home-help and those that rely on family and friends; people who listen to music through headphones and people who use a hearing aid; people who use a therapist to improve their balance and those that use a coach to improve their swimming technique. Connectivity challenges not only our normative assumptions about when someone is healthy and sick, mad or sane, able bodied or disabled, but also, therefore, our role as 'therapists.' Before exploring how connectivity may do this, we will briefly discuss how this paper came about, before examining some of the fundamental philosophical principles that underpin this emerging concept.

BACKGROUND TO THIS PAPER

In mid-2014, an international collaborative network of physiotherapists was formed to advance critical debate within the profession (www.criticalphysio.me). In November, the group undertook a month-long exercise to establish its priorities for the coming year, participants agreed that an important role for the group involved helping to explain philosophical ideas to physiotherapists. Connectivity was already a concept that some members of the group had grappled with. It has provided purchase for critical questioning of the profession's past, present and future, and we had used it to debate how we might think otherwise about physiotherapy

(http://criticalphysio.me/2014/10/08/results-from-30-days-of-september/). Consequently, an invitation went out to members to engage in their own act of connectivity, and collaborate on a paper. Eight members of the group submitted content that drew on a wide range of philosophical ideas used in their work as academics, clinicians, researchers and students. The paper was compiled and edited collaboratively throughout.

What follows is the sum of these collaborative efforts. We believe that connectivity offers some provocative and potentially significant opportunities for physiotherapists. Many of the ideas explored in this paper will be familiar to readers, but the radically different way connectivity envisages the self (the reader, the therapist) and the other (the human or non-human entity with which we, or our clients/patients connect), may provide readers with the stimulus to rethink many of the fundamental tenets of their present practice.

PHILOSOPHICAL BASIS OF CONNECTIVITY

Phenomenology, embodiment and intersubjectivity

The idea that we develop an understanding of ourselves and others through inter-subjective connections is a feature of phenomenology - a philosophy that predates modern medicine and has been a foundation of philosophy for nearly two centuries. Drawing on the writings of philosophers like Edmund Husserl (1859-1938), Martin Heidegger (1889-1976) and Maurice Merleau-Ponty (1908-1961), phenomenology has been a powerful influence in health care, and latterly on physiotherapy (Abrams 2014; Bjorbaekmo and Engelsrud, 2011; Groven and Engelsrud, 2013; Shaw and Connelly, 2012; Standal and Engelsrud, 2013).

As an example, Bjorbækmo and Engelsrud (2011) developed and implemented a year-long movement improvisation program in which 12 children with different movement capabilities participated in weekly sessions under the practical leadership of two dance teachers and the researcher. The applied phenomenological perspective made it possible to emphasize movement as both personal, expressive, and at the same time, relational and contextual phenomenon, and encouraged the children to move in their own way. When the children's way of moving was welcomed and regarded as significant, they found satisfaction in moving, and were inspired to keep on moving. The study shows that a phenomenological perspective and an improvisational approach may create an attitude and context where people can come to trust that their performing movements regardless of age, ability or circumstance.

Merleau-Ponty's work, especially, has drawn the focus of physiotherapists interested in the nature of consciousness and perception, embodiment, identity, meaning, subjectivity and touch (Bullington, 2009a, 2009b, 2013).

Phenomenology is prefaced on the belief that the world is not an external reality, independent of our consciousness, but rather a product of our 'being-in-the-world.' Thus, what is 'real' is that which a person turns their consciousness towards (intentionality). This notion of intentionality is fundamentally different to the objective reality offered by western science, not least because it argues that we come to know the world through our bodies, through our senses; becoming 'embodied' in the process. Emphasizing the individual's being as a bodily-being is one of Merleau-Ponty's revolutionary contributions (Abram 1996, p. 54).

Richard Shusterman (2005, p.151) describes Merleau-Ponty's work as defining the 'body's primacy in human experience and meaning', and therefore the crucial source of all perception and all action, as well as the basis of all expression, language and meaning. Merleau-Ponty (cite 1962) argues that there is a certain ambiguity inherent in having a body (in the physical sense of the word), and being embodied, since we are both subject and object in a world in which we interact with other people and things to give meaning to our existence.

Through acts of touching and moving, for example, the bodies of the physiotherapist and the client/patient inter-relate, and we experience ourselves and others through this inter-corporeal connection. Physical experiences, emotional linkages, and environmental influences all factor into the ways we experience the connection with others and develop our professional relationships. Physiotherapists develop embodied knowledge and corporeal experience through their practice. This kind of knowledge builds and relies on bodily experiences; experiences that are both personal and relational - and always contextual. Our bodies know and understand at a pre-experiential level before we reflect on the experiences.

Merleau-Ponty (Merleau-Ponty and Landes, 1962/2002, p. 94) argues that the ambiguity that exists between 'having' a body and 'being' embodied stimulates us to continually identify with and commit ourselves to certain projects that might reconcile this uncertainty. This desire is at the heart of our intentionality - the consciousness we have of who we are and how we experience the world. It is this ambiguity that brings about the unity of the senses, of intelligence, of sensibility and motility (2002, pp. 156-7).

