

Mindsets, mind sets and mind sense

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This paper theorises that a person's mindset is a commonplace trait that has an impact in economic systems. A mindset contrasts with other theoretics which use choice and information sets to limit the economic actor's decision-making by focusing on the description of a person's knowledge rather than on available options. The persistent way a person thinks about the world influences their treatment of information and further development of knowledge. The mindset concept accommodates the complexity of individuals and their idiosyncrasies, whereas a standard economic approach simplifies these characteristics. In this paper, Lamberton's discussion of mindsets is extended from information sharing, cultural embeddedness and lock-in to the necessity of a mindset held by each person, change in a person's knowledge and the impact on groups of people. Instead of being a statement about the limited capacity of a person to think, a mindset is a consequence of history and the build-up of knowledge through disjointed experiences. It is argued that a mindset does not necessarily restrict a person to set economic activity, but instead preserves wider economic structures. Through some examples of mindsets, such as the entrepreneurial mindset, this discussion moves away from the acquire-then-use understanding of how people use information towards an economic person with a mind sense constructed through situated learning.

Introduction

The treatment of information and knowledge in economics is often undertaken to simplify theory building rather than to provide a description of how people make economic decisions. The concept of a mindset is used by Lamberton (2005) to describe how people with different knowledge may not commute information gained through communication into economic activity. People perceive which information is important differently and some may miss the salient point presented to them. In this paper, I extend Lamberton's use of the concept to other economic applications where the maintenance of a person's current activity, through an existing mindset, allows theorists the advantage of incorporating an increasing sense of an economic actor's mind in their formulations.

A mindset can be viewed along with other cognitive concepts, such as bounded rationality, information sets or myopia, as a way to limit a person's ability. However, this is a reactionary response more fitting to economic orthodoxy. The concept of a mindset should be interpreted as a characteristic of a person's thinking rather than a mechanism for diminishing the economic actor's abilities. In keeping with Lamberton's insistence that learning takes time, that history matters, and his interest

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in anthropological concepts such as local knowledge, we see that people change intermittently rather than constantly. Mindsets provide an explanation for this, giving the person an effective point of view not limited to a small number of behaviours.

Mindsets can form in many ways. The process can be highly conscious and fuelled by strong emotions or vested interests. Alternatively, it can be unconscious, at the tacit end of the spectrum, so that people are oblivious to lingering characteristics in their actions. In emphasising the mindset's implications for economics, this paper rejects set-type models in which 'something is always there' and suggests that notions from outside the rational field have consequences when it comes to economic decisions. Different people in different situations provide examples of how widespread and varied the treatment of information can be because of the different mindsets they hold. Some mindsets prevent individuals from changing their behaviour while some people have mindsets that demand regular change. While mindsets seem to apply to individuals, norms, identities and mores held by groups within cultures should also be considered as they pervade each individual's thinking.

Mindsets: a persistent characteristic

A mindset is a 'habitual or characteristic mental attitude that determines how you will interpret and respond to situations' (see Lamberton, 2005, p.162), an accurate if broad definition. In expanding the mindset concept, I focus on this persistence of a point of view a person may hold. Rather than providing advice about a preferred general outlook or better mindset, I suggest that a person's use of knowledge is, to some extent, governed by that person's mindset.

Lamberton's (2005) paper suggests communication of information does not lead automatically to economically advantageous decisions. Instead, the state of someone's thinking determines which action takes place following the presentation of information. This is a capabilities argument based on the structure of information. It undercuts economic theory which treats information as self-evident and problems with its distribution as being the primary barrier to its usage. The four categories of mindsets Lamberton discusses are: organisational obsolescence (Sorenson and Stuart, 2000), lock-in (David, 1985; Arthur, 1989), cognitive dissonance (Festinger, 1957; Russo *et al.*, 1996) and the prejudices of education (Backhouse *et al.*, 2002). His exposition on mindsets provides examples of how each category can cause a person's thinking to be mismatched with the state of the world.

Lamberton makes a distinction between mindset and both bounded rationality and commodified information, suggesting that personal history and knowledge held, not rationality or range of choices, are frequently factors in economic outcomes. The impact of mindsets within organisations increases as the locus of information usage increases. It is not just the information in use that can cause problems, but also the knowledge controlling information usage. While the significance of distribution is not denied by Lamberton, he considers organisation of more importance in determining outcomes.

