

Beyond human and intellectual capital: Profiling the value of knowledge, skills and experience

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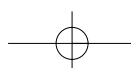
Abstract. The concept of human capital is associated mainly with the Nobel Laureate Gary Becker and, in his usage, has a clear conceptual basis as investment in the costs of formal education. By contrast, this paper suggests that ‘intellectual capital’ is a re-branding of knowledge, skills and experience rather than re-conceptualisation of resource based learning. Becker also chose not to include informal knowledge, skills or experience within his concept of human capital, which remains limited by its constrained premises. This paper submits that both human capital and intellectual capital advocates fail to identify or measure the tacit knowledge and implicit learning which increasingly is recognised as a key to the competitive advantage of organisations. It first focuses on the conceptual basis of claims made for human capital and intellectual capital, outlines limits in their methodology, and contrasts these with insights from theories of tacit knowledge and implicit learning and the central role within them of informal or non-formal skill acquisition. It develops and illustrates instances of interfacing tacit and explicit knowledge before introducing a methodology for profiling the acquisition of knowledge, ability and skills. It does so by introducing the concepts of non-formal learning-from-work (LfW) and informal learning-from-life (Lfl), with evidence from a four country EU case study commissioned within the lifelong learning remit of the Lisbon Agenda.

Key words: Human capital, intellectual capital, tacit knowledge, implicit skills, latent abilities, learning-from-life, learning-from-work.

Introduction

The concept of ‘human capital’ has become a metaphor widely used in both management theory and political debate on the need to invest in a knowledge economy. Economics Nobel laureate

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Gary Becker (2006) has claimed that: 'For politicians, if they don't mention the term human capital, they don't win'. Likewise, few managers lose out by claiming the need to invest in it, even if others simply presume that this means more investment in training to upgrade skills. Youndt, Subramaniam and Snell (2004) claim that the human capital concept as introduced by Schultz (1961) and Becker (1964, 1993) 'refers to individual employees' knowledge, abilities and skills' (Youndt *et al.*, 2004, p. 338). Yet, as conceptualised by Schultz (1961) and made a paradigm case by Becker (1964), the concept of human capital was not about knowledge, abilities and skills, but strictly about investment in and financial returns to formal education. Becker (*ibid.*) took aggregate data for investment in secondary and higher education and correlated it with the later earnings respectively of school leavers and university graduates. He found that the lifetime earnings of graduates were higher than those of those who had not graduated either from high school or from university.

This paper first briefly addresses the scope and limits of Becker's (1963, 1994) concept and use of the concept of human capital. Second, it addresses issues of implicit equity in the use of the term intellectual capital by several of its advocates, their confusion of capital as a stock of investment in education and flows of the knowledge, skills and experience of employees. Third, it questions whether their main claims have been followed through in a conceptually clear manner by convincing research methods. Fourth, it analyses the degree to which the main resource base of organisations and competitive advantage of companies is tacit knowledge, latent abilities and implicit skills and the interfacing of these between employees, and between companies. Fifth, it offers methodology for assessing knowledge, abilities and skills derived from experience despite Becker's (1963, 1994) assuming that such experience is too difficult to measure. Sixth, it summarises case study findings demonstrating that the formal education which is all that Becker (*ibid.*) measures as a stock of human capital, or the IT, R&D and HRM that intellectual capital advocates claim as proxies for intellectual capital, do not capture more than a minor part of the tacit knowledge, abilities and skills learned-from-work or learned-from-life. It then draws conclusions in relation to the limits of both human capital and intellectual capital theory and the scope of an alternative approach profiling and recognising the value of learning from experience.

1. On 'Human Capital'

Becker's (1964, 1993) conceptual framework is based on a range of limiting assumptions such as that, before investment in their human capital, 'all workers are identical' (*ibid.*, p. 301). He needs this to be able to attribute differences in earning trajectories entirely to the different investment costs of secondary and higher education. He disregards any education or training that neither is formally structured, nor involves financial investment. He also presumes diminishing returns from investment in human capital (Becker, *ibid.*, p. 312) despite the degree to which learning from work and life experience may increase over time. Neither skills, nor experience nor on-the-job training figured in Becker's application of the concept of 'human capital' since he found them 'too difficult to measure', and therefore did not try it. Again, one reason was his premise constrained methodology. For Becker (*ibid.*), human capital is measured only in terms of investment costs and the higher lifetime income streams pre-

sumed to be derived from them. But while there may be a broad correlation at macro levels between the income of graduates and the costs of their formal education, his presumption that people without higher education have less economic value than those who do is deeply constrained. For instance, neither Henry Ford nor those who initially worked with him had higher degrees in engineering or business, nor anything other than on-the-job work experience, yet made the paradigmatic breakthrough to the principles of mass production which dominated most of the 20th century (Lacey, 1987; Womack *et al.*, 1990).

Becker (1964, 1993) also neglects the degree to which different methods of work organisation may facilitate operational or organisational learning. He implicitly assumes non-learning organisations typical of Fordism as his organisational paradigm, in which it is formal education, R&D, technology and a high division of labour which determines output per worker. As he puts it: '[t]he growth in capital depends on investments in new technologies, basic research and human capital' (Becker, *ibid.*, p. 311).

Yet by excluding experience and informal on-the-job training, since he presumes its value cannot be measured as human capital, he thereby makes no allowance for factors which may be centrally important to informal skill acquisition, insight and innovation in a 'knowledge economy' or a 'learning organisation'. This has been one of the most main features of the learning by *kaizen* or 'continuous improvement' in Japanese companies since WW2, led by Toyota, and which centrally concerns the interfacing of tacit and explicit knowledge (Nonaka, 1994; Nonaka & Takeuchi, 1995). Again, also, the breakthrough of Toyota and other companies which followed it was not the outcome of investment in human capital in the sense of increasing formal education, but from high levels of on-the-job learning by individuals and work groups from their own experience (Womack *et al.*, 1990; Womack & Jones, 1996, 2005).