For phenomenologists, particularly those informed by the work of Merleau-Ponty, intersubjectivity is one part of our always situated existence. For Merleau-Ponty, we are always ourselves, but being ourselves involves a mutual inter-relatedness with the world, our surroundings, nature and culture: We are not only *in* the world, we are always *of* the world we inhabit. Our bodies are intertwined with a world that is around us and fuses with us, and this intertwining is an embodied position in continual flux; an ongoing shift of inside-out and outside-in experiences that envelop two solids and makes them adhere to one another; 'To be a body, is to be tied to a certain world…[O]ur body is not primarily *in* space: it is of it' (Merleau-Ponty and Landes, 1962/2002, p. 162).

Clinical practitioners experience phenomenology in practice every day and it can be seen in the way they constantly look for opportunities to offer care that recognize the other's wishes dreams and hopes, and supports their dignity. This is the 'lifeworld' that lies at the heart of phenomenology and, as Merleau-Ponty points out, leads us to see that 'illness is a complete form of existence' (1962/2002, p.123). As such it can not be seen only as a limited way of living, but must also be understood as the existence of opportunities.

Symbolic Interactionism and our meaningful connections with the world

Phenomenology is not the only philosophical position to explore how we come to know ourselves through the relationship between self and other. Symbolic interactionism is a theoretical perspective and ontological position which takes, as its central concern, the relationship between individual action and social organisation, and has its origins in the work of The Chicago School. Based around Chicago University in the 1930s, and pioneered by George Herbert Mead (1863-1931) and one of his students, Herbert Blumer (1900-86), symbolic

interactionism gave rise to methodological approaches that are now commonly used in health care research, including grounded theory and ethnomethodology.

Symbolic interactionists were critical of the way early sociologists had concentrated on grand theories of social action, preferring instead to concentrate on 'much fuller depictions of actual conduct in real circumstances' (Cuff, Sharrock, Dennis, and Francis, 2006, p. 127). Mead argued that we come to understand our 'selves' through our interaction with others, positing that symbols and the construction of common meanings play a key role in organising social action(s) and reality. This included other people, but also allowed for our interaction with other objects in the social world. The human capacity for reflection, thought and memory, he argued, allowed us to appreciate the symbolism of events, and this symbolic capacity make it possible for us to represent ourselves as ourselves – as another entity in a distributed network of inter-related entities (Blumer, 1986).

In his pioneering work summarising the key principles of Symbolic Interactionism, Herbert Blumer developed three basic principles that form the basis of this approach:

1. Human beings act towards things on the basis of the meanings that the things have for them
2. The meaning of things is derived from, or arises out of, the social interaction that one has with one's fellows
3. Meanings are handled in, and modified through, an interpretive process used by the person in dealing with the things he [sic] encounters (1986, p. 2)

Symbolic Interactionists believe that human beings do not 'respond directly to objects but attach meaning to them' (Handberg, Thorne, Midtgaard, Nielsen, and Lomborg, 2014, p. 2). For them, the world is not therefore made up of objects 'which carry intrinsic meaning' (Denzin, 1969, p. 923), but is created by people constructing and giving objects meaning (Blumer, 1980). Meaning is created through interaction with others and through the symbolic value we place on our collective understanding of the world. The process of meaning making through interaction is not static, however; it is a fluid and malleable process, being continually created and modified through what symbolic interactionists call an 'interpretive process.' Moving away from seeing the development of the self as rational and linear allows us to reflect the ever changing, complex, modifiable and always incomplete nature of one's health with greater clarity.

In his book 'Mind, Self and Society' (Mead and Morris, 1934) Mead highlights that neither the individual nor the world can be understood in isolation, as 'the self' is continually being developed and refined through interaction with others and through participation in society. Mead argues that 'the self' is under continual construction rather than being fixed or fully formed. Both the existence and creation of meaning-making through interaction with others has at its heart, the idea of connectivity – the process of constant connections being made and the role their making, unmaking and remaking has in developing 'self,' our reality and social world. How this is done is the focus of symbolic interactionism which concentrates on the way that group actions and social organisations are generated through these interactions, and the routinized and repeatable nature in which this takes place. In physiotherapy, we see this in the present debates

among practitioners about best practice or the future of the profession; in the way we educate our students in shared groups; in inter-professional practice and shared group work with patients and communities.

Structural embodiment, marginalisation and social change

Health sociologists have had a longstanding interest in human interaction and the social organisation of health and illness. In the mid-nineteenth century, researchers were concerned with the differences in health status between men and women, the poor and the wealthy, indigenous peoples and migrants. Social scientists and philosophers like Charles Wright Mills (1916-62), Rudolph Virchow (1821-1902), John Snow (1813-58) and Friedrich Engels (1820-95) wrote extensively about the connections between people and their environment – particularly the conditions of urban living and public health. During a period dominated by biological, and later psychological explanations for people's living conditions, these health sociologists provided robust social theories to explain the connection between 'the intimate realities of ourselves…[and] larger social realities' (Mills, 1959/2000, p. 15).

