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# The Brain Makes the Fit: On the Materialist Hypothesis to Consciousness, Neuropsychology and Person–Organisation Fit

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## Abstract

This theory paper presents an analysis of the materialist hypothesis to consciousness and its implications for person–organization (P–O) fit. Some implications from neuropsychology are also considered. Three implications for P–O fit are discussed: (1) how it affects the underpinning theory; (2) how it changes our definition of the term; and, (3) how P–O fit is captured. The materialist hypothesis reinforces the underpinning theory, but causes a redefinition of P–O fit. It suggests that P–O fit should be defined in terms of the individual employee’s unconscious physical interaction of internal features and environmental stimuli. The review also suggests that researchers need to consider using data gathering techniques that capture unconscious dimensions of P–O fit.

The fit between individuals and their work organisations has been of interest in management literature for fifty years yet the meaning of fit and its consequences remain elusive (Pervin, 1978; Rynes & Gerhart, 1990; Schneider, Kristof-Brown, Smith, & Brent, 1997). Reasons for this are manifold, but one, which we examine here, may be the continuing pervasive uncertainty in understanding the roles of consciousness and the unconscious brain in shaping a person’s fit with their employer. In this paper we examine the consequences for fit of one model of consciousness: materialism–epiphenomenalism or monism, which will hereafter refer to as materialism.

The last ten years have brought remarkable developments in brain research and in brainscan technology, which are revolutionising our understanding of brain processes (Goguen & Forman 1994; Greenfield, 2000). Indeed, consciousness is emerging as an important research arena and is being addressed by many disciplines including artificial intelligence, cognitive science, computer science, mathematics, medicine, neuroscience, pharmacology, philosophy and psychology. This research is already challenging many other fields, yet, as Dennett (1993) suggests, “scientists and philosophers may have achieved a consensus of sorts in favour of materialism, but [...] getting rid of the old dualistic visions is harder than contemporary materialists have thought. Finding suitable replacements for the traditional dualistic images will require some rather startling adjustments to our habitual ways

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of thinking, adjustments that will be just as counterintuitive at first to scientists as to lay people” (Dennett, 1993: 37).

It is commonly accepted that our behaviours are largely driven from our conscious agency: I think about making a cup of tea. I decide to make a cup of tea. I make a cup of tea. Yet the materialist hypothesis, which directly derives from rational materialism and scientific method, suggests that consciousness has no role in shaping behaviour. Instead, the hypothesis suggests that behaviour is entirely determined by unconscious physical processes in the brain and that the experience of thinking about making a decision does not shape the decision in any way. This makes the materialist hypothesis extraordinarily counterintuitive.

This paper considers how materialism might influence our understanding of person–organisation fit (P–O fit). The focus on P–O fit is warranted because the theoretical underpinnings of the construct (i.e. interactional psychology) lie in the literature on the determinants of individual behaviour and the P–O fit literature has not yet directly addressed issues of brain and mind. Instead, there appears to be a tacit assumption that consciousness has a role to play in shaping behaviour. Moreover, researchers have argued that P–O fit is an important factor influencing some key decisions that people make. For example, the decisions to join, stay with, and to leave an organisation are all thought to be connected to people’s sense of fit (Cable & Judge, 1996; Chatman, 1989; Schneider, 1987). Understanding whether or not people make these decisions as conscious agents weighing all the relevant considerations, or rather, as the materialist hypothesis suggests, they make these decisions unconsciously swept along by physical processes out of their conscious control is worthy of further consideration.

The paper begins with a brief explanation of the key terms ‘brain’, ‘unconscious’, ‘mind’, and ‘consciousness’ before a summary of the two main hypotheses concerning consciousness and a more thorough review of the dominant approach – materialism. The paper then considers how adopting a materialist hypothesis to consciousness might change our understanding of P–O fit. In particular, the paper focuses on the definition of the construct and the methods used to capture people’s P–O fit.

## Consciousness

Several words and phrases that are used repeatedly in this paper are used in common parlance, often with different or multiple meanings. It is necessary to clarify how these words – ‘brain’, ‘unconscious’, ‘mind’, and ‘consciousness’ – are used in this paper.

### Some Definitions

*Brain.* The brain is the physical location inside the individual in which electrical and chemical processes continuously proceed to manage body functions and cognitive functions, such as analysis, synthesis, memory and learning, completely outside of awareness. It is generally accepted that even with the emergence of brainscan and related technology, we are only just beginning to understand the physical workings of the brain. The main constituent of the brain is nerve cells called neurons. The neurons form an intricate network of unimaginable complexity. Each brain contains about  $10^{11}$  neurons. Neurons receive information through tendrils called dendrites and send the information via ‘terminals’ called synapses. Each neuron may have many dendrites and synapses. It has been estimated that there might be  $10^{14}$  synapses in a single brain (Ornstein and Thompson, 1984). The information is exchanged between neurons by the movement of chemical particles. It is generally accepted that sets of neural connections are associated with particular behaviours. Although the neural network is established shortly after birth, the details and fine-tuning of

the pathways continue to develop throughout our lives. It is known that experiences can cause new synapses to grow (Ornstein and Thompson, 1984), that learning appears to involve changes to the network of neurons (Gazzaniga, Ivry & Mangun, 1998), and that the more often a part of the network is used, the more likely it is to fire again (ref.). People are unaware of these electrical and chemical processes in the brain and in this sense the brain is said to be unconscious.

*Unconscious.* At its simplest, the term ‘unconscious’ means not being aware of signals from the environment, for example, sights and sounds, or signals from the body such as pain. In addition, individuals are completely unaware of (i.e. are unconscious of) the neural and cognitive processes in the brain. These processes include how experiences are formatted into memories, how those formats interact with sense data received from contemporary experiences, how the assembly of those formats and brain processes produce the ‘stream of consciousness’, and, how behaviour including speech is choreographed.

*Mind.* Whereas the brain has physical location, the word ‘mind’ means the non-physical location of conscious experience. Much is known about how the senses operate and how signals travel through the body and into the brain. But how conscious experience is generated is still unknown (Churchland, 1986; Crick & Koch, 1990). It is the nature of the link between the unconscious brain and the conscious mind that is central to the different consciousness hypotheses.

*Consciousness.* The term ‘consciousness’ is an ambiguous one. Consciousness can mean the state of being awake (e.g. “I am awake and fully conscious”) and the state of knowing about something (e.g. “Now that you have told me that, I am conscious of your views”). These are accepted uses of the term, but in this paper ‘consciousness’ is taken to mean the “subjective quality of experience: what it is like to be a cognitive agent” (Chalmers, 1996: 6). Used in this sense, explaining the nature of consciousness has troubled thinkers for hundreds of years. It is linked to the very essence of life as demonstrated by Descartes’ ‘*cogito, ergo sum*’ (I think, therefore I am). Consciousness has, however, always defied full explanation (Papineau & Selina, 2000). Some philosophers (e.g. McGinn, 1991; Nagel, 1994) have gone so far as to suggest that the whole question of consciousness is too difficult for humans to solve. Yet, this being said, consciousness has been defined as the following catalogue of experiences: experiences of the senses (visual, auditory, tactile, olfactory and taste), pain and other body sensations, mental imagery, emotions, conscious thought and a sense of self (Chalmers, 1996). In short, consciousness is that which a person experiences and is aware of at any given moment.