Mindsets should not be viewed as only hindrance or disadvantage; they can also be beneficial. They assist in communication when many people have the same type of mindset. Being able to assume the knowledge of another allows great economic efficiency (Saint-Onge, 1996). The use of language, demonstrated when talking or showing, is not simply reference to a library of facts and associations. Words do not have innate meaning and misinterpretation is quite possible. More widely, opinions

and preferences, where people depend on one another for their actions, such as congenial conversation, can be coordinated with less effort and error. Being able to predict that a person is in a particular state of mind saves enormous pre-emptive investigation.

All people have a mindset which they substitute at times for evidence-based knowledge. Knowledge, rightly or wrongly, is used by people on its own terms (Polanyi, 1962). The value of knowledge in a particular situation is not self-evident. The idea of belief prior to doubt (Wittgenstein, 1969) suggests that a person is in a default position before considering evidence or information. Any proposition that is doubted as part of reasoning about evidence will also be subject to undoubted propositions (Wittgenstein, 1969). It would seem that some parts of prior understanding will persist without challenge no matter how conscientious the economic actor in gathering and understanding new information: ‘somewhere [the person] must begin with not-doubting; and that is not, so to speak, hasty but excusable: it is part of judging’ (Wittgenstein, 1969, §150). So, when a person makes a decision, part of the understanding brought to bear is not reflected in the circumstances presented. If this knowledge persists without being doubted, a mindset is present.

A mindset is probably most easily recognised from beliefs that continue for some time. A mindset is knowledge that is persistent, and so resists being tested for economic veracity (Hayek, 1975). At a personal level, an agent will not rationalise knowledge completely and so optimality through individual decision-making may not occur as the knowledge input does not match the situation faced. Economic rationalisation is more likely to occur when the market stops a person from acting. Price or technology competition can prevent the further use of knowledge.

Mass media, in particular news and current affairs, demonstrate the relevance of mindsets. As Macainsh (1974) claims, each night on the 6:30 news people tune in to the same stories. A cursory perusal of current content shows ‘the planes are [still] a-crashin, the cars are [still] a-smashin’ just as they did in 1974. For many, consumption of news journalism has not changed: the audience sticks to the same channels even though each reports the same stories. Whether you believe the role of the news is to inform, entertain or influence, there is a symbiotic relationship between audience and providers that ensures this continuity. News sources might have been expected to be tailored to the different characteristics of audiences. In fact, a reinforced audience mindset allows the same news stories to be presented to everyone. Traditional mass media channels are slowly being replaced by other media, such as social media, but other age groups (18–36 years of age), holding other points of view, are responsible (Cunningham, 2008).

The individual mindset prevents an economic system rationalising completely whether it operates through markets or central planning or by some other means. Improvements in technology or transactions, making more accurate and more timely information available, will still be susceptible to the mindsets of those directing resources and consumption.

Personal decisions

‘... [The] human beings of pure economic theory are often made to see themselves as pretty entire’ (Sen, 2006, p.20). The concepts of imperfect information or imperfect knowledge both make reference to perfection, or possibly a technical version of

perfect, where variation of a person's actions leading to an outcome is ruled out through rational use of knowledge. An extraordinary level of evidence about the divergence between people's thinking and optimality of economic outcomes has been collected (Conlisk, 1996; Kahneman, 2003). It would seem a mindset in itself that we keep referring to imperfect when we should refer only to knowledge and be satisfied that variation cannot be ruled out.

The mindset concept aims to describe an oft-found trait in knowledge and to provide understanding of whether it constitutes a governing dynamic for a person's behaviour. Some proponents follow scientism to make taxonomies and correlations of sets of alternative explanations. Others may look to situated explanations of behaviour because they feel the structures of people's thinking are diverse or can generate diversity beyond generalisation. To be sure, some generalisation using taxonomies can be made, but it is unlikely to be totally comprehensive.

Thinking is a costly activity (Lamberton, 1988), which is why a broad range of options may not be considered during decision-making (Conlisk, 1996). People use heuristics to simplify their decision-making in complex situations and to reduce these costs. A mindset could be explained as a way to reduce costs, that is, lock-in caused by reducing the cost, of thinking. However, focusing on options overlooks the fact that knowledge is much more than a set of options.

