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# Occupation from a perspective of complementarity - Part 2 - Proposals for situating a complementarity perspective in occupational science

David Turnbull<sup>1</sup>, Ross Barnard<sup>2</sup><sup>1</sup> The University of Queensland<sup>2</sup> University of Queensland**Funding:** No specific funding was received for this work.**Potential competing interests:** No potential competing interests to declare.

## Abstract

We build on Bohr's (1948) conjecture that complementarity has applications in domains of knowledge beyond the discipline of physics. Specifically, we examine the relevance and usefulness of Bohr's notion of complementarity along with his revised definition of the term 'phenomenon' to the field of occupational science. We discuss how Bohr's (1948) redefinition of the term 'phenomena' is congruent with Husserl's (1931) introduction of the term 'intersubjectivity' into phenomenology. We propose a reconceptualisation of occupation that, we suggest, aligns with Bohr's suggestions, as well as with Husserl's concept of intersubjectivity. We consider conditions concerning the concept of 'phenomena', before proceeding to state logical requirements for complementarity in relation to occupation. We argue that occupation is not a phenomenon; it involves a multiplicity of phenomena (some of which might be complementary). This leads to the development of a number of suggestions concerning complementarity between aspects of occupation. We take into account two discrete approaches to occupational science: the transactional perspective of occupation (TPO) and the occupational perspective of health (OPH). We propose that each of these perspectives is amenable to consideration from the perspective of complementarity.

## Introduction

In this Part 2 article, which is actually the fourth in a series (see Turnbull & Barnard, 2023a; 2023b; Turnbull, 2023), we build on Bohr's (1948) conjecture that complementarity has application in domains of knowledge beyond the discipline of physics. In Part 1 we discussed how Bohr's (1948) redefinition of the term 'phenomena' is congruent with Husserl's introduction of the term 'intersubjectivity' into phenomenology (Husserl, 1931; Duranti, 2010). Rather than opting for a description of the opposition between phenomena as between discrete *subject positions* (those of Heisenberg and Schrödinger), Bohr proposed that the phenomena were complementary subject-object entanglements. Each physicist's contribution to knowledge was part of an overall description of the state of knowledge in atomic physics at that time. Complementarity is between knowledge claims rather than between descriptions of objects. Physics, in order to be recognised as a unified whole, was constituted by what we can now understand as *intersubjective* relationships between

physicists in their different but complementary experiments.

'Intersubjectivity' is a term that has also been of interest in the social sciences as well as entering public discourse. The social science route offers a pathway for the emergence of a complementarity perspective in occupational science taking into account phenomenological perspectives (Barber, 2004; Barber, 2006; Park & Kinsella, 2011) as well as transactional perspectives (Dewey & Bentley, 1949; Cutchin, 2004; Cutchin, 2007; Cutchin & Dickie, 2012; Cutchin & Dickie, 2013; Dickie, Cutchin & Humphry, 2006; Cutchin, Dickie & Humphry, 2006). From the perspective of complementarity, phenomenological perspectives have affinities with Wilcock's (2007) occupational perspective of health (OPH). Cutchin et al. (2006) concluded that *'there is potential in considering how transactionalism and phenomenology can complement each other when thinking about occupation.'* (p. 97). Cutchin and Dickie (2013) opted for 'transactional perspectives' in preference to 'transactionalism'. In this article, similarly, we opt for 'phenomenological perspectives' rather than 'phenomenology' in order to avoid giving the impression we consider that the latter is a unified discipline. Perspectives (of any sort) are not here considered to include descriptions of subjects and objects as separate entities. A perspective is already a subject-object entanglement as part of a knowledge claim.

This development of a perspective of complementarity outside physics had been anticipated by Bohr (1948) in relation to biology, psychology and anthropology. To the authors' knowledge, however, Bohr's reconceptualisation of complementarity, involving a redefinition of 'phenomena' as involving subject-object entanglements, has not so far been incorporated into occupational science. The introduction of a *notion* of complementarity into occupational science, without a prior investigation into the meaning of the term 'phenomenon' has been proposed by Mary Lawlor (2021). This is her way of suggesting a 'unifying narrative' for the discipline. Lawlor's approach assumes that occupation is itself a discrete phenomenon that can be a completely determinable object as a product of occupational science discourse.