The definition of the term ‘consciousness’ is so vital for understanding what follows, that it is worth relating an example to illustrate the point. Chalmers (1996) captures the essence of ‘consciousness’ with an explanation of the chain of events that occurs when someone plays a note on a piano. “A complex chain of events is set into place. Sound vibrates in the air and a wave travels to my ear. The wave is processed and analyzed into frequencies inside the ear, and a signal is sent to the auditory cortex. Further processing takes place here: isolation of certain aspects of the signal, categorization, and ultimately reaction. All this is not so hard to understand in principle. But why should this be accompanied by an *experience*?” (Chalmers, 1996: 5). It is this ‘experience’ that is the essence of consciousness.

## The mind–brain debate

These definitions hint at the nature of the mind–brain debate that has divided philosophers for centuries. On one side of the debate are those people that believe that the mind and the brain are separate entities and that there is an interaction between the two. According to this ‘dualist’ approach, the conscious mind can and does influence someone’s

behaviour. On the other side of the are materialists who believe that the mind cannot influence someone's behaviour.

*The Dualist Hypothesis.* The most intuitive hypothesis about the interaction between the unconscious brain and the conscious mind is the dualist one. Dualism, sometimes termed interactionism, asserts that the brain and mind interact and that consciousness influences behaviour (Koestler, 1967; Popper & Eccles, 1977; Velmans, 2000; Vender, 1972, 1984). For instance, I receive a letter from a utility demanding that I pay my bill or they will cut me off. I consciously decide to pay the bill by cheque. I write the cheque and post it as a result of the decision made in my conscious mind to do so. Implicit in the hypothesis is the idea that people consciously make decisions and understand what they are doing and why. This hypothesis equates with the way that most people think about the way they make decisions (Dennett, 1993).

The 'stream of consciousness' which is the phenomenal experience of being alive, with its apparent conscious agency, intent, and decision-making, is supported by the dualist hypothesis. Despite these considerations, dualism is rejected by many consciousness researchers (Dennett, 1993). This rejection is based on the absence of any satisfactory explanation of how the mind, a non-physical entity, can influence physical matter. Without a satisfactory explanation, proponents of a dualist hypothesis resort to theories that appear to breach the fundamental laws of physics, such as the law of energy conservation, or antiscientific explanations of the interaction (Wilson, 1995).

*The Materialist Hypothesis.* The antagonist to dualism is materialism. This hypothesis derives from the scientific method of determinism and supervenience. It argues that every physical event has a set of wholly physical causes that are collectively sufficient to explain the occurrence of the event (Lowe 1996). The physical universe comprises materials whose states and motions are subject only to 'natural laws'. The non-physical conscious mind alone cannot alter these natural laws, nor intervene to alter events. If this is true for an individual's conscious mind in relation to the world generally, then it must be true for the conscious mind in relation to the body, including the brain. If the non-physical mind can influence the physical brain, what prevents it influencing other parts of the body, or, indeed, other bodies? It follows that the conscious mind is inessential in the processes of the body, including the physical processes of the brain (Flanagan, 1992). In essence, this approach separates the conscious experience and the unconscious processes and argues that there is only one direction of influence between the two entities – from the unconscious brain to the conscious mind. The conscious mind is thus said to be epiphenomenal: the 'stream of consciousness' that is subjective experience follows from brain processes and is not functional for behaviour. Conversely, the unconscious processes that occur in the brain are physical and therefore they can interact with the body.

This materialist hypothesis is so counterintuitive that it needs further explanation. Think about your thoughts as you read this page of writing. What are you thinking of? What emotions do you experience? What are you feeling? According to the materialist hypothesis, your conscious experience of reading this page of text follows from your unconscious processing. The thoughts you are conscious of having have already been 'processed' by your unconscious brain (Kornhuber, 1984; Kornhuber & Deecke, 1965). Your desire to put the kettle on is not a conscious decision on your part, but a consequence of physical events – chemical reactions, electrical impulses, and so forth – that have happened unconsciously in your brain. You might find it disturbing to think that you are not a conscious agent in anything you do, but it need not be so. You are still the same person who makes the same decisions. It is just that your understanding of what role your consciousness plays is different. I receive a letter from a utility demanding that I pay my bill or they will cut me off. The data (information contained in the content of the letter, the colour of the print, the feel of the

paper, etc.) enters the brain through the sense organs (some of which I am made conscious of and some of which I am not). Inside my brain, electrical and chemical processes occur that use this new data in combination with existing data. Again, some of this data will appear in my consciousness, whilst others pieces of the data will not. These might include my memories of being cut off previously, my procedural knowledge of writing cheques and posting them, my fears of the penalties, my values of social responsibility and right and wrong, and my previous experiences of being in debt. Regardless of which of pieces of data these flash into my consciousness, all seem likely to play some role in my brain's outcome to direct my behaviours to write the cheque and post it.

Evidence to support the process of unconscious processing preceding conscious thoughts comes from Libet (1999). Under laboratory conditions, he asked subjects to undertake a simple flick or flexion of the wrist at a time of their own choosing. He measured activity in the brain and recorded the time of the act and when the subject 'decided' to flick his or her wrist. He found that such voluntary acts are preceded by a specific electrical change in the brain – termed the 'readiness potential' – half a second or more prior to the intention to act becoming conscious. Conscious experience thus appears to occur after the relevant unconscious processing.

A problem inherent in discussing consciousness is that everyday language and perceptions of the world are based upon dualism. Even those with a scientific bent in essentially deterministic-materialistic writings slip into references to personal conscious agency, and people acting from conscious beliefs and conscious values. Yet, according to the materialist hypothesis, we must distinguish between conscious intent and conscious decisions preceding behaviour, and their being causal for behaviour. Just because people think they make decisions consciously and believe that they have conscious control over their actions, does not mean they are correct. When asked why people believed for so long that the sun went round the earth, according to Claxton (1997), Wittgenstein is reputed to have replied 'How would it have looked, if it had looked as if the earth went round the sun?' Tart (1980) emphasises that when phenomena are intimately related to what he terms a 'consensual trance', how things seem is an unreliable indicator of how things are. The remainder of this paper concentrates on the materialist hypothesis and considers how an adoption of it might alter our understanding of how people behave in and fit their employing organisations. From this point on, therefore, when the discussion refers to persons and people, it assumes that those persons and people have mind–brain interactions that obey the materialist hypothesis.

### Behaviour, Experience, Agency and Learning

This paper now examines the materialist hypothesis as it relates to consciousness in more depth. In particular, the discussion focuses around the subjects of behaviour, experience, agency, and learning. Understanding how the materialist hypothesis applies in these four areas is a prerequisite of the discussion of materialism and P–O fit that follows.

#### Behaviour

Counterintuitive as it is, the materialist hypothesis says that all behaviour is determined by the unconscious. In addition and as already explained, integral to the hypothesis is the idea that conscious thoughts are also entirely generated from unconscious processes in the brain. As we have no way of capturing the unconscious processes in the brain in an interpretable way, at present there is no way of knowing for certain whether an individual's thoughts represent a complete picture of the underlying unconscious processes which generated them. In relation to the determinants of behaviour, this prevents researchers investigating causation

via the conscious expressions of the individuals being studied. How could researchers be sure that what enters an individual's consciousness is an accurate or full representation of the underlying processes? Instead, it seems that researchers who examine the causation of behaviour must consider the relationship between stated thoughts and observations of behaviour. Researchers cannot assume that conscious communications are accurately describing the actual underlying cognitive representations (which we call values, beliefs, expectations, motivations etc.) which are driving behaviour. Nor can researchers infer the inter-relationships of components of the representations from conscious descriptions alone.