In Becker's (1964, 1993) own work, therefore, the concept of 'human capital' is a metaphor for formal education, and in this sense limited. Nonetheless, his conceptual framework is clear and, if within narrow limits, meaningful. Correlations on his principle can be run between how a national economy performs and how many high school and higher education graduates it has. And some of them are interesting, such as those trying to assess why growth rates differ of Edward Denison (1967), for the Brookings Institution, which found that higher education counted. But such correlations classically suffer also from the problem of over aggregation and premise dependency. For instance, the US ranks high on a correlation of its investment in education and its economic growth, but such a correlation may not account for other factors in such growth, including its long term deficit spending. Germany ranked high on a correlation of formal education and both growth and export performance in Denison's (*ibid.*) findings, but now would not do so on growth while its export performance may be due to other factors such as excellence in quality, reliability and delivery and, since the 1990's and since it overtook the US as the world's leading exporter, in 2004, demand for machinery for industry from China. Italy also ranked high in Denison's (*ibid.*) correlations of investment in education, growth and competitiveness for twenty years after WW2, but now would not do so on either of the latter. The explanatory power of correlating investment in formal education with overall economic performance is limited.

2. On 'Intellectual Capital'

As with Becker's concept of 'human capital', the derivative concept of 'intellectual capital' also is a metaphor, attributed to John Kenneth Galbraith by Feiwel in his volume *The Intellectual Capital of Michael Kalecki* (1975), with Galbraith asking in 1969 in a letter to Kalecki: 'I wonder if you realize how much those of us in the world around have owed to the intellectual capital you have provided over these past decades' (Galbraith, cit. Feiwel, *ibid.*). Certainly 'intellectual capital' is both striking and straightforward as a metaphor for an individual's accumulation of knowledge. The crucial change comes when the term is metamorphosed from the attribute of an individual and his or her cumulative knowledge and experience, to an organisation. Not least, it then raises equity issues. For instance, Edvinsson and Sullivan (1996) re-defined intellectual capital for Skandia as 'knowledge that can be converted into value', adding that:

'[i]t is clearly to the advantage of the knowledge firm to transform the innovations produced by its human resources into intellectual assets, to which the firm can *assert* rights of ownership' (Edvinsson & Sullivan, *ibid.*, p. 358, our emphasis).

This assertion by Edvinsson and Sullivan (1996) that capital has the right to appropriate the intellect of labour, echoed by Stewart (1997) and Sullivan (2000), raises questions of procedural and distributive justice in a manner that Becker's (1964, 1993) use of 'human capital' does not. This not only contrasts with the implicit equity and stakeholding of leading Japanese firms which ensure recognition and reward for employee suggestions for translating ideas into product or process innovations (Womack *et al.*, 1990; Womack & Jones, 1996; Colenso, 2000). It also directly confronts the principles of 'psychological contract' which now have generated a vast management literature (Conway & Briner, 2005). For explicit endorsement appropriated 'intellectual capital' for shareholders amounts to a contradiction of such psychological contract for employees as stakeholders. It also may increasingly be important to how 'creative people' choose which companies they wish to work with, not least since intellectual creativity involves the generation of actual income streams and who benefits from them, rather than only psychic income.

Sveiby (1998, 2001) contrasts the Edvinsson-Skandia use of the term 'intellectual capital' with his own conceptual framework of 'intangible knowledge assets'. His model is represented in Figure 1. It stresses that a key resource base for rather than of an organisation are people's competence, skills and experience. By 'internal structure' he means the intangible knowledge assets within orga-

Figure 1. Knowledge as Assets: Sveiby

Intangible Knowledge Assets (Sveiby)		
People's Competence	Internal Structure	External Structure

Source: Derived from Sveiby (1998, 2001).

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nisations, and by 'external structure' the manner in which the competence skills and experience of such assets are deployed in relations between them.

The formalisation of intellectual capital in the Edvinsson-Skandia model, is summarised in Figure 2. In this they claim that intellectual capital = human capital in Becker's sense + 'structural capital' as intellectual capital within organisations + 'relational capital', which is claimed to be intellectual capital in relations between them. Yet this not only does not add to Sveiby's (1998, 2001) concept of knowledge as an asset, or knowledge management as a process; it detracts from them in a manner that Sveiby (2001) himself well perceives in observing that the Edvinsson-Skandia formulation is inconsistent with his original knowledge management concept since knowledge as learning concerns flows, whereas the concept of capital is a stock and static (Sveiby, *ibid.*).

Figure 2. 'Intellectual Capital': Edvinsson-Skandia

Intellectual Capital =		
Human Capital (HC) +	Structural Capital (SC) +	Relational Capital (RC)

Source: Edvinsson (1997, 2000); Edvinsson & Sullivan (1996); Edvinsson & Malone (1997).

Yet deconstructing the four alleged 'capitals' of the Edvinsson-Skandia model in terms of how their advocates such as Edvinsson (1997, 2000) Edvinsson and Sullivan (1996); Edvinsson and Malone (1997) actually describe their meaning in use, as indicated in Figure 3, demonstrates that rather than 'intellectual capital' is used in the sense of the stock of the knowledge, abilities and skills of employees; 'human capital' no longer is Becker's (1963, 1994) concept of investment in formal education, but presumed to be individual competence in terms of acquired knowledge, abilities and skills derived from experience; 'structural capital' is the knowledge acquired by employees within an organisation, to which it is explicitly asserted that they have no right when they leave it, while 'relational capital' is the knowledge, abilities and skills of employees in relations between organisations.