Structuralism emerged as one branch of this emerging sociology of life in the early 1900s, and it posited that we cannot understand our existence unless we understand the societal structures that make it possible for us to exist, survive and prosper. Structuralists argue that there are conditions that people are born into or live with that are largely out of their control, and these structures produce conditions of poverty, ill health, powerlessness and apathy. Income, gender and racial inequality, for example, are not things that people choose, but are conditions into which they are born, and in which they live their daily lives

and which structure their choices, opportunities and desires. A greater engagement of physiotherapy education in understanding social justice issues and resultant diversity of life experiences would help physiotherapists integrate these issues to achieve meaningful outcomes with people they work with.

Structuralism is a broad field however and includes branches of linguistics, Marxist and feminist scholarship, post-colonial philosophies and disability theory, and the influence of structuralism is evident in social movements that critique and seek to change the structure of society. Of particular relevance to physiotherapy is the early disability rights movement and it articulation of the social model of disability that locates disability in the environment rather than the individual. The movement came to prominence in the 1960s as a powerful response to the medical model of disability that viewed disability as primarily residing within the individual (Hughes and Paterson, 2010).

With its focus on disabling social environments and attitudes, many disability rights advocates have challenged a prevailing trend in qualitative health research to focus on the individual subjective, phenomenological experiences while ignoring the conditions that give rise to marginalization (Scotch, 1989). Where phenomenologists argue that a person's 'being in the world' is a fundamental feature of our cognitive or perceptual life, many structuralists believe that our experiences of the world are framed by external forces that cause us to act and think in certain ways. Like symbolic interactionists, their focus is on the material reality of people's existence, but the focus is overtly political, with a strong emphasis on power asymmetries, and attempts to emancipate those who are oppressed or marginalised.

Using these approaches, disability rights activists have been successful in raising people's conscious awareness of overt and subtle discriminations directed at disabled people, the need for anti-discrimination laws and accessibility requirements for public buildings, and other societal changes. Structuralists have highlighted how our connections with entities in the world - other people, objects, laws and policies, environments and attitudes - are far from politically neutral. Unlike phenomenology and symbolic interactionism, structuralists are concerned with the powers that make consciousness possible, and draw our attention to the world in which we live as a contested space where some are afforded more opportunities than others. A structuralist perspective challenges physiotherapists to acknowledge the political and social circumstances of the people we work with and integrate this into the way we work.

In much of the biomedical theories and practical education that physiotherapists are exposed to, there is an unspoken assumption that able bodied identities and perspectives are preferable and should be aspired to (McRuer 2013). These 'ableist' discourses are deeply embedded within Western culture and so the illusory notion of a corporeal standard, the perfectible body, is something against which many health care professionals measure their clients. Structuralists point to these discourses and offer a different perspective that is less hierarchical, less stigmatizing, more empathic and empowering. They argue that it is possible to take a different view of the body's variability and encourage health professionals to open themselves to knowledge that may be unfamiliar, but enables them to better understand how disabled people express their autonomous subjectivities in everyday life.

In the UK, for example, there are moves to shift the power base of health professionals, via co-production projects, to enable clients to be in control of the services that they access. The aim is to improve health and wellbeing by enhancing the quality of relationships and helping to achieve the outcomes that matter most to people. There are also elements of developing better connections with communities. These projects serve as an ideal vehicle through which to introduce physiotherapists to philosophical ideas that underpin connectivity and emancipatory practice (Hutcheon and Wolbring 2013).

Postmodernism, assemblages and multiplicity

Although positive changes have clearly come out of surfacing the structural mediators of disability, structuralist thinking, as a whole, has faced considerable critique in recent years. The continued identification of marginalised peoples has led some critics to wonder if we will ever rid ourselves of the stigma of these kinds of discriminatory labelling (McRuer, 2003). The dilemma of structuralism is that it reifies the identities that it seeks to extinguish, and critics have argued that structuralism has a positivist ontology (the idea that there is one knowable reality) that lacks socio-historical reference or flexibility (Crotty, 1998; Lupton, 2012). In the case of disability this means that from a structuralist perspective one either is 'disabled' or not. This necessarily means that some people will be excluded from this definition. People who consider themselves disabled due to their HIV status (McRuer, 2002), or obesity (Cooper, 2010), for example, have felt excluded from this definition of disability, because they do not fit a standard medical or social definition. As a result of these kinds of criticisms, in the latter decades of the 20th century postmodern and poststructural philosophers

emerged to challenge interpretive and structural understandings of human existence, and these have begun to be widely adopted in the health sciences (Bauman, 2000; Bury, 1998; Featherstone and Hepworth, 1991; Fox, 1999; Mol, 2002; Nettleton, 2005; Shildrick, 1997).