Knowledge appears in many forms (Rooney and Schneider, 2005) and although a person may act in a unified way, there may be internal contradictions within a person's knowledge (Zinchenko, 1985). What if the person introduces complexity to a simple situation? A person's mind is a complex system (Hayek, 1952; Posner, 2005), and how a person reasons is probably just as complex. At any one time a person can identify with any number of labels or associations in a mindset (Sen, 2006). Each of these might be brought to bear on a situation. The reasoning behind a decision might be quite simple, but the pool of knowledge and the part of the cognitive structure that is applied may reflect the mindset rather than the optimal decision (Bond *et al.*, 2007). An idea which, for many on-lookers, might show only a loose association to a situation, may be the pervading theme in an individual's choice of action. It may be possible that a person holds to an action realising that such a commitment flies in the face of evidence (Polanyi, 1962). So, a habitual tendency can remain to influence economic reasoning.

A mindset can be more tacit even than this concept of self-reflective thought implies. While tacit knowledge does not necessarily lead to mindset, deep tacit knowledge is difficult to reflect on, and consequently will remain implicitly maintained. People show commitment to concepts, ideals or courses of action (Polanyi, 1962). Experts who have developed substantial knowledge in a field will utilise this knowledge without conscious thought as they undertake their activities (Patel *et al.*, 1999). As they continually practise their expertise, this personal knowledge expands and becomes increasingly automatic. What seems to these experts (and possibly to the rest of us sometimes) as objective fact is a belief which demands adherence (Polanyi, 1962).

Not a mindset

There are countless examples of persistent behaviours of people in the economy, but not all of them are examples of mindsets. It is helpful to rule out some of these.

Whether an individual's preferences, planning or the unplanned thoughts provoked by a recurring situation are at play, it does not follow that a mindset is always responsible.

An outcome repeatedly chosen for optimisation from a choice set is not a mindset. This is the usual example of expected utility provided in economic theory (for example, eating a favourite food for dinner each night). Similarly, cases where the range of choices is reduced to one would not represent a mindset either. This is particularly recognisable when a choice has drawbacks, but is the only option available. For example, the only medication for a specific ailment may have side effects. The patient will continue to take the medicine while it is the best option available.

An agenda, as an organisational instruction for the future direction of activities, can have lingering effects. People working to an organisational agenda realise that, whether or not immediate action is taken, a direction is set (Arrow, 1974). It is not a mindset and will be changed simply through the act of setting a new agenda. Their actions are not the habitual actions of individuals. Those seeking to change the agenda for an organisation know that mindsets can creep in, but these are really just an afterthought from people performing coordinated acts. Similarly, people may go over the same well-trodden ground in their reasoning, but this is not always a mindset either. For example, Harvey Hale (1920) criticised the doom and gloom pundits lamenting the lack of originality in Hollywood and forecasting its possible demise. The same themes can be recognised in current criticisms of a Hollywood-centred industry yet there are record takings at the box office (Berg, 2016). These responses to recurring situations are commonplace, and do not imply resistance to new ideas through the maintenance of current ones.

Change in mindsets

Mindsets do not have to make behaviour stagnant. Change occurs through processes of learning, which a mindset influences because it is part of the existing knowledge through which new knowledge will be formed. As well, some mindsets predispose the person to attempt to change behaviour frequently.

Learning is not prevented by mindsets, but an individual's development of knowledge may follow some lines rather than others because of a mindset. As suggested earlier, people may disregard some information and focus on information consistent with their current way of thinking (Akgun *et al.*, 2007). Processes of learning involve the construction of new knowledge by the learner. New knowledge is not built as a simple accretion to previous knowledge, but is constructed through previous understanding, which it may modify or replace. The development of skills and capabilities proceeds with characteristics shaped by previous knowledge. People are limited in their ability to construct their new knowledge: they are able to develop understanding only if they have close mastery of related concepts or skills (Rieber and Carton, 1987).¹ What might be called the 'prejudices of education' (Backhouse *et al.*, 2002; Lamberton, 2005) can be extended to the learning of skills and capabilities, which will endure within the situation that exercises that understanding.