In practice, therefore, the meaning in use and context (Wittgenstein, 1953) of the term 'intellectual capital' by its main advocates represents not the value of capital in the sense of its common use in economics as a stock of finance or physical assets, but cumulative knowledge, abilities and skills. Yet these are human attributes and attainments over time, and their characteristic feature is a flow of experience adding to a stock of knowledge, while those who deploy them in or between organisations in economic terms are not capital but labour, whether management or other employees. Capital has no knowledge, skill or experience. People do. To describe the flow of their knowledge acquisition and deployment as 'capital' both is to confuse the elementary economic distinction of stocks from flows, and re-branding rather than re-conceptualising. It is a classic simulacrum in the sense of: 'A thing

*Oliveira & Holland**Figure 3. Deconstructing 'Intellectual Capital'*

Intellectual Capital	= a stock of knowledge, abilities, skills and experience
Human Capital	= individual competence in terms of acquired knowledge, abilities, skills and experience
Structural Capital	= knowledge within an organization, to which former employees have no proprietary rights when they leave
Relational Capital	= knowledge, abilities, skills and experience in relations between organizations

Source: Own formulation.

having the appearance but not the substance or proper qualities of something; a deceptive imitation or substance, a pretence' ("Oxford Shorter Dictionary").

3. 'Measuring' Intellectual Capital

Yet, as the fashion for IC has spread, its re-branding has widened to include next to anything anyone does, including 'social capital' as claiming to mean 'capital associated with internal relationships, for example, between employees and supervisors, or among employees' or 'organisational capital' in the sense of 'whatever an organisation does when it draws on employees previous knowledge, abilities and skills' (Reed, Lubattkin, & Srinivasan, 2006, p. 870; Leana & van Buren, 1999; Nahapiet & Ghoshal, 1998). This relates to the issue that while much intellectual capital or IC literature claims to recognise the importance of all knowledge, abilities and skills within or between firms it as yet has not done so. Both the Edvinsson-Skandia model and later claims to measure IC identify only knowledge such as R&D expenditures, patents filed, HRM expenditures, and IT information technology such as computer programmes. To illustrate this we have taken two of the more ambitious and also recently available at the time of writing (Youndt *et al.*, 2004; Reed *et al.*, 2006). Kira Kristal Reed, with Michael Lubattkin and Narasimhan Srinivasan (*ibid.*), also claim that:

'According to resource based theory, a firm's resources – particularly intangible ones – are more likely to contribute to firms attaining and sustaining superior performance when they are combined or integrated' (Reed *et al.*, 2006, p. 867).

Reed *et al.* (*ibid.*) therefore address the issue that effective performance will depend on how firms 'combine or integrate' intangible resources such as knowledge but not whether knowledge as information or something in an IT system actually is used rather than locked 'deep in the minds of managers who rarely read anything, as Mintzberg (1975) found decades ago. Organisational inertia may mean that senior management fails to identify the non-formal learning-from-work and informal learning-from-life of employees, even on a representative sample basis of a kind which might enable them to achieve 'reflective practice' (Schön, 1983, 1987, 1991) at work group level. Nor is this only

a matter of top-down rather than base or middle-up voice (Hirschman, 1970). Communication in organisations tends to be vertical rather than horizontal (Womack & Jones, 2005) or diagonal and therefore more genuinely multilateral. Nor do Youndt *et al.* (2004) or Reed *et al.* (2006) they address whether the organisation of the firm aids or abets knowledge generation and creativity either by or between employees either explicitly by intent, such as IBM's forbidding its computer scientists to investigate alternative architectures for its central processing chip (Dennett, 1995).

Reed *et al.* (2006), do recognise that claiming to demonstrate cause and effect in terms of 'human, 'organisational' or 'social' capital and its relationship to organisational performance 'pose thorny challenges to researchers' (Reed *et al.*, 2006, p. 868) such as the criticism of some human resource based theory by Foss and Knudsen (2003) and Priem and Butler (2001) as 'suffering from a tautology problem stemming from the fact that resources are defined in terms of the performance outcome associated with them' (Reed *et al.*, 2006, p. 868). Their response to this concern is 'an intellectual capital based view of the firm', combining 'social' capital' with 'organisational' capital. But they then fall for the tautology problem by following Youndt *et al.* (2004) in assuming that questionnaires to firms on their R&D, IT and HRM policies will capture human, social and organisational intellectual capital (Youndt *et al.*, *ibid.*, p. 338). As Youndt *et al.* (2004) put it:

'we selected these specific investments because the literature streams surrounding these areas – namely, human resource management, information technology management, and R&D/innovation management – *assert* (our emphasis) that they are influential in the development of human, social and/ or organisational capital' (Youndt *et al.*, 2004, p. 337).

This assertion, again, parallels that of Edvinsson and Sullivan (1996), that a firm should assert rights of ownership (p. 358). Then, directly, Youndt *et al.* (2004) continue by claiming in the same vein that:

'Prior research conceptualizes intellectual capital as the *sum of all* (our emphasis) knowledge and knowing capabilities that can be utilised to give a company competitive advantage' (Youndt *et al.*, 2004, p. 337).

There are limits in such assumptions. One is their tendency to *post hoc ergo propter hoc* in the sense of claiming that since 'literature streams' and 'prior research' have asserted something it therefore is the case. The second is that the presumption that intellectual capital includes 'the sum of all knowledge and knowing capabilities' (Youndt *et al.*, 2004) is far wider than Becker's (1964, 1994) more limited but meaningful use of the concept of human capital as investment costs in formal education. The third is that whether IT, HRM and R&D represent 'the sum of all knowledge and knowing capabilities' is highly questionable. A fourth is that although advocates of intellectual capital claim to recognise the importance of tacit knowledge as among the intangibles 'particularly... likely to contribute to firms attaining and sustaining superior performance when they are combined or integrated' (Reed *et al.*, 2006, p. 867) neither they nor others as yet have demonstrated that they can do so (e.g. Edvinsson, 2003).