### Experience

While awake, people constantly receive data from which their conscious experience is generated. This includes experiences of the external world (e.g. sights and sounds), experiences of the internal world, (e.g. fantasy images, recollections, and thoughts), experiences of emotions or affect (e.g. anger, pride, and regret), and body sensations (e.g. hunger, thirst, and pain) (Chalmers, 1996; Dennett, 1993). People are aware of receiving some of this data, but a lot of it is received unconsciously. People are therefore subject to a continual stream of conscious and unconscious data. People also send streams of conscious data and unconscious data to other people, but are only aware of the former. It is fundamental to what follows that it is emphasised that people are not aware, that is, do not experience, of all their outgoing data in the same way as they are not aware of all the incoming data. All awake people who transact with others are thus giving and receiving continuous feedback, but do not consciously notice much of it. This data is received through the medium of the sense organs and it travels to the brain (Dixon, 1986; Bornstein & Pittman, 1992). Central to the materialist hypothesis is the idea that people are unaware of the processing of data in the brain; they are only aware of their conscious experience. However, what enters the mind is a function of extant unconscious material (such as memories, values and beliefs), unconscious processing, and the sensitivities of the sense organs (Bruce & Green, 1985; Claxton, 1997; Gregory 1972). Included in this equation is data that people detect, learn, and use unconsciously in intricate ways, but which their conscious deliberate scrutiny cannot detect or recall (Lewicki, Hill & Czyzewska, 1992). Indeed, according to this hypothesis, people do not know the forms of internal representations or processes which underlay their behaviour. These representations include the person's knowledge, values, beliefs, expectations and habitual ways of seeing and understanding the world, repertoire of physical, social and cognitive skills, habitual behaviours, and motivational patterns. Consequently, people are unable to bring into consciousness the actual neural processes involved in analysing, being aware, being creative, communicating, consulting, counselling, criticising, deciding, emoting, evaluating, feeling, judging, learning, listening, making sense of experience, prioritising, remembering, relating, and other similar processes. What occurs in consciousness can only be said to be some unknown function of unconscious processes (Chalmers, 1996; Dennett, 1993).

### Agency

People have an undeniable sense of agency. People believe that they can initiate actions and events, divert their thoughts, take decisions, explain and justify decisions, and attribute causes to events (Heider, 1958). For instance, when a person says, 'I have taken a decision', he or she thinks that a conscious decision has been made and that it can be enacted at a time of his or her own conscious choosing. However, according to the materialist hypothesis, what actually has happened is this: data consciously and unconsciously enters the body through the

sense organs and is 'processed' in the brain. Memories, skills, values, and so forth that are coded in electrical and biochemical ways interact with the data via the brain's physiological neural network producing the behaviour. This is a physical process not involving consciousness. The materialist hypothesis cannot explain how (and why) people 'experience' the decision-making process and believe themselves to be active agents, except to say that it is a physical process that is yet to be understood. In effect, the materialist hypothesis denies that people have agency in the sense that there is a homunculus in the brain making decisions (Dalla Barba, 2001). People do not make decisions, consciously or unconsciously. Instead, the materialist hypothesis suggests that the brain receives data from the environment. It 'processes' this data through its neural network, where it interacts with the person's procedural and associative memories (Moscovitch, 1992), to produce the action. The fact that someone might choose to act in a similar fashion many times with different environmental data to give the impression that he or she is acting on a 'value' or 'belief' is simply a reflection of the way the neural network of the individual has grown accustomed to processing data. In this way, the person does not make decisions; they might be thought of as an organism processing environmental data according to a set of rules that are mostly prescribed, but which can change over time.

Unconscious processing emerges as 'behaviour' namely motions of the body, social and emotional displays, and all types of communication. Cotterill (1995) says that, "despite the richness of its cognitive capabilities, the [human] species has at its disposal only one type of external response: activation of appropriate muscles" (Cotterill, 1995, p. 292). In essence, the person's unconscious processing can only influence behaviour by manipulating muscles, albeit a great many at one time. For example, consider someone engaged in conversation with another person whilst walking. In such circumstances, the person is simultaneously involved in the management of many internal body systems, the ambulatory process, the construction of fluent language, the production of a continuous stream of behaviours (for instance, facial, body and voice-tone and speech-pace signals), the reception of a continuous stream of similar signals from one or more people, and internal processing of that data. The materialist hypothesis asserts that all this activity is under unconscious control only. The incoming and outgoing unconscious and conscious data streams are thus influencing the behaviours of the other people involved in the conversation, yet those people have no awareness of the unconscious components, and, according to the hypothesis, have no conscious control over those behaviours.

## Learning

Learning and memory are linked concepts. For someone to learn, i.e. to adopt a different behaviour when placed in an identical situation, the person must remember what to do and how to do it (declarative and procedural memory). The materialist hypothesis holds this learning must involve physical processes in the brain. Unfortunately, as with so many neurological processes, researchers are still unsure how the brain creates, stores and recalls memories (Vallar, 1999). There is some consensus that memories have a permanent structural basis in the brain probably in nerve cells (Kesner, Hopkins & Chiba, 1992). The storage of memories appears to involve the growth or structural change in synapses and the production of proteins (Ornstein and Thompson, 1984). Researchers have found differences between short-term memories and established memories. Short-term memories are fragile and easily disrupted; whereas established memories appear to be impervious to anything short of brain damage (Ornstein and Thompson, 1984; Vallar, 1999). It appears that the brain has to 'wear in or consolidate' (Ornstein and Thompson, 1984: 139) short-term memories to establish them in the structure of the brain. This process of wearing in can be easily disrupted and the



memory 'fades' if not recalled or 'used'. Established memories become more permanent and more dominant with greater recall suggesting that the neural network gets more attuned to operate through this memory procedure. This explains why repetition to habituate behaviours is so key in learning environments.

### Foundations of Person–Organisation Fit

P–O fit is concerned with one aspect of the relationship between an individual and their employer; that aspect being the nature of the fit between the two parties. It is an interesting area because the fit between the two parties is seen as being an important determinant in shaping the behaviour of the employee (Chatman, 1989) and the organisation (Schneider, 1987; Schneider *et al.*, 1997). The theoretical foundations of P–O fit are to be found in interactional psychology (not to be confused with interactionism mentioned earlier) and the discussion concerning the determinants of human behaviour. This discussion was dominated by two approaches for many years: the trait and the situational approaches. According to the trait model, and its precursors the type and psychodynamic models, behaviour is assumed to be determined by relatively stable, internal characteristics of the person (Allport, 1937, 1966; Block 1978; Staw & Ross 1985; Weiss & Adler 1984). People behave as they do due to factors internal to themselves: I talk a lot because I'm an extrovert and she goes jogging because she is an energetic person. Conversely, according to the situationist model, factors or stimuli in the environment are viewed as the prime determinants of behaviour, following in the traditions of Watson and Skinner (Mischel, 1968; Salancik & Pfeiffer, 1977; Skinner, 1971; Thorndike, 1906). People behave as they do due to factors external to themselves: I talk a lot because things need to be said and she goes jogging because her doctor has told her to get more exercise.