Inherited characteristics include knowledge to undertake a task and the purpose of the task. Cole (1996) explains that when carrying out an activity, a person not only understands the activity, but also its cultural significance. Culture, a mindset itself, directs the viewpoint a person takes. Because culture is dynamic, the resulting change in mindset allows improved performance of tasks. Knowledge constructed

through acquired understanding allows generalisation into similar structures of knowledge and the systems used to generate further understanding (Scribner and Cole, 1973). Consequently, knowledge and beliefs bear a resemblance not only to previous understanding, but also to the systems that generated that understanding.

The entrepreneurial mindset is a special case of a mindset which requires people to change. Whereas mindsets are generally created as knowledge to act, the entrepreneurial mindset is a metacognitive state of thinking, and hence a reflective state of mind, whereby the entrepreneurial person frequently looks to add novelty to the economic system (McGrath and MacMillan, 2000; Haynie *et al.*, 2010). The entrepreneurial mindset shapes the detail of how an entrepreneur responds to uncertainty, given the situation, and is not disjoint from it. Habitual entrepreneurship is consistent with situated learning as the acting entrepreneur is socially embedded in the context prior to taking entrepreneurial action and learns within the situation (McGrath and MacMillan, 2000). As this is a habitual trait, the people with this mindset will continue to attempt to introduce change into the system, a permanent population of entrepreneurs.

Lazear (2005) conceptualised an entrepreneur as a person with substantial breadth of knowledge, a jack-of-all-trades rather than a specialist. However, an entrepreneur still requires enough knowledge to act competently. Those who habitually change before sufficient understanding is gleaned are likely to fail in their endeavour. That is, their knowledge will be spread too thinly. The jack-of-all-trades must learn, but learning takes time and moving too quickly or taking up too many options opens the likelihood of a failure. Similarly, sluggish entrepreneurs, reluctant to seize opportunities, lose out. There is a balance, which entrepreneurs must recognise. The ability to respond to uncertainty brought about by novelty is different from the notion of acting from informed risk assessment. Entrepreneurs as risk-seeking agents act in environments where the risk is difficult to calculate, and some are likely to fail.

Such habitual change contrasts with routines which people carry out as a form of organisation. The concept of routines, originally theorised as a repetitive, mindless activity (Cyert and March, 1963; Nelson and Winter, 1982), has progressed to include more thoughtful and dynamic activity (Feldman, 2000; Feldman and Pentland, 2003). Whether it is deep, tacit knowledge or situated learning that leads to change of routines, some elements of the entrepreneur's prior knowledge persist. The relevance of mindsets is not lost on managers or management theorists interested in removing this knowledge from organisations (Lei *et al.*, 1999; Holan and Phillips, 2004; Akgun *et al.*, 2007). Essentially, people will continue to act in terms of this operational knowledge, thus preserving the economic structure in which they are situated.

Neoclassical economics suggests that there is benefit in specialisation. However, a broad range of knowledge enables rational choices to be made about which task to undertake.² A mindset can help solve the dilemma. Part of a person's knowledge concentrates on particular tasks because it is persistent; that is the mindset. The other part of the person's thinking has greater flexibility to develop other areas of knowledge that might be beneficial. A mindset allows a person's knowledge to be shaped according to this economic need. This cognitive trait affords advantages for individuals within a system. But people, possessing mindsets, have certain strengths in knowledge which allows them to function within the system. People play roles within the economy where some, being less specialised, change, and others, being specialised, maintain current tasks.

Mindsets in groups of people

When similar mindsets are held by a group, the effect of these mindsets on decisions and actions increases. Enculturation ensures that some mindsets rather than others are learned, and where these are held by powerful groups, they will be reflected in community decisions. One example is US foreign policy towards Cuba, which denied both countries the advantages of partnership for decades. The widespread malaise of markets involves mindsets, as does the social exclusion of minorities. There is a range of explanations (based on concepts such as culture, identity, hegemony, religion and rules) as to why groups of people have similar knowledge and maintain this knowledge over time, or change this knowledge in concert. Some of the resulting economic effects include the normalisation of explicit institutions, diversion of resources towards uses favoured by the mindset, and loss of participation in the economic system.