To take the three main variables on which Youndt *et al.* (2004) and Reed *et al.* (2006) focus, i.e. R&D, IT information technology and HRM, Archibugi and Pianta (1996) and Archibugi and

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Iammarino (2002) have evidenced that R&D captures only a fraction of the creativity and innovative thinking within organisations, not only because many firms choose not to file patents but retain their knowledge without doing so since its tacit nature thereby is a better protection of their possible competitive advantage. The availability of IT information technology programmes is a poor indicator of 'company competitive advantage' first because they offer only information rather than the knowledge which may be vital to their effective use; second, because the general features of such system are available to anyone rather than only to an individual company for its competitive advantage; thirdly, because confirmation that employees may access them is not evidence that use them fully or creatively. Taking HRM policies as a 'given' for all firms suffers from a similar presumption that all HRM policies are effective in similar ways, while HRM managers in large organisations with thousands of employees can recognise that they sometimes do not know what even middle managers in their organisation are doing, far less what they may be thinking.

Besides which, unlike leading analysts of tacit knowledge who recognise precisely that it is not explicit, and varies over different levels of consciousness and meaning, Youndt *et al.* (2004) and Reed *et al.* (2006) simply take statements from company presidents, CEOs, and HRM managers about their company's use of IT, HRM and R&D as proxies for 'intellectual capital', and do so at their face value. For example, Youndt *et al.* (2004) reported on performance differences across what they call their 'different intellectual capital profiles' (IT, HRM and R&D) in over two hundred firms across 134 industries in terms of standard industrial classifications. Each had over 4,000 employees. Reed *et al.* (2006), followed the same IC profiles, and did the same for a range of large and established companies in retail banking and commercial banking. But both studies did so by questionnaires which in the case study of Youndt *et al.* (2004) were sent to the top two executives, whether presidents, vice presidents or CEOs, and deputy HRM managers, sometimes gaining a reply from two of them. Youndt *et al.* (*ibid.*) reviewed literature on intangible assets, but did not try to measure them. But what were not open-ended questions but variants on a scale of multiple choice answers to claims such as:

'Our employees are highly skilled'; 'Our employees are widely considered the best in the industry'; 'Our employees are experts in their particular jobs and functions'; 'Our employees develop new ideas and knowledge'; 'Our employees are creative and bright'; 'Our hiring process is thorough and comprehensive (uses tests, interviews, etc.)'; 'Our employees spend more hours a year in training than our competitors'; 'Most of our employees have desktop computing devices (PCs, workstations)'; 'Our information systems are integrated with each other'; and 'Our information systems are accessible to employees' (Youndt *et al.*, 2004, pp. 346-347).

What is striking about both such questions and those of Reed *et al.* (2006) who model their own questionnaire on them, is in part their banality. For instance, which large corporation employing thousands of employees does not have a data base, and both mainframe and worktop PCs, or routine procedures, or annual IT budgets? But also, that while these authors go to pains to check whether there was consistency or bias in their sample of firms, they do not check whether there could be bias in individual responses from them. Some bias could not be checked without asking employees whether

the claims of top management reflected their own realities. But others could. For instance, how many of the respondents claimed that their employees were 'widely considered the best in the industry', since if many or most of them did so this would be an implicit refutation of the findings. This may not mean that the replies to the questionnaires are intentionally dishonest rather than 'bluffing a bit' (Griseri, 1998). But relying on them without counterpart feedback from lower level employees on whether they are rhetoric or reflect their own realities is unreliable.

4. Tacit Knowledge, Latent Abilities and Implicit Skills

A central claim of this paper is that, rather than R&D and IT information technology, or HRM practices which may or may not be effective in organisational learning, it is tacit knowledge, latent abilities and implicit skills learned non formally at work and informally from life which may crucial to firms 'attaining and sustaining superior performance' (Reed *et al.*, 2006, p. 867). Surprisingly, as author and populariser of the 'competitive advantage' concept, Michael Porter has not referred to tacit knowledge in any of his three main original or edited volumes (Porter, 1980, 1990, 1998). Yet tacit knowledge and implicit skills increasingly are recognised to be crucial to how firms can achieve or retain competitive advantage (e.g. Ambrosini & Bowman, 2001; Edmonson, Winslow, Bohmer, & Pisano, 2003). For, the more tacit are the knowledge and skills acquired by implicit learning within a company, the more protected it can be against imitation and copying, even if competitors also infringe copyright. For neither tacit knowing nor implicit learning is a commodity or technique which can readily be cloned independently of its own operational context, not least since even those gaining such knowledge and learning may not be aware that they are doing so.

For example, building on the work of Michael Polanyi (1958, 1962), Hasher and Zacks (1984) have analysed the process of encoding information without awareness. Reber (1967, 1993) pioneered the concept of 'implicit learning' in the context of tacit knowledge, even if his claim that this process is entirely unconscious rather than ranges over different levels of consciousness is controversial (Berry, 1997; Cleeremans, 1997). Spender (1993) has stressed the role and importance of both individual and collective tacit knowledge. Nonaka (1994), Nonaka and Takeuchi (1995) and Baumard (1999) have stylised individual and collective 'knowledge modes' which are either explicit or tacit. Individuals may gain explicit knowledge from others and feedback or extend it to them. But they also assimilate and interiorise personal and collective knowledge at a tacit level. On the other hand, because such knowledge is tacit and such learning implicit, top management itself may not recognise its potential for operational learning and implications for overall learning within an organisation.

4.1. Implicit Logic in Tacit Knowing

Polanyi was a physicist who claimed that tacit knowledge was more vital, even to the so-called 'hard sciences', than deductive reasoning, inference or calculation. Polanyi's premise was that 'there are things that we know but cannot tell' (1962, p. 601). He claimed that this is strikingly true of

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our knowledge of skills, of which his best known example is riding a bike or swimming, which one 'knows' how to do but 'may not have the slightest idea' how one does it (Polanyi, *ibid.*). Similarly, Judge and Ferris (1992) claim an "amazing convergence across decision makers on a statement that goes something like this: 'I can't articulate it, but I'll know it when I see it' (Judge & Ferris, *ibid.*, p. 3). For Polanyi, the basis of *any* knowing was tacit, and he argued for the ultimately tacit character of *all* our knowledge (Polanyi, 1958, 1962). He also submitted that in coming to understand something we do not simply draw conclusions from the evidence we are examining but draw on a range of experience and prior understanding, much of which is not consciously formulated (Polanyi, *ibid.*).