Bowers (1973) reviewed the literature and discovered that whilst some behaviour is driven by internal and external factors, the interaction of the two sets of factors is a stronger determinant. Following Bowers (1973) review, a third school emerged – interactional psychology. This perspective postulates that behaviour emerges from an indispensable continuous interaction between the person and the situation. Four principles underpin this research (Magnusson & Endler, 1977):

1. Behaviour is determined by a continuous process of interaction between the individual and the situation.
2. The individual is an intentional, active agent in this process.
3. Cognitive and motivational factors are important in the interaction.
4. The psychological meaning of the situation to the individual is an essential determinant of behaviour.

These principles are not explicit about the role of consciousness in shaping behaviour, although the use of words such as intentional and active appear to infer that people have conscious agency. Clearly, intentional, active agency is a characteristic of the dualist approach granting, as it does, consciousness the power to shape decisions and actions in interaction with situational factors. But, as has already been shown, the materialist hypothesis does not accept the idea of conscious agency. Instead, it suggests a physical process in which the body interacts with the environment without the active involvement of the mind. Interestingly though, whilst the materialist approach rejects the notion of the intentional, active agent, it clearly accepts the interaction of person and situation variables within an unconscious process within the brain. In simplistic terms, in strong situations where behaviour is dictated (Mischel, 1977), the sensory organs take data to the brain for

unconscious processing and the brain recognises that particular behaviour is required. In weak situations where the individual has much more freedom to determine actions (Mischel, 1977), the sensory organs take data to the brain for unconscious processing and actions emerge based on the neural networks and other biochemical and electrical processes in the brain. In both cases there is an interaction between the person and the situation in which they find themselves. Hence, it still appears valid to think in terms of internal and external variables and their interactions when considering the determinants of behaviour from a materialist hypothesis. The complications that arise from the approach concern the difficulty identifying the unconscious internal and external variables and the unconscious processes associated with the interaction.

As the underpinning theoretical architecture to P–O fit can accommodate both dualist and materialist approaches, researchers have been able to focus on behavioural outcomes through measured statistical interaction, rather than on the conscious and unconscious processes associated with them. However, Wachtel (1977) suggests a focus on these underlying conscious and unconscious processes as these will help us refine our models of behaviour and, in addition therefore, our understanding of P–O fit. It is the contention in what follows that whilst the theoretical foundations of P–O fit may be unaltered by different hypotheses of the mind–brain debate, its definition, capture, measurement, and meaning to the individual is not so uninfluenced by the materialist hypothesis.

### Person–Organisation Fit Redefined

The first area that a materialist hypothesis might inform is our definition of P–O fit. To date, researchers have conceptualised P–O fit in diverse ways (Kristof, 1996) and this led to some ambiguity in the domain. Kristof (1996) recognised this diversity in the literature and produced a definition that groups together research that has investigated the interaction between people and organisations. She defined P–O fit as “*the compatibility between people and organisations that occurs when: (a) at least one entity provides what the other needs [complementary fit], or (b) they share fundamental characteristics [supplementary fit], or (c) both*” (Kristof, 1996: 4-5). This integrative definition does not purport to explain how these different conceptualisations combine, just that they fall under the one broad category of research that can be labelled as P–O fit. As such, it is a useful starting point to develop a definition of P–O fit from a materialist perspective.

In terms of creating a definition of materialist P–O fit, there are several aspects of Kristof’s definition that might not be appropriate to this discussion. The first consideration is whether or not there is a need to include both individual and organisational foci in the definition. Whilst the integration of these two foci into one definition of the term allows for all the research done under the P–O fit banner to be grouped together, the necessary complexity of the resulting definition hints that there is a lot going on beneath the surface. When P–O fit is viewed from the individual’s perspective it is associated with the individual’s behaviour and psychological states and outcomes, just in the same way as when we talk about commitment, satisfaction, and other similar constructs. Interestingly, in these related domains, there has been no need to include individual and organisational foci in the definition of the construct. The interest of third parties such as managers or organisational selectors in discovering individual’s fit to an organisation is due to the theoretical (and in some cases empirical) association between individual behaviours (e.g. commitment, satisfaction, flexibility, contextual performance) and a sense of fit (Bowen, Ledford & Nathan, 1991). This form of organisational focus is therefore simply an alternative way of viewing the individual foci on P–O fit. An alternative perspective of organisational interest is described in the work of Schneider and his colleagues (Schneider, 1987; Schneider, Goldstein

& Smith, 1995; Schneider, Smith, Taylor & Fleenor, 1998). These studies are concerned with the way in which P–O fit influences the behaviour of organisations, rather than the behaviour of individuals. As there is no suggestion that organisations have consciousness (cf. Asch, 1952; Durkheim, 1938; Nelson & Winter, 1992), this branch of the P–O fit literature is not relevant allowing a materialist definition of P–O fit to be couched in individual terms.

*Proposition 1*     *A materialist definition of person–organisation fit has an individual focus.*

The second aspect to be considered relates to the perceptual boundaries of the person. While it is widely accepted that organisations exhibit a describable culture (Schein, 1985), and that ‘sub-cultures’ are discernible in specific locations and within specific groups (Sackmann, 1992), many aspects – structural, functional, social, political, formal, informal, economic, operation of espoused values and so on – vary throughout the organisation. At each specific organisational location there exists a specific micro-culture, which is an amalgam of these characteristics (Ogbonna & Harris, 1998). The materialist hypothesis invites us to consider the uniqueness of the person’s appreciation of the working environment. The person receives situational data about the organisational environment through the senses; some of which are consciously received and some of which are not consciously received. An unconscious brain that has been shaped by its own unique history processes the data in ways that cannot yet be fully understood. In addition, the unique data that each person emits (consciously and unconsciously) influences others and, in due course, their behaviours and transmitted signals. This information, feedback, myths, and impressions of the organisation is thus unique to each person and challenges the notion of a single organisational culture. There may be some things that most people agree on, but the subtle ways that these enter, are processed in, and influence other things within the unconscious brain are specific to the individual.

*Proposition 2*     *Every person has a unique unconscious representation of the environment in which they work.*

*Proposition 3*     *On the situational side of the interaction, people can only be influenced by factors that have been registered through the senses.*

*Proposition 4*     *Aspects of the organisational environment that are not registered by the unconscious brain cannot influence the person’s behaviour.*

The third aspect of Kristof’s definition of P–O fit to consider concerns its encompassing of both complementary and supplementary conceptualisations. Complementary P–O fit is about one of the parties (the individual or the organisation) making the other whole (Muchinsky & Monahan, 1987). It can take several forms such as *needs–supplies* or *demands–abilities* (Kristof, 1996) or *active–passive* relationships (Muchinsky & Monahan, 1987). Supplementary P–O fit, on the other hand, is about similarity between individual and organisational factors. Many empirical research studies have shown the importance of both forms of P–O fit for predicting the behaviour of individuals (e.g. Complementary P–O fit: Bowen *et al.*, 1991; Bretz, Ash, & Dreher, 1989; Cable & Judge, 1994; Rynes & Gerhart, 1990; Turban & Keon, 1993 – Supplementary P–O fit: Bretz & Judge, 1994; Cable & Judge, 1996; Chatman, 1991; Finegan, 2000; O’Reilly, Chatman, & Caldwell, 1991; Posner, 1992). Supplementary studies have tended to concentrate on values (e.g. Cable & Judge, 1996; Chatman, 1991), which have been defined by Chatman (1989: 339) as “enduring beliefs through which a specific mode of conduct or end-state is personally preferable to its