Postmodern approaches have been a prominent feature of continental philosophy (deriving primarily from French and German academics, rather than the analytic philosophy common to the UK and America). Postmodern approaches fundamentally challenge the belief that we can understand the world as an expression of conscious experience, and/or as a series of hidden social structures. Instead, they argue for a much greater recognition of the complexity, diversity and multiplicity of human connectedness, and the endless transition - or 'becoming' rather than the 'being' - that animates our subjectivities. Postmodernism problematizes the way we think about persons as separate, stable and self-contained 'individuals' that move through the world in parallel with other individuals, things and ideas. They propose that all elements of the world are profoundly connected and move in and out of various temporary 'assemblages' of human and non-human elements. Assemblages are temporary, fluid and mobile connections.

Assemblages are everywhere in physiotherapy. For example, a type of assemblage is formed between a body and a prosthetic leg (body-prosthesis). A physiotherapist may be helping to enable this assemblage to function and in doing so becomes part of it (body-prosthesis -PT). None of these elements are however permanently connected, and each element on its own is another assemblage that could have been named in different ways. For example, the PT

is a particular assemblage of body-knowledge-techniques that forms different assemblages with other bodies and technologies in other contexts, e.g. as a parent , reader, or cyclist. Similarly the 'patient' is connected in multiple other ways to other bodies, technologies, social roles, and places. Each body-subject is continually in flux. An obvious example is the interchangeabilty of the prosthestic-body that may include different legs for, e.g., walking or rock climbing. The elements in the assemblage come together and then break apart to form other assemblages that do different things in the world, each of which has its own functions and effects.

Turning conventional thinking about the primacy of human subjectivity on its head, Gilles Deleuze and Félix Guattari - who along with Michel Foucault, Jacques Derrida and Jean-François Lyotard represent the most prominent postmodernists of the last 50 years - use the metaphor of machinery to explain how humans form assemblages with other entities; 'You have constructed your own little machine, ready when needed to be plugged into other collective machines' (Deleuze and Guattari, 1987, p. 151). In a move typical of postmodernism, Deleuze and Guattari challenge our beliefs that it is our consciousness and social relations that set us apart from other sensate and insensate beings, preferring instead to place humans on the same register as plants and animals, manufactured objects and all other entities. In doing so they destabilize our deepest assumptions about where the body begins and ends, the division between mind and body, and what constitutes a person in relation to the world. Bodies and persons become irreducibly connected to the world, not distinct, rationally conscious and superior.

Postmodernists do not share the view, held by philosophers since the Enlightenment, that human consciousness sets us apart from others and the world around us. Nor do they agree that we can understand people by interrogating the systems and structures that govern their actions. Postmodernists believe that all entities form assemblages with other entities, and that these are alike. A rock forms an assemblage with the sun when it absorbs and then gives off its heat, in the same way as my hand forms an assemblage with a client/patient's skin when I practice massage. Assemblages, then, are the stuff of everyday life. Everything we 'do' is an act of assemblage. But crucially, where some would look to make artificial normalising judgements about certain kinds of assemblage, postmodernists resist these moral judgements.

Assemblages reveal the profound connectedness that characterizes human existence, recasting 'dependence' as neither 'good' nor 'bad' but unavoidably present. The task for physiotherapists thus moves away from facilitating independence to enabling fruitful connections. If we return to the example of the body-prosthesis assemblage, the physiotherapist works towards enabling different dependencies that work or not in different contexts. This may include the abandonment of the prostheses in some contexts where crutches or a wheelchair are better options. The goal is not independence but enabling connectivities with the body-prosthesis as one of many possible fluid assemblages that can support human flourishing. In such a scenario, wheelchair "dependency" would not necessarily be seen as a poorer outcome compared to

walking but rather as another, morally neutral, way of being and doing in the world that works or not for individuals in the context of their lives.

DISCUSSION

Connectivity is a broad term increasingly being used in the health literature and elsewhere to refer to intersubjectivity, connectedness and assemblage. Some philosophies retain the individual's pre-eminence (phenomenology, existentialism, realism), others privilege the social structures and systems that govern our conduct (structuralism, symbolic interactionism). Still others situate human beings on the same register as all other universal entities (postmodernism). Our purpose here is not to promote one philosophical position over another, but rather to present some of the common principles of connectivity to physiotherapists because it is our belief that it holds some distinct possibilities for profound change in the nature of our practice.

Physiotherapy remains closely anchored to the powerful discourse of positivism that is the hallmark of biomedicine, and this affords many privileges to the profession. But this discourse also forces physiotherapists to accept certain dogmas that sometimes clash with the real-world experiences of their practice and challenges how they view their work with clients/patients and communities. For example, many physiotherapy clinical and research practices rely on a deeply held principle of independence: the notion that quality of life is necessarily related to the degree of assistance one requires. These assumptions are built into measures of function and quality of life that rate people according

to their needs for human or technical assistance, and trigger interventions to ameliorate dependencies. Connectivity rejects the assumption that dependency reduces the quality of life because it asserts that everyone and everything is unavoidably connected. Such notions challenge preconceived ideas of right and proper lives and the pursuit of autonomy (Gibson, 2006). Instead, recognition of the intimate connections between everything – places, people, ideas, nature, and technologies – provides a way to shift practices away from enabling independence to assessing possibilities for connecting in new and varied ways (Gibson, 2006; Gibson 2014).