Engaging in a detailed critique of Lawlor's article would take us away from the aim of the current article. For now, we suggest that Lawlor's notion of complementarity, as derived from the work of anthropologist Michael Jackson (1998), is not congruent with the concept of complementarity developed by Bohr (1948). Her account could conceivably be construed to fit with Bohr's earlier (1928) notion that complementarity is between different observational accounts of a single phenomenon (conceived as descriptions of an object). Lawlor writes concerning *'the existence of complementary poles of phenomenon'* (Lawlor pp. 214, 215). This notion of a phenomenon as a thing having poles harks back to the idea that a phenomenon can be objectively isolated as a thing independent of the observer. Following the lead of Bohr (1948), we may regard such concepts as misconceptions.

In this article we introduce a transformation in the way occupational science may conceive the field of its discourse concerning occupation, using complementarity as a key component. The logic of occupation is transformed by the adoption of a perspective of complementarity in line with Bohr's (1948) suggestions. In order to gain clarity about what this involves, let us pause to consider what was at stake for Bohr and for the status of alternative theories concerning phenomena in physics. What faced Bohr was the prospect of a complete breakdown of physics into rival subjective interpretations of phenomena, in which the very notion of 'the phenomenon' was rendered unintelligible. Bohr was responding to a crisis of intelligibility, a crisis analogous to the one we believe is facing occupational science.

On Bohr's (revised) account, complementarity between phenomena *consisting of subject-object entanglements* has a different logic to that of the logic wherein phenomena are taken as descriptions of subjects or objects in separation from each other. Based on Bohr's (1948) description of 'phenomena', we propose three conditions and two axioms for the emergence of a *complementarity perspective* in occupational science.

## Conditions and axioms for a complementarity perspective in occupational science

Here we state three basic conditions concerning the concept of 'phenomena', before proceeding to state two axioms for complementarity in relation to occupation. We propose that there are three basic conditions concerning the concept of phenomena to consider:

First, phenomena consist of subject-object entanglements.

A basic, yet incomplete description of a single phenomenon includes all the theories, methods, equipment and interpretations involved in its discovery.

Second, any discrete description of a phenomenon is incomplete without the complementary description between phenomena described axiomatically below.

Third, (to avoid arbitrariness) such phenomena may be understood as complementary, only insofar as their inclusion in an overall description, provides a better understanding of *an entire situation*. In defining 'situation' there are a range of political and ethical issues that arise along with methodological considerations.

The logic of complementarity within the concept of occupation requires the understanding of humans, both socially and individually, as *occupational* beings. We posit two axioms concerning complementarity:

### *First axiom*

The existence of individuals is a *necessary condition* for descriptions of occupation in the formation of social relationships. The existence of social relationships is a *necessary condition* for individuals to engage in individual occupational pursuits.

### *Second axiom*

Occupation involves *complementarity* between the *activity* (of individuals or social groups) and the *receptivity* (of individuals or social groups). Activity is a *necessary condition* for receptivity. *Vice versa*, receptivity is a *necessary condition* for activity.

These two axiomatic requirements, taken together, provide *necessary conditions* for the proposal, frequently stated in the occupational science literature, that humans are occupational beings.

## Complementarity between aspects of occupation

Building on the foregoing description of conditions and axioms for the emergence of a complementarity perspective in

occupational science we propose a system of interrelationships between social-individual aspects of occupation and active-receptive aspects of occupation. We suggest four complementary domains, consisting of different classes of phenomena: social-active; individual-active; social-receptive; individual-receptive.

These domains can be associated, respectively, with words such as *dialogue* with others (social-active); *self-advocacy* involving a person speaking up for themselves (individual-active); *solidarity* with others (social-receptive); *respect* for the uniqueness of persons (individual-receptive). Further terms might be used, as appropriate, given the specific situations under consideration.



**Figure 1.** Four proposed complementary domains within occupation, with some exemplary terms associated with these domains.

In the present paper, we consider the role of complementarity within (a) transactional perspectives of occupation (TPO) in occupational science, and within (b) the occupational perspective of health (OPH). In the present paper, we are not going to discuss to what extent TPO might be complementary to OPH.