opposite”. Studies in the supplementary P–O fit domain have shown that positive relationships between value congruency and outcomes such as job satisfaction and commitment values (e.g. Boxx *et al.*, 1991; Cable & Judge, 1996; Chatman, 1991; O’Reilly *et al.*, 1991). In addition to the way the person and situation factors are combined, these two forms of fit differ in the way that the environment is conceptualised. In supplementary fit, the environment is defined by those who inhabit it, whereas in complementary fit, ‘the environment is defined apart from its inhabitants’ (Muchinsky & Monahan, 1987, p. 272). Muchinsky and Monahan (1987) regard this as the ‘essential difference between the complementary and supplementary models’ (p. 272). It is distinction that it separates the two forms of fit into relational (supplementary) and transactional (complementary) subdivisions. Interestingly though, whilst most studies have concentrated on one form of fit or the other, a materialist hypothesis allows researchers to investigate both within the same conceptualisation of fit. In circumstances when the unconscious brain can recognise that the organisation holds values, norms, goals, systems, or other things that are similar to its own, and they have psychological meaning, positive outcomes flow. When the organisation is perceived to hold norms, goals, systems, or other things that are congruent with the individual, but do not hold much psychological meaning, there will either little or no effect. Possibly, there might be a negative influence on outcomes if the unconscious wishes these things were replaced with something that did have psychological meaning. As such, when thinking about the person, it is possible to reconceptualise supplementary fit in complementary fit terms. In other words, the alignment of values (or some other thing such as norms, goals, or systems) only affects the unconscious brain when it is something that has unconscious psychological meaning for it. The point here is that congruence *per se* is irrelevant to P–O fit unless the person has some form of appreciation (positive or negative) towards the congruence. Hence, P–O fit can be defined in complementary terms whilst at the same time recognising that there will be many factors that are valued because they align.

*Proposition 5*      *Complementary and supplementary forms of fit are not mutually exclusive.*

*Proposition 6*      *When viewed from a materialist perspective, P–O fit is a complementary form of P–O fit.*

The previous discussion prompts us to consider another area of interest. Is it values alone that the unconscious brain draws upon when determining psychological meaning? First of all, it is necessary to unpack the phrase ‘psychological meaning’ in materialist terms as it implies an homunculytic influence. As mentioned earlier, the materialist hypothesis suggests that the brain receives data from the environment which it processes through its neural network. The brain produces actions and thoughts according to this ‘programming’. If someone behaves in a similar fashion many times with different environmental data they may create the impression that he or she is acting on a ‘value’ or ‘belief’. Instead, this is simply a reflection of the way the neural network of the individual has grown accustomed to processing data. To eliminate any homunculytic confusion, from hereon the term ‘psychological meaning’ will be replaced by the term ‘neuropsychological meaning’ when such a materialist interpretation is meant.

Chatman (1989) suggests that researchers focus on values. In this much cited paper she says, “although many aspects of organizations and people are important in determining behavior (e.g., abilities, job requirements, personality characteristics, and vocations), *a* [emphasis added] fundamental and enduring aspect of both organizations and people is their values” (Chatman, 1989: 339). This justification has underpinned much subsequent work on P–O fit and value congruency including the development of the Organizational Culture Profile (OCP: O’Reilly, *et al.*, 1991), which is the most commonly

used measure of P–O fit. Interestingly though, Chatman’s own justification for focusing on values recognises that values are just one of the fundamental and enduring aspects of people that determine behaviour. The materialist hypothesis would concur and take this a stage further by saying that we can never hope to understand all of the influences, factors, and structures shaping the formation of behaviour by the unconscious brain. It could be influenced by any data that the unconscious brain has received that has neuropsychological meaning as well as by the internal cognitive processes and structures.

*Proposition 7*      *On the internal side of the interaction, the factors that influence P–O fit will be a constellation of values, feelings, emotions, memories, relationships and other things that have neuropsychological meaning.*

*Proposition 8*      *The constellation of values, feelings, emotions, memories, relationships and other things that have neuropsychological meaning is unique to the person.*

So far this paper has considered the internal and external factors involved in the P–O fit interaction. As yet it has not considered the actual interaction itself. Clearly, this is an internal interaction in the unconscious brain that consciousness cannot fully understand. Indeed, the nature of the interaction is shrouded in mystery. If we think of our own behaviours, who can possibly say with any certainty how our own behaviour is determined by current events, our values, memories from ten years past, deeply repressed and traumatic events, chemical balance, genetic inheritance and the myriad of other factors? The materialist hypothesis merely highlights the immense difficulty, if not the impossibility, of understanding the actual interaction of internal and external factors within the unconscious brain. Memories and past experiences are stored as a vast network of neural pathways. When the environmental data enters the brain through the sense organs, it initiates a series of chemical and electrical processes. From these processes, behaviour is determined. In this sense, there is an interaction between external and internal variables determining behaviour, as proposed by interactional psychology. But, according to the materialist hypothesis, the individual is not a conscious being making decisions, but a complex organism reacting to the situation in which it finds itself. There is no free will; just the dynamic internal ‘programming’ that dictates the way the organism interacts with the environment.

*Proposition 9*      *P–O fit is formed by an unconscious interaction of external stimuli and internal ‘programming’.*

One of the foundations of P–O fit is person–environment (P–E) fit. P–E fit has a long history in human behaviour research (e.g. Lewin, 1951; Murray, 1938) dating back over one hundred years (Kristof-Brown, Jansen & Colbert, 2001). Central to this domain is the idea that human behaviour is a function of the interaction between people and the environments in which they find themselves (Lewin, 1951). Initially, work in this field examined the fit between the individual employee and his or her whole work environment (e.g. Downey, Hellriegel & Slocum, 1975; Jahoda, 1961). But researchers found that such a holistic approach to fit frustrating as the construct seemed “elusive” (Rynes & Gerhart, 1990: p.14). As mentioned above, one stream of work environment fit research has looked at the fit between employees and their work culture, which is often expressed as values. Other researchers have focused on employees’ fit with their jobs, usually referred to as person–job (P–J) fit (e.g. Edwards, 1991). Others have considered employees’ fit with their colleagues, which is known as person–group (P–G) fit (e.g. Guzzo & Salas, 1995; Klimoski & Jones, 1995). An additional

fragmentation of the construct is that researchers have often adopted different definitions of the environmental variable within each stream of research. As Kristof-Brown et al. (2001) say, “[a]lthough focusing on specific dimensions of fit such as P[–]J or P[–]O fit has enriched our understanding of each, it has simultaneously constrained our knowledge of a person’s fit with the total work environment” (pp. 3–4). This discussion prompts the question of whether these different forms of fit have individual particular meaning to individuals (e.g. individuals have an intrinsic need to fit the values of the organisation, individuals have an intrinsic need to fit with the personality of group members), or whether they are subdivisions of a more generic need to fit. The materialist hypothesis merely reinforces the question and makes us realise how little we know about the working of the brain. Do we have a general need to fit the environments we inhabit? Do we have a need for embeddedness or integration ‘hard-wired’ into our brains? Or does the brain make assessments of fit to each aspect of the environment that we encounter or are made aware of? If so, how are these fit assessments combined and what makes some more important than others? Whatever the answers are to these questions, the materialist hypothesis reiterates how vastly complex the experience of fit is.