Ironically, this is very much the direction being taken by governments and policy-makers who have long since realised that it is only through collaboration and partnership that we can make progress in the 21st century. The old days of 'the doctor knows best' are long since behind us. There are moves within many developed countries to shift the power base of health professionals, to enable clients/patients to be in control of the services that they access through increased 'lay' representation, the acknowledgement of the expert client/patient, and the growth of qualitative 'user-centred' research, for example (Foot et al., 2014). The aim is to improve health and wellbeing by enhancing the quality of relationships between communities and the professionals that they connect with, in the hope that this helps them to achieve outcomes that are most meaningful to them. In many ways, this is the message of primary health care and underpins many of the structural shifts that are taking place in the organisation of care; moving services closer to communities, away from specialist centres (where physiotherapists have traditionally congregated), the

growth of personal health budgets, and developing better locality-based services (Forder et al., 2012; The Health Foundation 2010).

Connectivity-oriented physiotherapy practices would operate differently to current ideas of best practice. Beginning with the education of graduates, the focus would be on the practitioner's ability to examine the various assemblages utilised by persons seeking treatment; asking how these assemblages enable or disable them; how they enhance a person's ability and in what ways might they further restrict their meaningful activities; what possibilities they open up, and what do they foreclose. The physiotherapist would work with others, including the family-assemblage, to discover what connections are possible and their various effects. The key question, 'what does this assemblage do?' would be considered broadly. As Timmermans and Berg argue (2003), each of these technologies connects me to the world of places, people and things. For example, an assemblage of man-wheelchair-woman, wherein a man sitting in a wheelchair is pushed by the woman, has multiple effects. It may achieve mobility, but it may also be disabling for the woman who is not free to make other connections and achieve other tasks. Moreover, in some contexts the assemblage may limit the man's mobility if the woman is not available or the space is inaccessible. At the same time, there may be other social effects including discrimination and exclusion of the wheelchair-body.

Critically, independence is not the goal in this scenario, rather practice is oriented to collaboratively identifying alternative enabling dependencies. These might include bodily-interventions aimed at increasing the man's abilities: traditional physical therapies directed at increasing strength, or balance, or

coordination, for example. Or the therapy may involve introducing a powered wheelchair or identifying others to push the chair. None of these possibilities are considered *a priori* preferable to the others, nor is there a need to choose amongst them. Instead multiple connections are tried out, adjusted and modified over time (Winance, 2006). Plugging one collective machine into another to open doors for activity, movement, and meaningful engagement in the world.

In many ways, physiotherapists have been practicing connectivity for years, since assemblages have been occurring spontaneously at every therapeutic encounter. Biomedicine has been a powerfully dominant constraint on our thinking here and some would say it has imposed unnecessary and increasingly limiting dogma on what might be possible in the future. As physiotherapists we have established ourselves as having a particular expertise in managing movement dysfunction; specialising in the use of objectivity, logic and reason to define normal and abnormal (dysfunctional). This has become a basis for our professional status, enabling us to 'defend and demarcate the territory of physiotherapy as a valued profession in contemporary health care' (Shaw and DeForge, 2012, p. 420). What might be gained if we overturned our long history of valorising independence, and moved instead to privilege connections and enabling dependencies? What might we achieve if we dispensed with normalisation and the language of pathology and deficit (Renshaw, Choo, and Emerald, 2014), and embraced diversity and inclusiveness? What might be the response if we prioritised assemblages with other people and communities?

Connectivity offers a number of interesting possibilities for physiotherapists. Firstly, it is concerned with people's 'doing' in the world, and therefore capitalizes on people's functional capacities (Gibson, 2014). Secondly, it challenges the traditional distinction between healthy and sick, able-bodied and disabled, so allows physiotherapists to apply their knowledge and skills to the whole population, not just those diagnosed with an existing pathology. Thirdly, it resonates with many of the modern approaches to person-centred care and shared care, and so reflects the profession's need to adapt to the changing economy of health care. And finally, it is a practical concept that incorporates qualitative and quantitative dimensions, and supports a wide range of approaches to research. It is as Barbara Gibson states 'an active potential for connecting across multiple dimensions.' (Gibson, 2006, p.2).