## Complementarity as implicit in transactional perspectives in occupational science

Next, we will examine selected parts of the occupational science literature to demonstrate that complementarity is already implicit within *transactional* perspectives in occupational science. Transactional perspectives (Cutchin & Dickie, 2013) are committed to overcoming the subject-object split in science, invoking Dewey's philosophy and the complex term organism-in-the-environment-as-a-whole (Dewey & Bentley, 1949, Cutchin et al., 2006; Cutchin & Dickie, 2013). According to Cutchin et al. (2006) the word 'organism' is not confined to biological descriptions, but includes social and cultural aspects of the place in which the (human) organism is occupied. It also refers to 'passion, values, and ethics—distinctly human

traits' (p. 98). There is no split between organism and environment-as-a-whole, which seems to be a way of justifying their claim that transactional perspectives are holistic. However, the question of whose holism it is (transactional or phenomenological) has led to a conflict over worldviews (Barber, 2006; Cutchin & Dickie, 2006). Apparently, there has been a rapprochement wherein the two approaches are now considered complementary (Cutchin & Dickie, 2013; Alsaker et al., 2013).

## Background to a conflict over worldviews

Cutchin et al. (2006) make a clear statement about their philosophical framework based on Deweyan pragmatism. They state that their view of occupation is social constructivist, distinguishing that from phenomenological perspectives that emphasise individual experience (p. 98). They state,

*The social character of selves is fundamental to Dewey's pragmatism. His view of sociality erodes the subject and creates a participant who is fully enmeshed in the affairs of community and world. (p. 98)*

Explaining this further, they quote from Dewey

*The stuff of belief and proposition is not originated by us. It comes to us from others, by education, tradition and the suggestion of the environment. Our intelligence is bound up, so far as its materials are concerned, with the community life of which we are a part. We know what it communicates to us, and know according to the habits it forms in us. Science is an affair of civilization not of individual intellect. (Dewey, 1957/1922, p. 287) (Cutchin et al., 2006 p. 98)*

There is much to consider in the foregoing, however these statements seem to imply theirs is an extreme social constructivist view that claims 'the social' provides sufficient conditions for explaining the emergence of the individual, including their unique experiences of occupation. (As we shall argue below, however, Cutchin et al. actually draw back from an extreme social constructivist view.)

However, in the quotations just supplied, there is apparently no distinction drawn between 'community' and 'world'. The phrase that conjoins these words is Husserl's (1931) term 'lifeworld': 'the world of everyday life'. 'Lifeworld' was used by Michael Barber (2004) in his account of how 'phenomenology assists occupational science in understanding what occupation means to one engaged in it.' (p. 105). Barber (2006) followed his (2004) account with a critique of transactionalism in occupational science, stating that '*such a theoretical perspective risks overlooking the first-person perspective of actors that mere organisms lack*' (p. 94). Cutchin, Dickie, and Humphry (2006) responded, pointing out what they considered to be deficiencies in Barber's account.

Cutchin et al.'s response was somewhat inaccurate regarding what Barber's position actually involved, although in the

end their response established points of intersection between phenomenology and transactionalism. Cutchin et al. stated that *'After reading Barber's articulate critique, we conclude that there are some fundamental, irreconcilable differences between his worldview and ours.'* (p. 97) As part of their counter-critique, Cutchin et al. stated, *'We are somewhat surprised that Barber did not use Husserl's important phenomenological concept of "lifeworld"..."'* (p. 97). Evidently, they had not read Barber's earlier article published in the same journal. Stating that the term 'lifeworld' was attractive, because *'there is an important relation between world and person'* they maintained that *'because he (Barber) is not willing to give up the first-person (subjective) basis of his worldview—we must admit a fundamental difference with him.'* (p. 98)

Evidently Cutchin et al. had not considered in sufficient detail Husserl's (1931) more basic concept of intersubjectivity as *conditions of possibility* for a range of individual and yet socially embedded human experiences (a good account of which is contained in Duranti, 2010).