### Capturing Person–Organisation Fit

Perhaps the area that the materialist hypothesis has most impact upon our understanding of P–O fit is in the measures and methods used to capture it. To date, most researchers have used methods that elicit values and other dimensions through conscious means. There are three published scales or sets of items for the gathering of data on people’s P–O fit. The first of these methods is the Comparative Emphasis Scale (CES; Meglino, Ravlin, & Adkins, 1989; Ravlin & Meglino, 1987). This scale contains 24 pairs of values that respondents are forced to choose between. The single-sentence items were written by the researchers to describe a specific behaviour relevant to four underpinning values (achievement, helping, honesty and fairness). The second published scale is the OCP (O’Reilly et al., 1991). This takes the form of a 54-item card Q-sort. Each card contains a value. These values were collected from a review of the organisational culture literature. Respondents are asked to sort the 54 cards into an order according to how important it is for the value to be a part of their employing organisation. The third tool is a development of the OCP by Cable and Judge (1996). They reduced the 54 OCP items down to 40 items. Respondents are asked to produce the ipsative ranking of the Q-sort on paper, rather than sort cards. All of these measures consist of researcher-generated items that constrain the individual. Clearly, from a materialist perspective, these cannot capture the full complexity of unconscious processing and must produce, at best, a partial impression of a person’s P–O fit. The OCP, for example, just contains values that, as has already been shown, are just one group of factors influencing P–O fit.

An alternative method to surface P–O fit is to ask people about their own fit (Cable & Judge, 1996; Judge & Cable, 1997; Powell, Lubatkin & Ndiaye, 1997) or the fit of another (Kristof-Brown, 2000; Rynes & Gerhart, 1990). The materialist critique of this method is clear. The method relies upon the interviewee’s consciousness having an understanding of the subject’s (their own or the subject being observed) P–O fit. But fundamental to the materialist approach is that the consciousness of people is some representation of unconscious processes that is probably partial, selective, and fragmentary. Hence, a request for information mediated through consciousness about the fit of the self or others will yield partial and potentially misleading data about the actual unconscious sense of fit. Instead, the materialist hypothesis holds that the conscious mind can never truly understand the unconscious processes of the brain and may not be aware of most things that it

does. Consequently, when asking about their P–O fit or the P–O fit of others, people will be unable to provide a full and convincing description that equates with the actual processes in the unconscious brain.

*Proposition 10*    *Measurements of fit mediated through conscious behaviours will be partial, selective, and fragmentary.*

*Proposition 11*    *When asked to describe their fit with their employer, individuals will be unable to provide an immediate, full, and convincing description.*

Chatman (1989) has raised the issue of whether nomothetic or idiographic approaches should be used to capture P–O fit. A nomothetic approach is one that analyses individuals to draw conclusions for a group of people. Conversely, an idiographic approach is one that focuses on the individual for the purpose of understanding the individual. Underlying the idiographic approach is the idea that each person is unique and that generalising across people is problematic because, in effect, everyone has different interpretations and understandings of every issue under examination (Allport, 1961). The materialist hypothesis pushes us strongly in the direction of an idiographic approach as it emphasises the uniqueness of every person’s unconscious processing. However, it does not completely eliminate a nomothetic approach, as there might be themes that run across people that, although simplified, still resonate and create broad categories of factors that influence P–O fit.

*Proposition 12*    *P–O fit is unique to every person.*

An alternative approach to capture P–O fit is to use methods and techniques that can probe the unconscious brain. Kristof-Brown (1997) advocates the use of the repertory grid technique (Kelly, 1955) to investigate P–O fit. The repertory grid technique works in the following way. First, the subject is asked to list as many factors as possible related to the topic, termed elements, under consideration. Then the researcher chooses three elements at random and asks the subject to find a pair that are similar and one that is not and explain the reason for the similarity and the difference, these reasons are termed constructs. This process is repeated with different combinations of the elements until no new constructs emerge. The final stage is a two-by-two grid with the subject asked to rate every element against every construct. The technique is purported to elicit the unconscious during the comparison of elements and during the rating of elements against the constructs. Another method that works in a similar fashion is cognitive or causal mapping (Huff, 1990). The protocol for this method requires the subject (singly or in a group) to introspect about the issue and write down (usually on a large piece of paper) what surfaces. They are then asked to connect the ideas together in ways that seem to replicate the felt cognitive and causal links. The researcher then prompts the subject to expand and develop the ‘spidergram’ in ways that seem appropriate. It works through the principle of spreading activation in which the surfacing of one idea sparks another. One of the difficulties of these methods for the current discussion is that they seem to work by triggering memory. Whilst they may help researchers surface more factors influencing P–O fit and possibly some of the interconnection of ideas, they cannot replicate the full complexity of processing in the unconscious brain. However, if they work, they should elicit aspects of the person’s P–O fit that they were previously not consciously aware of.

*Proposition 13*    *The factors that a person surfaces when thinking about his or her own fit using repertory grid and cognitive mapping techniques will include things*

*that the person had previously had no conscious awareness of.*

### Conclusion

The focus of this paper has been on the materialist hypothesis to consciousness and the implications of this hypothesis for P–O fit. The paper began with a brief overview of the main hypotheses to consciousness and a more in-depth consideration of the main hypothesis, materialism–epiphenomenalism, shortened to materialism in this paper. In short, this hypothesis suggests that there is a one-way transmission from the unconscious brain to the conscious mind and that, therefore, consciousness plays no role in shaping the behaviour of the individual. The paper then moved on to consider the implications of this hypothesis for P–O fit. Three aspects of P–O fit were examined. The first of these aspects was the underpinning theory to the construct. This was found to be as relevant to a materialist hypothesis as it was to a dualist hypothesis, thereby strengthening the interactional approach to the determinants of behaviour. The second aspect the paper considered was our understanding of what P–O fit is. This was executed by an analysis of the term and its redefinition from a materialist position. The materialist hypothesis seems to suggest a move away from the integrative definition that is currently in the literature towards one focused on the individual's unconscious assessment of the degree to which (i) the organisation supplies the things that have psychological meaning and (ii) they themselves supply the things that the organisation requires of them. The final part of the paper considered how a materialist hypothesis might affect our methods for capturing P–O fit. It is in this area that the materialist hypothesis appears to have the greatest implications for P–O fit suggesting as it does that the conscious mind can never achieve a more than a partial, fragmentary effigy of the processes in the unconscious brain. The materialist hypothesis, therefore, suggests that the methods we have used to date to capture the fit of individual are, at best, incomplete. Instead, the hypothesis suggests that researchers adopt techniques that can help them probe the unconscious brain, such as repertory grid or cognitive mapping, although even these methods also have flaws from the materialist point of view.

This final observation is worth further discussion as the materialist hypothesis is close to suggesting that we may never fully understand P–O fit. The reasons for this are as follows. People experience the organisation in many simultaneous ways: as a 'formal' employer providing a job, remuneration, and conditions of employment; as espoused aims, values and published outputs; as the micro-culture of the work unit; as colleagues, as a network of people outside that unit; as the line manager; other administrators and professionals, and so forth. According to the materialist hypothesis, this phenomenal experience of an organisation by an individual is unique and complex, and neither the person nor observers can know the unconscious amalgamation of data that generates feelings and behaviours inside the brain. Importantly, a person cannot isolate the unconscious effects of feelings of fit from the various multiple experiences of the unit such as colleague sociability, or fairness of management, although people often speak as if they can. Thus, researchers have to be cautious about a person's stated perceptions of fit, values, beliefs, preferences and so on as these are only whatever unconscious processing allows to enter the conscious. This is a process that researchers are not close to understanding at the present time. Instead, perhaps attentive observation of behaviours, taking into account the uniqueness, complexity and dynamism of experience, and the unknowable unconscious processing of the observers, is needed to yield useful data on P–O fit. Unfortunately though, the approach of capturing P–O fit through observation is made tremendously difficult as the observations of the researcher



are mediated through the researcher's own unconscious brain. Hence, observers need to be aware of their own unconscious model of fit in the organisation through which their own observation and interpretation is filtered. Which is some trick.