Polanyi (1962) also argued that how we relate tacit to explicit knowledge is logical like the logic of a mathematical 'coefficient', claiming that: 'A tacit coefficient... appears to be integral to all explicit statement' (Polanyi, *ibid.*, p. 605). This is consistent with the mathematician and psychoanalyst Ignacio Matte Blanco's concept of 'unconscious logic' (Matte Blanco, 1975, 1988), which he drew from findings of 'sets of meaning' and interrelated 'sets-within-sets' of meaning in clinical analysis. It also is consistent with the evidence of Bartlett (1995) from his experimental work on recognition and remembering, where he found that people tend to remember in terms of similar sets or 'schema' of understanding and that these tend to 'display an order of predominance among themselves. Moreover, this order remains relatively persistent' (Bartlett, *ibid.*, p. 308). Polanyi (1958, 1962) also claimed that 'subsidiary understanding' or 'tacit knowledge' is organised in terms of 'schema' of understanding, and that this 'may vary over all degrees of consciousness' rather than just be unconscious (Polanyi, 1958, pp. 91-92).

The work of Polanyi and the claims of Matte Blanco (1975, 1988) for 'unconscious logic' suggest that there may be an implicit logic within tacit knowing (Oliveira, 2000, 2001, 2002, 2003) and that, if so, it may be possible to identify it. Finding sets of meaning in discourse, and consistent implications within them for people with similar work experience, therefore may mean that it is possible to identify joint knowledge derived from similar implicit learning within work groups at lower levels of an organisation rather than only asking senior or other managers to confirm the degree to which their employees 'are highly skilled', or 'are widely considered the best in the industry' or 'are experts in their particular jobs and functions', or 'develop new ideas and knowledge' or 'are creative and bright' (Youndt *et al.*, 2004, pp. 346-347).

Polanyi (1962) also stressed that there are two kinds of knowing which invariably enter jointly into any act of understanding. There is (1) knowing a thing *by attending to it*, and (2) knowing a thing *by our awareness of it*, while it is the latter knowledge that can be said to be tacit (Polanyi, *ibid.*, his emphasis). He also suggested that attending too much to explicit correlation of phenomena, as in regression analysis, can misplace their causality, meaning and relevance. Thus a regression analysis can correlate variables, but these may not be explaining cause rather than only correlation. In a manner familiar enough to managers who neither have time for statistical analysis, nor confidence that it explains 'the whole picture' (Mintzberg, 1975, 2004), he wrote that:

'If the scientific virtue of exact observation and strict correlation of data are given absolute preference for the treatment of a subject-matter (it) disintegrates when presented in such terms (and) the result will be irrelevant to the subject-matter and probably of no interest at all' (Polanyi, 1958, p. 139).

This, in turn, is consistent with the banality of the findings from Becker's (1964, 1993) regression analysis that higher education graduates tend to have higher earnings than high school graduates, which readily enough could be claimed to be 'known already' or 'common knowledge'. Or the banality of the findings from similar regression analysis of Youndt *et al.* (2004) or Reed *et al.* (2006) that large corporations employing thousands of employees have a data base, and both mainframe and worktop PCs, and routine procedures, and annual IT or other budgets.

4.2. *Tacit Knowing and Creativity*

Yet, according to Michael Cooley (1987), a mathematician and engineer strongly influenced by Polanyi, what is widely dismissed as 'common knowledge' itself tends to often relate to a wealth of experience whose value has not been recognized in professional or other formal qualifications of the kind stressed in Becker's (1964, 1993) human capital theory, or expressed in semantic or propositional form of a kind that readily would be recognized as 'scientific'. Cooley (*ibid.*) also stresses the difference between 'rule based' and 'experience based' thinking. His case is that the rule based systems of normative science or social science demand generalisation, repeatability and thus predictability. But while these may be features of some aspects of the physical world, and of machinery, insisting on predictability and generalisation in the modelling of human behaviour may exclude from it much that is characteristically human. While people may have habitual modes of thinking and acting, neither their behaviour nor thought, nor their speech is entirely predictable. Rather, it is variation rather than repeatability which make people interesting to others, rather than predictable and therefore boring. It is what constitutes our individuality and personality, yet in the main part is neglected in formalised information-based models of organisational learning or in human capital theory such as Becker's (1964, 1993) which assumes that 'people are identical'.

Cooley (1987) criticises the semantic basis of formal education and training programmes of the kind that Becker (1964, 1993) alone allows as an index of 'human capital' on the basis that they tell people how to do something rather than ask them how they already do it, what is good, bad or indifferent about how work is organised where they do it, and whether and how they know it might be improved. He laments the passing of the apprenticeship system and the manner in which it can enhance not only tacit knowledge but also tacit skills. He also distinguishes both between semantic learning and between different categories of tacit learning, pointing out that skilled engineers wanting to propose a better way of making something often will want to draw it, or show it, or make a physical model of it, rather than write it in a manner which cannot capture the concept which they wish to convey. Their skill is in conceptualising how to do something rather than how to express it in semantic terms. They have it in their heads *and* in their hands when they can create it for themselves, rather than readily on their lips or in their finger tips on a keyboard, or entered into either a mainframe of other computer of the kind that Youndt *et al.* (2004) assume to be a proxy for 'intellectual capital'.