In Cutchin et al.'s (2006) account, as far as the individual is concerned, the individual's particular community's the world. This treads, precariously, into territory that can be construed as mono-culturalism. We are reminded here about the problem of holism in occupational science we raised in a previous article (Turnbull & Barnard, 2023a). This notion of holism, if construed mono-culturally, runs into what we termed (in that article) 'the decolonial critique' of Western societies. That is, the mono-cultural construction neglects to ask: *whose* holism are we talking about?

We argue that there are aspects of Western occupations that, to be understood holistically, require examination from the perspective of, and by, people from non-Western societies. Of particular relevance to occupational science, given its origins in affluent Western societies, are the perspectives of those that have undergone colonisation by Western peoples and nations, whose perspective has been sharpened by the memory and experiences of past and ongoing occupational disruption. As writers and researchers embedded in a Western tradition, we need to be open and alert to non-Western critiques, complementary to ours, particularly of what might be our taken-for-granted assumptions (Graham, 2008; Maldonado-Torres, 2007; Ramugondo, 2018). We turn to a fuller examination of these critiques in Part 3.

The foregoing brief discussion of Cutchin and Dickie's Deweyan worldview needs to be understood as part of the conceptual framework in which they write, and is part of what forms their view of occupation. We argue, however, that whilst their claim to be constructivists is a helpful description of their actual standpoint, it is only partly correct. We analyse their definition of occupation to show that theirs is a particularly nuanced account that differs from the extremely social constructivist passage they have quoted from Dewey.

## Defining occupation from a transactional perspective

Cutchin and Dickie (2013) state: *'Although defined in various ways in the literature, occupations are, most simply put, activities we participate in that engage (occupy) our attention, interests and/or expectations.'* (p. 1) Cutchin and Dickie state further:

*Humans are by nature an active and social species, and occupations cut across all domains of experience and*

*inquiry. The fact that other disciplines do not focus on occupations in this sense might be related to the largely taken-for-granted status of such activity. (p. 2)*

It is noteworthy that Cutchin and Dickie's definition proposed that occupations are '*activities we participate in*' and locates occupation within the field of whatever '*engages our attention, interests and/or expectations*'. It is also noteworthy that - irrespective of disciplinary considerations - *participation* is a social phenomenon, whilst *engagement* contains a reference to 'interests' which suggest the possibility for individual differences and preferences. As they state, '*Occupations encompass a wide variety of activities, from reading a story to playing a game with others to flying an airplane*'. (pp. 1,2). Clearly, such activities can be described from social and individual perspectives. Such perspectives, in our interpretation, are complementary, and they relate to different phenomena. Reading a story in a classroom situation (a social activity) is a different phenomenon from reading a story by oneself (an individual activity). Phenomenologically speaking, these are quite different 'lived experiences' (Husserl, 1931).

In Cutchin and Dickie's (2013) definition of occupation and in offering such examples, there are complementary relationships between phenomena described as 'participation' (social) and having specific 'interests' (individual). Regarding these phenomena as complementary, is to say that *each is a necessary condition for the other*. In education, reading a book in a classroom is complementary to reading a book, at home, on one's own. The converse is also needed. Education is incomplete if it only happens in the classroom.

Dickie, Cutchin, and Humphry (2006) argued that

*occupational science is not served well by definitions of occupation that focus investigation and interpretation almost entirely on individual experience, and indeed, that occupation rarely, if ever, is individual in nature. An understanding of individual experience is a necessary but insufficient condition for understanding occupation that occurs through complex contexts. (p.83)*

What they omitted to say was that the converse must also be true. The converse must be true if, as they say, 'an understanding of individual experience is *a necessary but insufficient condition* for understanding occupation'. It seems equally justified to write: occupational science is not served well by definitions of occupation that focus investigation and interpretation almost entirely on the social construction of occupation. The 'social' is a necessary *but insufficient* condition for describing an individual's experience of occupation. Based on our interpretation of Cutchin et al.'s position, there is far more compatibility between their account and ours than the explicitly Deweyan aspects of their 2006 writings seem to imply.

One further critical consideration is needed. As far as we are aware, *the focus of writers using a transactional perspective of occupation* is always on occupation conceptualised as activity; no explicit mention has been made of receptivity as a necessary condition for activity. Perhaps paradoxically, it would add strength to our argument if transactional writers were to disagree with the latter assertion and point out where receptivity and activity are regarded as complementary, in the extant body of research literature.