One of the greatest challenges when considering consciousness matters is the intuitiveness of the dualistic paradigm that almost all of us take for granted. Everyday language, thinking and perceptions are saturated with dualism, indeed to such an extent that it has been necessary to repeat the word 'conscious' many times in this document. It is normal to speak as if agency means conscious agency, and as if conscious decisions, conscious intentions, and conscious judgements are guiding behaviour. In some ways this is remarkable given that the bulk of scientific thinking for three hundred years has been based on a materialistic and deterministic foundation, and that much of the social sciences lean heavily on that framework too. This echoes Nagel (1974: 397) who said, "it may be impossible for us to abandon certain ways of conceiving and representing ourselves, no matter how little support they get from scientific research".

## References

- Allport, G. W. (1937). *Personality: A Psychological Interpretation*. New York: Holt, Rinehart, & Winston.
- Allport, G. W. (1961). *Pattern and Growth in Personality*. New York: Holt, Rinehart, & Winston.
- Allport, G. W. (1966). Traits revisited. *American Psychologist*, *21*, 1–10.
- Asch, S. E. (1952). *Social psychology*. Englewood Cliffs, NJ: Prentice Hall.
- Beloff, J. (1994). Minds and machines: A radical dualist perspective. *Journal of Consciousness Studies*, *1*, 32–37.
- Block, J. (1978). *The Q-sort Method in Personality Assignment and Psychiatric Research*. Palo Alto, CA: Consulting Psychologist Press.
- Bohm, D. (1952). A suggested interpretation of quantum mechanics in terms of 'hidden variables'. *Physical Review*, *85*, 166–169.
- Bohm, D. (1980). *Wholeness and the Implicate Order*. London: Routledge.
- Bornstein, R. F. & Pittman, T. S (eds.) (1992). *Perception without Awareness: Cognitive, Clinical and Social Perspectives*. New York: Guilford Press.
- Bowen, D. E., Ledford, G. E., & Nathan, B. R. (1991). Hiring for the organization, not the job. *Academy of Management Executive*, *5*, 35–51.
- Bowers, K. (1973). Situationism in psychology: An analysis and critique. *Psychological Review*, *80*, 307–336.
- Boxx, W. R., Odom, R. Y., & Dunn, M. G. (1991) Organizational values and value congruency and their impact on satisfaction, commitment, and cohesion: An empirical examination within the public sector. *Public Personnel Management*, *20*, 195–205.
- Bretz, R. D. Jr., Ash, R. A., & Dreher, G. F. (1989). Do people make the place? An examination of the attraction-selection-attrition hypothesis. *Personnel Psychology*, *42*, 561–581.
- Bretz, R. D. Jr. & Judge, T. A. (1994). Person-organization fit and the theory of work adjustment: Implications for satisfaction, tenure, and career success. *Journal of Vocational Behavior*, *44*, 32–54.
- Bruce, V. & Green, P. R. (1985). *Physiology, Psychology and Ecology: Visual Perception*. London: Lawrence Erlbaum.
- Cable, D. M. & Judge, T. A. (1994). Pay preferences and job search decisions: A person-organization fit perspective. *Personnel Psychology*, *47*, 317–348.
- Cable, D. M. & Judge, T. A. (1996). Person–organization fit, job choice decisions, and organizational entry. *Organizational Behavior and Human Decision Processes*, *67*, 294–311.

- Chalmers, D. J. (1996). *The Conscious Mind*. Oxford: Oxford University Press.
- Chatman, J. A. (1989). Improving interactional organizational research: A model of person–organisation fit. *Academy of Management Review*, *14*, 333–349.
- Chatman, J. A. (1991). Matching people and organizations: Selection and socialization in public accounting firms. *Administrative Science Quarterly*, *36*, 459–484.
- Churchland, P. S. (1986). *Neurophilosophy: Toward a Unified Science of the Mind/Brain*. Cambridge, MA: MIT Press.
- Claxton, G. (1997). *Hare brain, tortoise mind*. London: Fourth Estate.
- Cotterill, R. M. J. (1995). On the unity of conscious experience *Journal of Consciousness Studies*, *2*, 290–312.
- Crick, F. H. C. & Koch, C. (1990). Toward a neurobiological theory of consciousness. *Seminars in the Neurosciences*, *2*, 263–275.
- Dalla Barba, G. (2001). Memory, consciousness and temporality. *Journal of Consciousness Studies*, *8*, 51–78.
- Dennett, D. C. (1993). *Consciousness Explained*. Harmondsworth: Penguin.
- Dixon, N. F. (1986). On private events and brain events. *Behavioural and Brain Sciences*, *9*, 29–30.
- Durkheim, E. (1938). *The rules of sociological method*. New York: Free Press.
- Finegan, J. E. (2000). The impact of person and organizational values on organizational commitment. *Journal of Occupational and Organizational Psychology*, *73*, 149–169.
- Flanagan, O. 1992. *Consciousness Reconsidered*. Cambridge, MA: MIT Press.
- Goguen, J. A. & Forman, K. C. (1994). Editorial. *Journal of Consciousness Studies*, *1*, 4–9.
- Greenfield, S. (2000). *Brain Story*. London: BBC.
- Gregory, R. L. (1972). *Eye and Brain*. 2nd ed. London: Weidenfield & Nicolson.
- Heider, F. (1958). *The Psychology of Interpersonal Relations*. New York: John Wiley.
- Huff, A. S. (1990). Mapping strategic thought. In A. S. Huff (ed.), *Mapping Strategic Thought* (pp. 11–49). Chichester, UK: Wiley.
- Judge, T. A. & Cable, D. M. (1997). Applicant personality, organizational culture, and organization attraction. *Personnel Psychology*, *50*, 359–394.
- Kelly, G. A. (1955). *The Psychology of Personal Constructs (vols. 1 and 2)*. New York: Norton.
- Kesner, R. P., Hopkins, R. O. & Chiba, A. A. (1992). Learning and memory in humans, with an emphasis on the role of the hippocampus. In L. R. Squire & N. Butters (eds.) *Neuropsychology of Memory* (pp 106–121). New York: The Guilford Press.