The idea of connectivity is not unquestionably better than what it purports to challenge or replace. It is a very different approach to health care practice and one that rejects many of the assumptions offered by biomedicine, and so there will naturally be some things lost in moving away from a medical model and towards a more connected view of health. Many people, for example, have absorbed the long history of biomedical discourse and will find it hard to relinquish what they understand about the body, movement, function, activity, etc. It has also given orthodox health professionals significant market advantage, lent them social status, professional legitimacy and power, and so some physiotherapists will be understandably reticent about changing something that has been to their advantage for so long. Some clients/patients may also find a shift difficult. For many people the desire to be cured, rehabilitated, or returned

to ‘normal’ is very strong, and there are many times when people prefer to be passive in the face of overwhelming pain or illness. These powerful discourses remind us that connectivity is not necessarily ‘better’ than biomedicine, but could work in harmony with more tradiational biomedical approaches. It is merely another way to view health, but one that offers real possibilities for the 21st century.

These are clearly early days for this discussion, and the topic of connectivity is only beginning to find purchase within health care. At the moment biomedicine holds sway in the western world and it is unlikely to be subverted by a radically new idea like connectivity. Powerful discourses like the social model of health have been important in challenging the dominant model of biomedicine, but these approaches still rely on the idea that there is deviation from the norm. Connectivity fundamentally challenges this assumption, arguing that these normative judgments need to be replaced with a philosophy that is less arbitrary, discriminatory and stigmatizing. Connectivity offers a possible way forward because it emphasizes the principle that we exist in connection with other entities in the world, and these things examine our subjectivity in new ways that may overcome some of the limitations of existing thinking and practice.

What is particularly exciting about connectivity for physiotherapists is that there is a clear role for us in helping people find ways to engage meaningfully in the world. Using our existing knowledge of the body, our ability to understand people’s needs and desires, and assess their physical engagement in the world, physiotherapists could be the profession, par excellence, to take the idea of

connectivity forward. The world of healthcare is clearly changing, and people are demanding more from their health service than biomedicine alone can provide. Connectivity offers some contemporary responses to this challenge, grounded in a long history of ideas related to intersubjectivity, enabling dependence and assemblage.

CONCLUSION

In this paper we have explored the newly emerging field of connectivity. Having established a rationale for considering connectivity in physiotherapy, we examined how the concept had been represented in four overlapping philosophies: phenomenology, symbolic interactionism, structuralism and postmodernism. We argue in this paper that connectivity offers some innovative and contemporary approaches to health care that offer physiotherapists the opportunity to challenge their established ways of thinking and practising, and align the profession better with the changing economy of health care in the 21st century.

ACKNOWLEDGEMENTS

***

DECLARATION OF INTERESTS

The authors report no declaration of interest.

REFERENCES

Abram D 1996 Sansenes magi – Å se mer enn du ser (the spell of the sensuous – perception and language in a more-than-human world). Oslo, Flux Forlag.

Abrams T 2014 Flawed by dasein? Phenomenology, ethnomethodology, and the personal experience of physiotherapy. Human Studies 37: 431-446. doi:10.1007/s10746-014-9316-2.

Aguilar A, Stupans I, Scutter S and King S 2013 Exploring the professional values of Australian physiotherapists. Physiotherapy Research International 18: 27-36. doi:10.1002/pri.1525.

Bauman Z 2000 Liquid modernity. Cambridge, Polity Press.

Bjorbaekmo WS and Engelsrud GH 2011 My own way of moving"-movement improvisation in children's rehabilitation. Phenomenology and Practice 5: 27-47.

Blumer H 1980 Mead and Blumer: The convergent methodological perspectives of social behaviorism and symbolic interactionism. American Sociological Review 45: 409-419. doi:10.2307/2095174.

Blumer H 1986 Symbolic interactionism: Perspective and method. Berkeley, University of California Press.

Bullington J 2009a Being body: The dignity of human embodiment. In: Nordenfelt L (ed) Dignity in care for older people, pp 54-76. Chichester, Wiley-Blackwell.

Bullington J 2009b Embodiment and chronic pain: Implications for rehabilitation practice. Health Care Analysis 17: 100-109. doi:10.1007/s10728-008-0109-5.

Bullington J 2013 The expression of the psychosomatic body from a phenomenological perspective. Dortrecht, Springer.

Bury M 1998 Postmodernity and health. In: Scrambler G and Higgs P Modernity, Medicine and Health: Medical Sociology Towards 2000, pp 1-28. Abingdon, Routledge.

Bury M and Gabe J (Eds) 2013 The sociology of health: A reader. Abingdon, Routledge.

Clarke AE and Shim J 2011 Medicalization and biomedicalization revisited: Technoscience and transformations of health, illness and American medicine. In: Handbook of the sociology of health, illness, and healing, pp 173-199. London, Springer.

Clarke A 2010 The sociology of healthcare. Abingdon, Routledge.

Cooper C 2010 Can a fat woman call herself disabled? Disability and Society 12: 31-42. doi:10.1080/09687599727443.

Crooks KR and Sanjayan M 2006 Connectivity conservation. Cambridge, Cambridge University Press.

Crotty M 1998 The foundations of social research: Meaning and perspective in the research process. London, Sage.

Cuff EC Sharrock WW Dennis AJ and Francis DW 2006 Perspectives in sociology. Abingdon, Routledge.