Historical distance between a decision and a related action can suggest a mindset at work. Initially, reinforcement can create social norms (Young, 1998) where individuals face costs from not forming and adhering to a standard behaviour. Geertz (1978) discusses idiosyncrasies in market operations and their function as a means of conducting business. When knowledge of how the market functions is widespread, some actions are taken purely on the expectation that they will be widely understood by others. Learning, which can facilitate mindsets, takes place within the task, the person (ontogenesis) and the culture (Cole, 1996). Traces of previous knowledge or mindset are present in the new knowledge, providing a legacy of continuity. Long after an initial impetus to take an action has been realised in the public sphere or markets, the activity remains. While this can be thought to be path-dependency based on cost (David, 1985), it may be that the knowledge to act is present even though a justification is not articulated. For example, most people do not know why they drive on one side of the road rather than the other. They know it is the law, a rule commonly held in knowledge. They also understand the consequences of a car accident. An institution which was explicitly created has been normalised.

Lamberton (2005) pointed out that academic schools of thought can be resistant to changing their dominant thinking. Concepts may be resisted with outright hostility when vested interests align (Thérèse and Martin, 2014). The cost of adopting potentially sound advancements is further increased because additional resources are used for unproductive ends. On the other hand, the mindsets of a group are sometimes predisposed to change, leading to some concepts being picked up with remarkable speed (Geertz, 1973). A change in paradigm captures the imagination of many and becomes the new dogma. While not everyone in the group has the same understanding, they do identify with the central tenets until something new comes along (Kuhn, 1962). When a mindset is held commonly, the economic cost of adoption is lessened and additional resources may be attracted to the paradigm. The prevailing mindsets tend to skew the allocation of resource usage towards their preferences.

The rules of cultures and social systems, built on historical experience, are present in the thinking of individuals. Similarly, the knowledge enabling people to participate in economic systems is also deeply engrained. After the reunification of Germany, cultural integration of the two sides posed problems (Fischer *et al.*, 2007). Lack of entrepreneurship (Sloan, 2009) and experience of capitalism among East Germans (Reuters, 2004) suggest that the 'wall in the head' (Fischer *et al.*, 2007) was a powerful obstacle to their participation in the new economic system. Some

people were seriously disoriented by their change in economic circumstances (Westerhof and Keyes, 2006). Polanyi (1957) discusses the difficulties in changing people's fortunes under the guise of economic progress. However, in some cases, a pro-change stance is justifiable. Managers have to manipulate the mindsets of groups of people in their charge so that organisations remain relevant to the market. Political leaders have to reform systems as they become obsolete. People have to consider and learn about potentially new systems, but rely on their past experiences to understand them.

Conclusion

This paper develops Lamberton's (2005) discussion of mindset as a factor reducing the effectiveness of communication. It presents the concept as a more generalised cognitive trait of the economic actor. Characteristically, Lamberton's work attacks the thought bubble of economists who suggest actors automatically use any information they acquire. He provides numerous examples of mindsets. Insightfully, Don would ask, 'What would a person do with information once they had it?' (Paquet, 1999). He found the answer in the person's knowledge and the impact of history. In this way, he incorporated the complexity of people and the nuanced way in which they behave. The use of mindsets in this paper as an alternative to economic set methods also utilises history to explain a person's thinking.

Mindsets are pervasive in economic systems. Some of a person's knowledge will be retained in practice, and other knowledge will change through learning. Mindsets do not have to be rigid. They can incorporate change through situated learning whereby previous knowledge is used to construct new knowledge. The mindset directs how information is interpreted and activity is undertaken. Change can also be enacted through some mindsets, such as an entrepreneurial mindset. The implementation of these mindsets is still subject to learning. An entrepreneur may not recognise this limitation and continually attempt to innovate without sufficient knowledge. Finally, similar mindsets can be identified within groups of people in the form of cultural and social beliefs.

Allowing for the operation of mindsets as people act in their various roles in an economic system enables economic theory to explain why some outcomes seem to be other than optimal. Reliance on some knowledge because of personal belief in its veracity alongside other knowledge that is newly acquired and untried, may go some way towards accounting for the decisions economic actors make.

Disclosure statement

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Notes

1. The Vygotskian concepts of the zone of proximal development (ZPD) and of ontogenesis show how people are influenced when learning through their previous knowledge and their current cultural situatedness (see Cole, 1996).
2. The author is indebted to Geoffrey Jones for this insight.