- Koestler, A. (1967). *The Ghost in the Machine*. New York: Macmillan.
- Kornhuber, H. H. & Deeke, L. (1965). Hirnpotentialänderungen bei willkürbewegungen und passive bewegungen des menschen: Bereitschaftspotential und reafferente potentiale. *Pflügers Arch. ges Physiol.*, 284, 1–17.
- Kornhuber, H. H. (1984). Attention, readiness for action, and the stages of voluntary decision: Some electrophysiological correlates in man. *Experimental Brain Research*, 9, 420–429.
- Kristof, A. L. (1996). Person-organization fit: An integrative review of its conceptualisations, measurement, and implications. *Personnel Psychology*, 49, 1–49.
- Kristof-Brown, A. L. (1997, August). *Repertory grid technique: An alternative method for assessing fit in organizational settings*. Paper presented at the Academy of Management Annual Meeting, Boston.
- Kristof-Brown, A. L. (2000). Perceived applicant fit: Distinguishing between recruiters' perceptions of person–job and person–organization fit. *Personnel Psychology*, 53, 643–671.
- Kristof-Brown, A. L., Jansen, K. J., & Colbert, A. (2001, August). *A policy-capturing study of the relative importance of fit with jobs, groups and organizations*. Paper presented at the Academy of Management Annual Meeting, Washington.
- Lewicki, P., Hill, T., & Czyzewska, M. (1992). Non-conscious acquisition of information, *American Psychologist*, 47, 796–801.
- Libet, B. (1999). Do we have free will? *Journal of Consciousness Studies*, 6, 47–57.
- Lowe, E. J. (1996). *Subjects of Experience*. Cambridge: Cambridge University Press.
- Magnusson, D. & Endler, N. S. (1977). Interactional psychology: Present status and future prospects. In D. Magnusson & N. S. Endler (eds) *Personality at the Crossroads* (pp. 3–31). Hillsdale, NJ: Lawrence Erlbaum.
- McGinn, C. (1991). *The Problem of Consciousness*. Oxford: Basil Blackwell.
- Meglino, B. M., Ravlin, E. C., & Adkins, C. L. (1989). A work values approach to corporate culture: A field test of the value congruence process and its relationship to individual outcomes. *Journal of Applied Psychology*, 74, 424–432.
- Mischel, W. (1968). *Personality and Assessment*. New York: Wiley.
- Mischel, W. (1977). The interaction of person and situation. In D. Magnusson and N. S. Endler (eds.) *Personality at the crossroads: Current Issues in Interactional Psychology* (pp. 333–352) Hillsdale, NJ: Erlbaum.
- Moscovitch, M. (1992). A neuropsychological model of memory and consciousness. In L. R. Squire & N. Butters (eds.) *Neuropsychology of Memory* (pp 5–22). New York: The Guilford Press.

- Muchinsky, P. M. & Monahan, C. J. (1987). What is person–environment congruence? Supplementary versus complementary models of fit. *Journal of Vocational Behavior*, 31, 268–277.
- Nagel, T. (1974). Brain Bisection and the Unity of Consciousness. *Synthese*, 22, 396–413.
- Nagel, T. (1994). *The View from Nowhere*. Oxford: Oxford University Press.
- Nelson, R. R. & Winter, S. G. (1982). *An Evolutionary Theory of Economic Change*. Cambridge, MA: The Belknap Press.
- Ogbonna, E. & Harris, L. C. (1998). Organization culture: It's not what you think. *Journal of General Management*, 23, 35–47.
- O'Reilly, C. A., Chatman, J., & Caldwell, D. F. (1991). People and organizational culture: A profile comparison approach to assessing person-organization fit. *Academy of Management Journal*, 34, 487–516.
- Papineau, D. & Selina, H. (2000). *Introducing Consciousness*. New York: Totem.
- Penrose, R. (1989). *The Emperor's New Mind*. Oxford: Oxford University Press.
- Penrose, R. (1994). *Shadows of the Mind*. Oxford: Oxford University Press.
- Pervin, L.A. (1978). *Current Controversies and Issues in Personality*. New York: Wiley.
- Popper, K. R. & Eccles, J. C. (1977). *The Self and its Brain*. Berlin: Springer-Verlag.
- Posner, B. Z. (1992). Person–organization values congruence: No support for individual differences as a moderating influence. *Human Relations*, 45, 351–361.
- Powell, G.N. Lubatkin, M.H. & Ndiaye, M. (1997, June). *Hungarian manager's beliefs, values, and fit with organizations: Gender and situational effects*. Paper presented at the Eastern Academy of Management Conference, Dublin, Ireland.
- Ravlin, E. C. & Meglino, B. M. (1987). Effects of work values on perception and decision making: A study of alternative work value measures. *Journal of Applied Psychology*, 72, 666–673.
- Rynes, S. L. & Gerhart, B. (1990). Interviewer assessment of applicant “fit”: An exploratory investigation. *Personnel Psychology*, 43, 13–35.
- Sackmann, S. A. (1992). Culture and subcultures: An analysis of organizational knowledge. *Administrative Science Quarterly*, 37, 140–161.
- Salancik, G. & Pfeffer, J. (1977). An examination of need-satisfaction models of job attitudes. *Administrative Science Quarterly*, 22, 427–456.
- Schneider, B. (1987). The people make the place. *Personnel Psychology*, 40, 437–453.
- Schneider, B., Goldstein, H. W., & Smith, D. B. (1995). The ASA framework: An update. *Personnel Psychology*, 48, 747–773.

- Schneider, B., Kristof-Brown, A. L., Goldstein, H. W., & Smith, D. B. (1997). What is this thing called fit? In N. Anderson & P. Herriot (eds.) *International Handbook of Selection and Assessment* (pp. 393–412). Chichester, UK: Wiley.
- Schneider, B., Smith, D. B., Taylor, S., & Fleenor, J. (1998). Personality and organizations: A test of the homogeneity of personality hypothesis. *Journal of Applied Psychology*, *83*, 462–470.
- Schein, E. H. (1985). *Organizational Culture and Leadership: A Dynamic View*. San Francisco: Jossey-Bass.
- Skinner, B. F. (1971). *Beyond Freedom and Dignity*. New York: Knopf.
- Stapp, H. P. (1993). *Mind, Matter and Quantum Mechanics*. Berlin: Springer-Verlag.
- Stapp, H. P. (1999). Attention, intention, and will in quantum physics. *Journal of Consciousness Studies*, *6*, 143–164.
- Staw, B. M. & Ross, J. (1985). Stability in the midst of change: A dispositional approach to job attitudes. *Journal of Applied Psychology*, *70*, 469–480.
- Tart, J. (1980) The systems approach to states of consciousness. In R. N. Walsh & F. Vaughan (eds.) *Beyond ego: Transpersonal dimensions in psychology*, Los Angeles, CA: Tarcher.
- Thorndike, E. (1906). *Principles of Teaching*. New York: Seiler.
- Turban, D. B. & Keon, T. L. (1993). Organization attractiveness: An interactionist perspective. *Journal of Applied Psychology*, *78*, 184–193.
- Vallar, G. (1999). Neuropsychological disorders of memory. In G. Denes & L. Pizzamiglio (eds.) *Handbook of Clinical and Experimental Neuropsychology* (pp. 321–368). Hove, UK: Psychology Press.
- Velmans, M. (2000). *Understanding Consciousness*. London: Routledge.
- Vendler, Z. (1972). *Res Cogitans*. Ithaca: Cornell University Press.
- Vendler, Z. (1984). *The Matter of Minds*. Oxford: Clarendon Press.
- Wachtel, P. L. (1977). Interaction cycles, unconscious processes, and the person–situation issue. In D. Magnusson & N. S. Endler, (Eds.) *Personality at the Crossroads: Current Issues in Interactional Psychology* (pp. 317–331). Hillsdale, NJ: Lawrence Erlbaum.
- Weiss, D. & Adler, S. (1984). Personality and organisational behaviour. In N. M. Staw and L. L. Cummings (eds.) *Research in Organizational Behavior*, *6*, 711–718. Greenwich, CT: JAI Press.
- Wilson, D. L. (1995). Seeking the neural correlate of consciousness, *American Scientist*, *83*, 269–70.