Cooley (1987) further claims that tacit knowing and intuition, rather than calculation, is the basis of creativity. Baumard (1999) adds to this in terms of the degree to which tacit knowledge may be the main competitive advantage of organisations, and by illustrates this not only by a range

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of case examples, as do Nonaka and Takeuchi (1995) that the vocabulary of knowing in Latin based languages is less distinctive than that of classical Greek, and draws attention to four different classical Greek nouns for different types of knowledge. The first, *episteme*, is abstract generalisation. The second, *techne*, is knowing how to do something. The third, *phronesis*, means knowing as the result of personal experience. The fourth, *metis*, means conjectural or creative intelligence. Neither *techne* nor *phronesis* lend themselves easily to explicit rationality. What they mean is highly personal and tends to be implicit rather than explicit. They concern both how we come to gaining knowing how to do something, and the ability or skill which we may have learned from life or from work experience. Besides which, as Baumard (1999), comments, the word 'experience' which we take so for granted, in fact 'papers over its own character, which is intuitive, tacit and unique' (Baumard, *ibid.*, p. 53).

4.3. *Implicit Logic and Implicit Learning*

Implicit learning as learning without being aware that we are doing so is most commonly identified with Reber (1967, 1969, 1976, 1989). The findings from discourse analysis (Oliveira, 2003) in four country case studies, and also earlier analysis of discourse in panel interviewing (Oliveira, 2000, 2001, 2002) confirm the principle. But they do not confirm Reber's (*ibid.*) presumption that implicit learning is only unconscious. Rather, they suggest that it varies over a wide range of consciousness and is influenced by preconscious assumptions, dispositions and beliefs confirming Bourdieu's (1990, 1997, 1998) case on *habitus* or the environment in which, since childhood, we have come to adopt the values and beliefs learned implicitly from life experience long before we may have the chance to learn from work.

Reber (1967, *et al.*) tested his concept of implicit learning in the context of the degree to which people in a laboratory environment implicitly learned an artificial grammar. The experiments gave people a random string of letters to memorise. Those concerned were not initially told whether there was an 'implicit grammar' in what they were given. Where they did find one, Reber (1967, *et al.*) claimed that they were learning 'abstract rules'. He also claimed to demonstrate that this learning remained intact to the same degree when the letters or symbols representing the same grammar were changed. He later (Reber, 1976) also compared groups memorising strings of letters without being informed that they had an artificial grammar and others who were not so informed. But he found that explicit information that the strings contained an artificial grammar actually *reduced* the control groups' success, which is much like Polanyi's (1962) claim that consciously attending to something may reduce our tacit understanding of it. Reber (1989) also is consistent with Polanyi (1958, 1962) in claiming that 'knowledge acquired from implicit learning processes is knowledge that is always ahead of the capability of its possessor to explicate it' (Reber, *ibid.*, p. 229).

Reber's (1967, *et al.*) claims also are similar to those of Bartlett (1995) and Matte Blanco (1975, 1988) that we process the incoming current experience in schema or sets of stored experience. The analysis in all three cases is dynamic. New experience is related by the unconscious processor of the mind to previous experience, and informs or up-dates it without us being conscious of the process.

For Bartlett (1995) the schema and schemata of new experience 'cue' reference by the subconscious or preconscious mind to schema of earlier experience. The concept 'schema' of stored experience also is consistent with Matte Blanco's (1975, 1988) concept of the manner in which the unconscious mind interrelates not only new and past experience, but also 'sets' and 'sets-within-sets' of such stored experience. This is consistent with Reber's (1967, 1976) concept of an unconscious 'abstraction' process in learning. And, in turn, as with gaining tacit knowledge, such implicit learning may play a key role in operational or organisational learning and gaining and sustaining competitive advantage.

In claiming consistency between the approaches of Reber, Bartlett and Matte Blanco, it would be misleading to suggest that Reber's (1967, 1976) claims are uncontested. Shanks and St. John (1997) are not alone in challenging his presumption that implicit learning necessarily and always is unconscious, counter claiming that 'human learning is almost invariably accompanied by conscious awareness' (*ibid.*, p. 394). The debate on implicit learning (e.g. Berry, 1997) has focussed for some time on whether this necessarily is unconscious. Whether it is so also is important in a wider context. For if implicit learning always is unconscious, there may be no ready means of identifying and enhancing it in the context of operational or organisational learning. But Cleeremans (1997) has challenged the assumptions of Shanks and St. John (1997), suggesting that their arguments 'may be flawed because they require the assumption that a given piece of knowledge is either in the 'unconscious' box or the 'conscious' box' adding by contrast that 'there be no such boxes'. As he puts it:

'there appears to be a representational continuum that extends from raw storage of instances to fully abstract representations, and the opposition that is often made between abstract (implicit) knowledge and fragmentary (explicit) knowledge that is at the heart of so many debates about implicit learning begins to fade away when one considers the way in which connectionist models represent and use information. In short, abstraction is a graded, dynamic dimension' (Cleeremans, *ibid.*, p. 224).

Dianne Berry (1997, p. 239), in concluding her edited volume on '*How Implicit is Implicit Learning*', and in considering what Reber (1993) himself had termed the 'polarity fallacy' between either wholly conscious or wholly unconscious learning, observed that: 'Maybe future generations of researchers will think of clever ways of getting past the current stalemate situation'. Yet the solution may be nearer to hand. Especially, Cleeremans (1997) has observed that:

'Any theory of cognition has to make room for a concept such as 'implicit', and that the finding that some participants in case studies are in fact aware of some information that was previously assumed to be implicit does not necessary shatter the notion that learning can be implicit. They merely indicate that when implicit knowledge is assessed in a more sensitive way, it turns out that participants can express it' (Cleeremans, *ibid.*, pp. 195-196).

This is precisely what Ambrosini and Bowman (2001) claim on the feasibility of identifying tacit knowledge, submitting that either knowledge or abilities or skills may be tacit simply because "people never thought of what they were doing, they never asked themselves what they were doing, and nobody else ever asked it either" (2001, p. 816). It also is what Nonaka and Takeuchi

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(Nonaka, 1994; Nonaka & Takeuchi, 1995) have claimed for the feasibility of interfacing tacit and explicit knowing.