Based on the foregoing considerations, we assert that there is, indeed, complementarity embedded in Cutchin and Dickie's (2013) definition. The complementarity is between (1) the social and the individual, and (2) activity and receptivity as *complementary aspects* of occupation. The latter complementarity (2) can be rendered explicit by reflecting on the idea that in order to participate in activities, social groups and individuals must be receptive (or 'open') to them. Learning *how* might be a precondition for this.

## An example of complementary domains within a transactional perspective

In order to find examples of how social-active; individual-active; social-receptive; individual-receptive might be developed as complementary domains within a transactional perspective it is necessary to turn to the relevant literature in occupational science. Uncovering these domains requires an interpretive engagement with selected texts. Here we make a start with a chapter in Cutchin & Dickie (2013) by Alsaker, Josephsson, and Dickie (2013, chapter 5). They present '*narrative-in-action (Alsaker et al. 2009) originating from the French philosopher Paul Ricoeur*' suggesting that

*the phenomenological and hermeneutical perspective of Ricoeur may give access to transactional qualities of everyday occupation and offer a complimentary (sic) perspective to a Dewey-informed approach (Alsaker, Josephsson, & Dickie, 2013, p. 66).*

(It is very interesting that a book devoted to transactional perspectives on occupation includes several chapters that draw on phenomenological and hermeneutical perspectives. This suggests that the two traditions are necessary conditions for each other, but arguing this case goes beyond our current aim.)

Alsaker et al. (2013, ch. 5) suggest that '*narrative meaning is created by the teller and may vary according to the listener and the situation in which the telling takes place.*' (p. 67). Furthermore, they state, '*Listeners to share the story and to confirm, negotiate or affirm its meaning is necessary for a story to be communicative.*' (p.68).

Based on research by Alsaker (2009) the chapter relates a story about Lily, a woman with a severe rheumatic condition who, when parking her car whilst going shopping, refused to use disabled parking spaces, even when doing so caused her much inconvenience and discomfort in having to walk longer distances. Her rationale included her view that such spaces were for people with wheelchairs and wheelie walkers. She confided to the researcher that she wished her disability would remain hidden so that '*others see me as normal when walking down the street.*' (Alsaker, Josephsson, and Dickie 2013, p. 69).

The approach by Alsaker et al. (2013), as based on our analysis of occupation from the perspective of complementarity, exemplifies complementarity on a number of levels. There is complementarity between social-active, individual-active, social-receptive, and individual-receptive. These include: Lily drives her car to a shopping centre (social-active) and parks in her own preferred location (individual-active). Lily demonstrates her awareness of the normative dimension of social life

where, collectively, most people want to appear as normal (social-receptive) and she refuses to park in a disability parking place (individual-receptive). Lily confides in the researcher (individual-active) who does not pass judgement (individual-receptive).

Taken together, these complementary aspects enable understanding occupation not as an objectively observable phenomenon isolated from an observer (something that, in a post-complementarity world, we regard as impossible), but rather, occupation is describable as consisting of complementarity between multiple, discrete, but interrelated phenomena, each of which is a necessary condition for others.

## Proposals for a reinterpretation of Wilcock's OPH from a perspective of complementarity

Next, we direct our attention to Wilcock's (2007) Occupational Perspective of Health (OPH). We draw upon the work by Hitch, Pépin & Stagnitti (2014a; 2014b). Their account is important as a precursor to the development of a perspective of complementarity for occupational science. Hitch and colleagues (2014b) offer a methodological approach in order to produce a synthesis of the four key terms in the OPH that define occupation: doing, being, becoming and belonging. We propose that Hitch et al.'s synthetic approach may benefit from, or even be replaced by, an understanding of complementarity as based on subject-object entanglements.

The following paragraph drawn from Hitch et al. (2014b) can be used to give a sense of the potential their analysis has for developing an account of occupation from a perspective of complementarity.