References

- Akgun, A., Byrne, J. and Keskin, L. (2007) 'Organizational unlearning as changes in beliefs and routines in organizations', *Journal of Organizational Change Management*, 20, 6, pp.794–812.
- Arrow, K. (1974) *The Limits of Organization*, W. W. Norton, New York.
- Arthur, W. (1989) 'Competing technologies, increasing returns, and lock-in by historical events', *Economic Journal*, 99, 394, pp.116–31.
- Backhouse, R., Dudley-Evans, T. and Henderson, W. (2002) 'Exploring the language and rhetoric of economics' in Lamberton, D. (ed.) *The Economics of Language*, Edward Elgar, Cheltenham, pp.307–26.
- Berg, C. (2016) 'In defence of "peak sequel" capitalism', available from <http://www.abc.net.au/news/2016-01-12/berg-in-defence-of-peak-sequel-capitalism/7083234> [accessed January 2016].
- Bond, S., Carlson, K., Meloy, M., Russo, E. and Tanner, R. (2007) 'Information distortion in the evaluation of a single option', *Organizational Behaviour and Human Decision Processes*, 102, 2, pp.240–54.
- Cole, M. (1996) *Cultural Psychology: A Once and Future Discipline*, Belknap Press, Cambridge MA.
- Conlisk, J. (1996) 'Why bounded rationality?', *Journal of Economic Literature*, 34, 2, pp.669–700.
- Cunningham, S. (2008) 'From creative industries to creative economy' in Hearn, G. and Rooney, D. (eds) *Knowledge Policy: Challenges for the 21st Century*, Edward Elgar, Cheltenham, pp.70–82.
- Cyert, R. and March, J. (1963) *A Behavioural Theory of the Firm*, Prentice Hall, Englewood Cliffs NJ.
- David, P. (1985) 'Clio and the economics of QWERTY', *American Economic Review*, 75, 2, pp.332–37.
- Feldman, M. (2000) 'Organizational routines as a source of continuous change', *Organization Science*, 11, 6, pp.611–29.
- Feldman, M. and Pentland, B. (2003) 'Reconceptualizing organizational routines as a source of flexibility and change', *Administrative Science Quarterly*, 48, 1, pp.94–188.
- Festinger, L. (1957) *A Theory of Cognitive Dissonance*, Stanford University Press, Stanford CA.
- Fischer, R., Maes, J. and Schmitt, M. (2007) 'Tearing down the "wall in the head"? Culture contact between Germans', *International Journal of Intercultural Relations*, 31, 2, pp.163–79.
- Geertz, C. (1973) *The Interpretation of Cultures: Selected Essays*, Basic Books, New York.
- Geertz, C. (1978) 'The bazaar economy: information and search in peasant marketing', *American Economic Review*, 68, 2, pp.28–32.
- Hale, H. (1920) 'The day of the writer' in Sexton, P. (ed.) *Legends of Literature*, F+W Publications, Cincinnati OH, pp.227–29.
- Hayek, F. (1952) *The Sensory Order: An Enquiry into the Foundations of Theoretical Psychology*, University of Chicago Press, Chicago IL.
- Hayek, F. (1975) 'The pretence of knowledge', *Swedish Journal of Economics*, 1, 1, pp.433–42.
- Haynie, M., Shepherd, D., Mosakowski, E. and Earley, C. (2010) 'A situated metacognitive model of the entrepreneurial mindset', *Journal of Business Venturing*, 25, 2, pp.217–29.
- Holan, P. and Phillips, N. (2004) 'The remembrance of things past? The dynamics of organizational forgetting', *Management Science*, 50, 11, pp.1603–13.
- Kahneman, D. (2003) 'Maps of bounded rationality: psychology for behavioural economics', *American Economic Review*, 93, 5, pp.1449–75.
- Kuhn, T. (1962) *The Structure of Scientific Revolutions*, University of Chicago Press, Chicago IL.
- Lamberton, D. (1988) 'Preface: the cost of thinking' in Jussawalla, M., Lamberton, D. and Karunaratne, N. (eds) *The Cost of Thinking: Information Economies of Ten Pacific Countries*, Ablex Publishing, Norwood NJ, pp.1–3.
- Lamberton, D. (2005) 'Information sharing' in Rooney, D., Hearn, G. and Ninan, A. (eds) *Handbook on the Knowledge Economy*, Edward Elgar, Cheltenham, pp.255–64.