4.4. Interfacing the Tacit and the Explicit

Nonaka (1994) claims four stages for interfacing tacit and explicit knowledge including (1) *socialisation* (tacit knowledge amplification); (2) *externalisation* (transforming tacit knowledge into explicit knowledge); (3) *combination* (synthesizing and synergising both tacit and explicit knowledge), and (4) *internalisation* (retransforming explicit knowledge into tacit knowledge). But Nonaka also stresses it is the process of explicating what is implicit and moving from the tacit to the explicit that really counts in innovative thinking and management. As he puts it:

‘When tacit and explicit knowledge interact..., something powerful happens. It is precisely this exchange *between* tacit and explicit knowledge that Japanese companies are good at developing. What’s more, as new explicit knowledge is shared throughout an organisation, other employees begin to internalize it – that is, they use it to broaden, extend and reframe their own tacit knowledge’ (Nonaka, *ibid.*, pp. 29-31).

Nonaka (1994) also is clear that tacit knowledge can be made explicit, and affirms that:

‘Understanding knowledge creation as a process of making tacit knowledge explicit... has direct implications for how a company designs its organisation and defines managerial roles and responsibilities within it.’ (Nonaka, *ibid.*, p. 36).

Giving examples from NEC, Sharp, Canon, Matsushita, Honda and other leading Japanese companies, Nonaka also claims that:

‘[i]n each of these cases, middle managers synthesized the tacit knowledge of both frontline employees and senior executives, made it explicit, and incorporated it into new technologies and products.’ (Nonaka, *ibid.*, p. 45)

James Manyika (2006) also has made similar claims based on a McKinsey mega-analysis of some 8,000 companies and distinguishing communication that was formal in the sense of explicit and that which was not, as with the distinction between a written code of practice, and unwritten custom and practice. He stresses that:

‘The conventional definition of knowledge workers as people who ‘think for a living’ covers an extraordinary range of activities. Research scientists, foreign exchange traders, teachers, call centre operators and administrators – all are paid to think. Yet some of these jobs are routine, easy to automate and lend themselves to rules. Others, such as the highly interactive work of salespeople, lawyers and managers, are subtle, complex and difficult to codify’ (Manyika, *ibid.*, p. 13).

Consistent with Nonaka’s (1994) and Baumard’s (1999) claims, Manyika (2006) draws attention to the McKinsey findings that, as tacit interaction within firms increases from a low of less than a seventh to a high of two thirds of more, performance differentials increase significantly (Manyika, *ibid.*).

Akbar (2003) has claimed that the explicit-tacit distinction inadequately expresses the difference in levels within what is tacit or explicit, tending to polarise between knowledge that is highly specific or wholly tacit. This is valid enough for the disposition of intellectual capital studies to measure only specifics concerning explicit knowledge such as patents and R&D and leave tacit knowledge simply as an unknown, but is less warranted as a criticism of Nonaka or Takeuchi (Nonaka, 1991, 1994; Nonaka & Takeuchi, 1995).

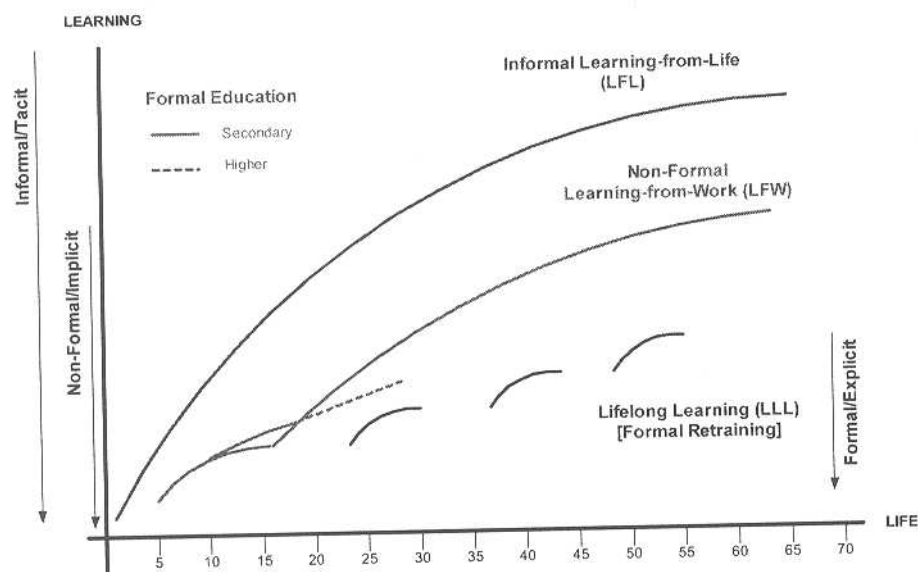
5. Profiling Learning-from-Work and Learning-from-Life

The methodology of our own international case studies allowed for social, economic and educational context – and ambivalence – as with an unemployed single parent mother in her early forties who had had done and passed several training courses, and was highly effective in gaining results for single parents in her own situation than more highly qualified graduate social workers, yet not been able to be a social worker because she lacked the requisite school certificates and university degree. In terms of Gary Becker's (1993) human capital theory, she therefore had no economic value. Yet she was more effective in representing women in her own situation as an informal social worker in a community project than formally qualified and social workers who had no life experience of a high unemployment suburban housing estate where most women were heads of families. In terms of other limits to the presumption that lifelong learning is serial retraining without integration into operational reality, we also have found it not untypical for junior managers on MBA courses to comment 'they cannot promote me so they send me on a training course'. Therefore, too often, real learning-from life is disregarded and under valued, while formal retraining is a placebo for non-promotion, and not thereafter integrated into any coherent operational or organisational learning.

Such premises are reflected in Figure 4 which was used as a research premise and heuristic model in training researcher and interviewers for the case study, and was premised on the assumption that it could be found that informal learning-from-life and non-formal learning-from-work could greatly exceed knowledge acquired from formal education or training. The four country case study also met Akbar's (2003) concern by distinguishing explicit from implicit learning at what Polanyi (1962) himself recognised as different levels of consciousness in tacit knowing. These are summarised in Figure 5. Formal education and training is explicit and conscious. The same will be the case with Schön's (1983, 1987, 1991) reflective practice, whether this is self-directed reflection on what one is doing, or mutual and group based. By contrast implicit learning as learning without being aware of doing so is semi-conscious or unconscious, and ranges from childhood, through recreation and personal relationships, as well as non formal learning at work.