DeLanda M 2006 A new philosophy of society: Assemblage theory and social complexity. New York, Continuum.

Deleuze G 1992 Postscript on the societies of control. October 59: 3-7.

Deleuze G and Guattari F 1987 A thousand plateaus — capitalism and schizophrenia. Minneapolis, University of Minnesota Press.

Denzin NK 1969 Symbolic interactionism and ethnomethodology: A proposed synthesis. American Sociological Review 34: 922-934. doi:10.2307/2095982.

Featherstone M and Hepworth M 1991 The mask of aging and the postmodern lifecourse. In: Turner BS (ed) The body: Social processes and cultural theory, pp 371-389. London, Sage.

Foot C Gilburt H Dunn P Jabbal J Seale Goodrich J Buck D and Taylor J 2014 People in control of their own health and care the state of involvement. London, The King's Fund.

Fox N 1999 Beyond health: Postmodernism and embodiment. London, Free Association Books.

Freidson E 2001 Professionalism - the third logic. Chicago, Chicago University Press.

Forder K Glendinning C Caiels J Welch E Baxter K Davidson J Windle K Irvine A Dolan D and King P 2012 Evaluation of the personal health budget pilot programme. London, Department of Health.

Gibson BE 2006 Disability, connectivity and transgressing the autonomous body. Journal of Medical Humanities 27: 187-96. doi:10.1007/s10912-006-9017-6.

Gibson BE 2014 Parallels and problems of normalization in rehabilitation and universal design: enabling connectivities. Disability and Rehabilitation. Special Issue: Designing Inclusive Environments: Shaping Transitions from Theory into Practice 36:1328-33. doi:10.3109/09638288.2014.891661.

Groven KS and Engelsrud G 2013 Allowing one's own bodily experience to "count": Elaborating on inter-subjectivity and subjectivity in phenomenological studies. Journal of Education and Research 3: 24-40. doi:10.3126/jer.v3i0.7850.

Handberg C Thorne S Midtgaard J Nielsen CV and Lomborg K 2014 Revisiting symbolic interactionism as a theoretical framework beyond the grounded theory tradition. Qualitative Health Research (early online). doi:1049732314554231. doi:10.1177/1049732314554231.

Haraway D 2006 A cyborg manifesto: Science, technology, and socialist-feminism in the late 20th century. In: Weiss J Nolan J Hunsinger J Trifonas PP (eds) The international handbook of virtual learning environments, pp 117-158. London, Springer.

Hawthorne S and Klein R (1999) Cyberfeminism: Connectivity, critique and creativity. North Melbourne, Spinifex Press.

Hughes B 2007 Being disabled: Towards a critical social ontology for disability studies. Disability & Society 22: 673-684. doi:10.1080/09687590701659527

Hughes B and Paterson K 2010 The social model of disability and the disappearing body: Towards a sociology of impairment. Disability and Society 12: 325-340. doi:10.1080/09687599727209.

Hutcheon E and Wolbring G 2013 "Cripping" resilience: Contributions from disability studies to resilience theory. M/C Journal, 16. Retrieved from http://journal.media-culture.org.au/index.php/mcjournal/article/viewArticle/697 [accessed February 5th 2015].

Keshet Y 2009 The untenable boundaries of biomedical knowledge: Epistemologies and rhetoric strategies in the debate over evaluating complementary and alternative medicine. Health 13: 131-55. doi:10.1177/1363459308099681.

Laszlo E 2003 The connectivity hypothesis: Foundations of an integral science of quantum, cosmos, life, and consciousness. Albany, State University of New York Press.

Latour B 2005 Reassembling the social-an introduction to actor-network-theory. Oxford, Oxford University Press.

Lupton D 2012 Medicine as culture: Illness, disease and the body in western society. London, Sage.

Lupton D and McLean J 1998 Representing doctors: Discourses and images in the Australian press. Social Science and Medicine 46: 947-958.

Marmot M Friel S Bell R Houweling TA and Taylor S 2008 Closing the gap in a generation: Health equity through action on the social determinants of health. The Lancet 372: 1661-1669.

McLaughlin H 2009 What's in a name: 'Client', 'patient', 'customer', 'consumer', 'expert by experience', 'service user'—what's next? British Journal of Social Work, 39: 1101-1117. doi:10.1093/bjsw/bcm155.

McRuer R 2002 Critical investments: AIDS, Christopher Reeve, and queer/disability studies. Journal of Medical Humanities 23: 221-237. doi:10.1023/A:1016846402426.

McRuer R 2003. As good as it gets: Queer theory and critical disability. GLQ: A Journal of Lesbian and Gay Studies 9: 79-105.

McRuer R 2013 Compulsory able-bodiedness and queer/disabled existence . In Davis LJ (ed.) The disability studies reader, pp. 369-80. Abingdon, Oxon, Routledge.

Mead GH and Morris CW 1934 Mind, self and society from the standpoint of a social behaviorist. Chicago, University of Chicago Press.