- Lazear, E. (2005) 'Entrepreneurship', *Journal of Labour Economics*, 23, 4, pp.649–80.
- Lei, D., Slocum, J. and Pitts, R. (1999) 'Designing organizations for competitive advantage: the power of unlearning and learning', *Organizational Dynamics*, 27, 3, pp.24–38.
- Macainsh, G. (1974) 'Horror movie' in *On Living in the 70's* [album], Mushroom Records, Melbourne.
- McGrath, R. and MacMillan, I. (2000) *The Entrepreneurial Mindset: Strategies for Continuously Creating Opportunity in an Age of Uncertainty*, Harvard Business Press, Boston MA.
- Nelson, R. and Winter, S. (1982) *An Evolutionary Theory of Economic Change*, Harvard University Press, Cambridge MA.
- Paquet, G. (1999) 'Lamberton's road to cognitive economics' in Macdonald, S. and Nightingale, J. (eds) *Information and Organization: A Tribute to the Work of Don Lamberton*, North-Holland, Amsterdam, pp.63–79.
- Patel, V., Arocha, J. and Kaufman, D. (1999) 'Expertise and tacit knowledge in medicine' in Sternberg, R. and Horvath, J. (eds) *Tacit Knowledge in Professional Practice: Researcher and Practitioner Perspectives*, Lawrence Erlbaum Associates, Mahwah NJ, pp.75–99.
- Polanyi, K. (1957) *The Great Transformation*, Beacon Publishing, Boston MA.
- Polanyi, M. (1962) *Personal Knowledge: Towards a Post-Critical Philosophy*, University of Chicago Press, Chicago IL.
- Posner, R. (2005) 'Hayek, law and cognition', *New York University Journal of Law and Liberty*, 1, 1, pp.147–66.
- Reuters (2004) 'One in 5 Germans wants Berlin Wall rebuilt', *World News*, available from <https://web.archive.org/web/20060613190725/http://www.msnbc.msn.com/id/5942091/> [accessed February 2016].
- Rieber, R. and Carton, A. (eds) (1987) *Collected Works of L. S. Vygotsky: Problems of General Psychology*, Plenum Press, New York.
- Rooney, D. and Schneider, U. (2005) 'The material, mental, historical and social character of knowledge' in Rooney, D., Hearn, G. and Ninan, A. (eds) *Handbook on the Knowledge Economy*, Edward Elgar, Cheltenham, pp.19–36.
- Russo, E., Medvec, V. and Meloy, M. (1996) 'The distortion of information during decisions', *Organizational Behaviour and Human Decision Processes*, 66, 1, pp.102–10.
- Saint-Onge, H. (1996) 'Tacit knowledge the key to the strategic alignment of intellectual capital', *Strategy and Leadership*, 24, 2, pp.10–6.
- Scribner, S. and Cole, M. (1973) 'Cognitive consequences of formal and informal education', *Science, New Series*, 182, 4112, pp.553–59.
- Sen, A. (2006) *Identity and Violence: The Illusion of Destiny*, W. W. Norton, New York.
- Sloan, S. (2009) 'The fall of the Berlin Wall: effects on and impressions of the United States' in Hofmeister, W. and Sarmah, M. (eds) *20 Years after the Fall of the Berlin Wall*, Konrad-Adenauer-Stiftung, Singapore, pp.81–6.
- Sorenson, J. and Stuart, T. (2000) 'Aging, obsolescence, and organizational innovation', *Administrative Science Quarterly*, 45, 1, pp.81–112.
- Thérèse, S. and Martin, B. (2014) 'Resist, scientist! Countering degradation rituals in science', *Prometheus*, 32, 2, pp.203–20.
- Westerhof, G. and Keyes, L. (2006) 'After the fall of the Berlin Wall: perceptions and consequences of stability and change among middle-aged and older East and West Germans', *Journal of Gerontology: Social Sciences*, 61B, 5, pp.S240–47.
- Wittgenstein, L. (1969) *On Certainty*, Basil Blackwell, Oxford.
- Young, P. (1998) 'Social norms and economic welfare', *European Economic Review*, 42, 3–5, pp.821–30.
- Zinchenko, V. (1985) 'Vygotsky and units for the analysis of mind' in Wertsch, J. (ed.) *Culture, Communication and Cognition: Vygotskian Perspectives*, Cambridge University Press, New York, pp.94–118.