*A person's drive to do, be, become, and belong is tacitly acknowledged in OT to evolve throughout the lifespan. However, Pollard (2006) makes the radical suggestion that a person's occupational potential transcends death, as their work and ideas continue through the occupation of others. His argument suggests the dimensions are independent from individuals, and their interdependence exists both within a person and between the occupations engaged in by a group. This stance highlights the multiple layers of occupation, existing within space, place, and time. (Hitch et al. 2014b, p. 254)*

Hitch et al.'s reference to Pollard (2006) suggests that a person's occupational potential transcends death. Their comment is that '*His argument suggests the dimensions are independent from individuals*' (p. 254). However, what Pollard is talking about is occupational *potential*, not occupation itself. This potential transcends the lifetime of any individual who engages in an occupation. So let us first, in the interests of conceptual clarity, discuss the difference between occupational potential and occupation itself.

First, we need to understand 'occupational potential' as meaning 'conditions of possibility' for occupation (Husserl, 1931; Duranti, 2010). 'Conditions of possibility' relate to the domains of 'social-active', 'individual-active', 'social-receptive' and 'individual-receptive'. When a person dies the person's occupational potential outlasts the individual, insofar as it remains as conditions of possibility embedded, for instance, in activities of remembrance (social-active complemented by

individual-receptive) for the occupations of others (social-receptive complemented by individual-active).

We note one point of congruence with the model of complementarity we propose, where Hitch et al. state that the four 'dimensions' of occupation - doing, being, becoming, belonging - have a relationship of '*interdependence*'. This '*exists both within a person and between the occupations engaged in by a group*' (p. 254). In our account, these four 'dimensions' are *conditions of possibility (or potentials)* for occupation to transcend the lives of individuals. These conditions are necessary for occupations to be transmitted intergenerationally. As such, there is an inherent temporality in them. These conditions of possibility do not specify, in advance, what actual occupations may arise in the uptake of such conditions by others. The transformation of occupational potential into actual occupations depends on social and individual *activity* (doing) involved in passing on an occupational tradition and the *receptivity* (including possibilities for a change) of social and individual others (in their being, becoming, and belonging).

## Linking conditions of possibility to actual occupation

Some explanation is needed to justify and to link conditions of possibility (potentials) to actual occupation. Hitch et al. introduce the notion of a '*person's drive to do, be, become, and belong*' (p. 254). The notion of 'drive' has been adopted from the social science literature, without referencing (as far as we can tell). The issue is not that it hasn't been referenced, but that it hasn't been *explained*. We suggest one way to understand the concept of 'drive' could be via Spinoza's concept of *conatus*.

*Spinoza's thesis that the essence of any finite mode, including any human mind, is a striving (conatus) to persevere in being is an attempt to give an account of nature under which human beings with their apparent peculiarities are natural. (LeBuffe, 2022).*

Locating 'drive' in such a rich source of ideas such as *Spinoza's Ethics*, (Curley, 2016/1985) takes the reader straight away to the naturalistic concept of 'striving to persevere in being'. This concept of 'striving to persevere' connects 'being' to other concepts in Wilcock's OPH, including doing, becoming and belonging. The basic form of 'doing', in its aspect as activity, is captured by the word 'striving'. Being, in both its individual and social aspects, is both active and receptive in the striving to persevere. Becoming includes both the individual-active and social-active transformative aspects of this striving. The endpoint, the goal, of this entire process, involving receptivity to all individual and social aspects of striving to persevere in being, is encapsulated in the word 'belonging'. However 'belonging' is also the beginning, well captured by Mary Graham's (2008) concept of Australian Aboriginal people 'belonging to the Land' (Turnbull, 2023).

If we now think of the interrelationships between these concepts as *conditions of possibility*, as well as being exemplified in actual occupations, we find that they are lifted out of any purely empirical designations. They are transformed from particulars to universals. In our view, Wilcock's recognition of the interrelationship between the terms doing, being, becoming and belonging, as understood from a perspective of complementarity, contends for the status of a universal concept of occupation.