Merleau-Ponty M and Landes DA 1962/2002 Phenomenology of perception, 5th edn. Abingdon, Routledge.

Mills CW 2000 The sociological imagination. Oxford, Oxford University Press.

Mol A 2002 The body multiple: Ontology in medical practice. Durham, Duke University Press.

Morrall P 2009 Sociology and health: An introduction. Abingdon, Routledge.

Nettleton S 2005 The sociology of the body. In: Cockerham WC (ed) The Blackwell companion to medical sociology, pp 43-63. London, Blackwell.

Nicholls, D. A., & Gibson, B. E. (2010). The body and physiotherapy. *Physiotherapy Theory and Practice*, *26*(8), 497–509. doi:10.3109/09593981003710316.

Owens J 2014 Exploring the critiques of the social model of disability: The transformative possibility of Arendt's notion of power. Sociology of Health and Illness (Early online). doi:10.1111/1467-9566.12199.

Petersen A and Bunton R 1997 Foucault, health and medicine. Abingdon, Routledge.

Praestegaard J Gard G and Glasdam S 2014 Physiotherapy as a disciplinary institution in modern society-a Foucauldian perspective on physiotherapy in Danish private practice. Physiotherapy Theory and Practice 31:17-28. doi:10.3109/09593985.2014.933917.

Renshaw P Choo J and Emerald E 2014. Diverse disability identities: The accomplishment of 'child with a disability' in everyday interaction between

parents and teachers. International Journal of Educational Research 63: 47-58. doi:10.1016/j.ijer.2012.09.002.

Schoeb V Rau B Nast I Schmid S Barbero M Tal A and Kool J 2014 How do patients, politicians, physiotherapists and other health professionals view physiotherapy research in switzerland? A qualitative study. Physiotherapy Research International 19: 79-92. doi:10.1002/pri.1560.

Scotch RK 1989 Politics and policy in the history of the disability rights movement. The Milbank Quarterly 67: 380-400. doi:10.2307/3350150.

Scott S and Morgan D 2004 Body Matters: Essays on the Sociology of the Body. (2004). Body matters: Essays on the sociology of the body. London, Falmer Press.

Shaw JA and Connelly DM 2012 Phenomenology and physiotherapy: Meaning in research and practice. Physical Therapy Reviews 17: 398-408. doi:10.1179/1743288X12Y.0000000043.

Shaw JA and DeForge RT 2012 Physiotherapy as bricolage: Theorizing expert practice. Physiotherapy Theory and Practice 28: 420-7. doi:10.3109/09593985.2012.676941.

Shildrick M 1997 Leaky bodies and boundaries: Feminism, postmodernism and (bio)ethics. Abingdon, Routledge.

Shilling C 2012 The body and social theory. London, Sage.

Shusterman R 2005 The silent, limping body of philosophy. In: Carman T Hansen MBN Boris M and Hansen N (eds) The Cambridge companion to Merleau-Ponty, pp 151-180. Cambridge, Cambridge University Press.

Shuttleworth R and Meekosha H 2013 The sociological imaginary and disability enquiry in late modernity. Critical Sociology 39: 349-367. doi:10.1177/0896920511435709.

Slatman J 2014 Multiple dimensions of embodiment in medical practices. Medicine, Health Care, and Philosophy 17: 549-57. doi:10.1007/s11019-014-9544-2.

Standal F and Engelsrud G 2013 Researching embodiment in movement contexts: A phenomenological approach. Sport, Education and Society 18: 154-166. doi:10.1080/13573322.2011.608944.

Stromquist NP 2002 Education in a globalized world: The connectivity of economic power, technology, and knowledge. Lanham, Rowman & Littlefield.

The Health Foundation 2010 Improvement in practice: The personal touch - the Dutch experience of personal health budgets. London, The Health Foundation.

Timmermans S and Berg M 2003 The practice of medical technology. Sociology of Health and Illness 25: 97-114. doi:10.1111/1467-9566.00342.

Turner BS 2008 The body and society: Explorations in social theory. London, Sage.

Unhelkar B 2009 Handbook of research in mobile business: Technical, methodological, and social perspectives. Hershey, Information Science Reference.

Van Dijck J 2013 The culture of connectivity : A critical history of social media. Oxford, Oxford University Press.

Webb W 2007 Wireless communications the future. Chichester, John Wiley.

Wikström-Grotell C and Eriksson K 2012 Movement as a basic concept in physiotherapy – a human science approach. Physiotherapy Theory and Practice 28: 428-38. doi:10.3109/09593985.2012.692582.

Wikström-Grotell C Broberg C Ahonen S and Eriksson K 2013 From Ling to the academic era – an analysis of the history of ideas in PT from a Nordic perspective. European Journal of Physiotherapy 15: 168-180. doi:10.3109/21679169.2013.833985.

Winance M 2006 Trying out the wheelchair: The mutual shaping of people and devices through adjustment. Science, Technology and Human Values 31: 52-72. doi:10.1177/0162243905280023.