In order to see the potential in Wilcock's account of occupation as universal, it is important to look beyond having a monocultural focus. In a many-cultured environment, singular conceptual frameworks and worldviews will not comprehend the complexity of complementarities that constitute occupations in that environment. Culture-specific accounts that might have been considered adequate in ancient times may be considered inadequate to address the complexity of modern, multicultural societies. Conceptual frameworks and worldviews dating from ancient times may require reconsideration and reconceptualisation, not necessarily as adaptations but as genuine exchanges involving conditions of possibility for activity and receptivity between cultural groups. Such considerations are particularly relevant to Turnbull's (2023) discussion of conditions of possibility for complementarity between First Nations and colonial settler people, within the framework of the *Uluru Statement from the Heart*. The proposal of that Statement, 'to walk with us', adds layers of complexity to occupations that have derived their meaning from traditional Aboriginal and colonial sources.

## The direction of inquiry to which the current study points

In the foregoing, we have made some proposals for situating a complementarity perspective in occupational science. We have not made many concrete suggestions, at this stage, as to how a complementarity perspective might most assist in the doing of occupational science. As a general suggestion, we see that the potential for assistance most occurs at the intersection (or overlaps) of phenomenological and transactional perspectives, along with the decolonial perspective, which are the perspectives in which this series of articles has been situated from the beginning (Turnbull & Barnard, 2023a).

What we have done is provide a different way of conceiving phenomena than is currently understood and put into practice in occupational science. We have done so utilising Bohr's (1948) redefinition of 'phenomenon'. Here we restate Bohr's definition.

*...one may strongly advocate limitation of the word 'phenomenon' to refer exclusively to observations contained under specified circumstances, including an account of the whole experiment. (Bohr, 1948; also quoted in Pais, pp. 432, 433).*

Our interpretation of this definition is that 'the whole experiment' means the entire situation to be considered from a scientific perspective. Occupational science claims to be holistic. In order to be holistic, occupational science must be embedded in whatever situation that needs to be understood. The occupational scientist-as-observer, embedded (i.e. entangled) in situations, is a participant, not a bystander. 'The whole experiment' includes the researchers (along with all participants), along with all the conceptual frameworks and worldviews that inform their practice. In this article, we have particularly focused on the transactional perspective of occupation (TPO) and the occupational perspective of health (OPH).

A scientist (from whatever perspective) views situations *as if* they are experiments. They are a process of learning, and of relearning, based on new discoveries. As we understand the transactional perspective derived from Dewey (Dewey &

Bentley, 1948) and as explained by Cutchin, Dickie and others in an occupational science context (Cutchin & Dickie, 2013) individual and social learning requires taking a problem-solving approach to challenging situations. The phenomena to be investigated from a perspective of complementarity are situations characterised by the four domains of social-active; individual-active; social-receptive; individual-receptive. We provided an example using a combination of the TPO and phenomenological perspectives (Alsaker & Johansson, 2013).

We also discussed the OPH, suggesting that doing, being, becoming and belonging could be understood from the perspective of complementarity. That suggestion implies that these four aspects of the OPH can each be conceived, either as phenomena, or consisting of phenomena. The article by Turnbull, (2023) concerning *The Uluru Statement from the Heart*, along with the perspective provided by Graham (2008), provided an example of Aboriginal worldviews that contain the phenomenological aspects of doing, being, becoming and belonging. In the current article we have suggested that rather than describing these aspects of occupation as a synthesis of 'dimensions' of one phenomenon, it would be better understood as involving complementarity between multiple phenomena. What we have suggested is that complementarity between these phenomena is what constitutes occupation.

What we have also maintained throughout this discussion, is that there is a necessary entanglement of subjects and objects involved in the very doing of science. Complementarity - as embedded in the scientific project as a whole - overcomes the natural/theoretical distinction insofar as science is itself embedded in nature and nature is embedded in science. Any research process in science involves descriptions of phenomena. The very descriptions, based on the perspectives of researchers, are part of the phenomena. Phenomena are not independently existing objects.

What we have discovered through the exploratory process of writing this and the companion articles (Turnbull & Barnard, 2003a; 2003b) is that the idea of complementarity (as expounded by Bohr, but present in much earlier philosophical systems) can be applied to transactional perspectives of occupation (TPO) and to the occupational perspective of health (OPH). The additional possibility that TPO and OPH may themselves be regarded as complementary requires further investigation.

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