The four criteria for the informal one-to-one interviews therefore covered five 'domains': those of implicit learning from childhood, recreation, relationships and work, on the right hand side Figure 5, and also those of explicit formal education and learning. Within this there are a range of further distinctions in use which are relevant to identifying learning-from-life and well as learning-from-work. One is to differentiate informal and non-formal learning. The common use of informal learning is similar to that of tacitly gaining knowledge without being aware that one has learned, and therefore less than conscious.

Figure 4. Learning-from-Work and Learning-from-Life



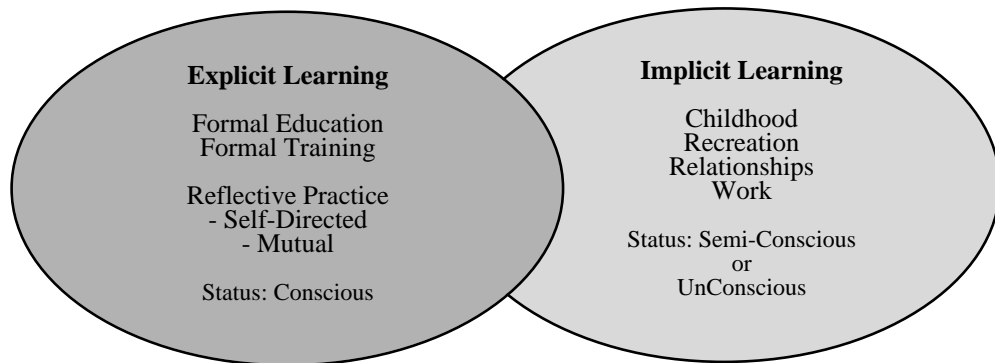
Source: Own formulation.

The use in this sense is consistent with most learning-from-life. Non-formal learning is more conscious, i.e. being aware that one is learning something without this being part of formal instruction, and therefore consistent with learning-from-work, rather than formal learning-at-work in the sense of on-the-job training. Such learning is operational rather than organisational, and a main challenge for management, with tacit-explicit interfacing (Nonaka, 1994) is to interrelate and synergise both, rather than only to 'combine and integrate' R&D, IT and HRM (Reed *et al.*, 2006).

Identifying informal learning-from-life or LfL and non-formal learning-from-work or LfW address the issue of experience which Becker (1964, 1993) chose to neglect even in a work environment because he found it 'too difficult to measure'. We found in the international case study that appropriate discourse analysis and a related coding system both could do this and rank the degree of such knowledge and experience in terms of criteria such as knowledge, abilities and skills or KAS, individual values, beliefs and personality or VBP, in relation to the five main 'criteria domains' within Figure 6 of explicit learning in formal education or training, and the implicit learning domains of childhood, recreation, relationships, and work.

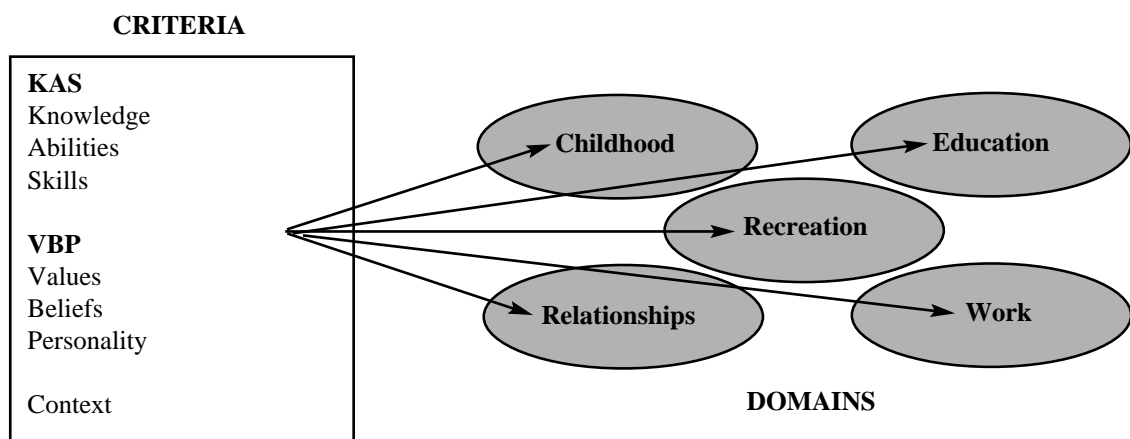
The domains of childhood, education, recreation, relationships and work were informed by our research team drawing on their own life experience, while the criteria for the coding of discourse was drawn from the earlier discourse analysis in research interviews with and actual interviewing by managers in a broadcasting corporation case study (Oliveira, 2000, 2001, 2002). At the time, they were not directly influenced by another parallel model or paradigm. But we were struck after finalising the project in

Figure 5. Explicit and Implicit Learning



Source: Own formulation.

Figure 6. Identifying Learning-from-Work and Learning-from-Life



Source: Own formulation.

2004 by the degree to which the domains very much parallel those central to Mintzberg's (2004) concept of a Reflection Module (Mintzberg, 2004, p. 300).

It was in such a context that the case study found that starting from 'the self', and especially with values and dispositions formed in childhood and adolescence (Bourdieu, 1990, 1997, 1998) had the virtue of beginning the interview discourse with what the individuals both knew well and better than the interviewer, i.e. themselves. The interview methodology also allowed for self-direction, with them taking whatever issue or example they chose to explain what was important to them in terms

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of the criteria set of values-beliefs-personality, typically opening with questions such as, ‘where were you born?’, ‘where did your parents come from?’, ‘what did they do?’, ‘who influenced you when you were a child and what did you learn from them to value in life?’.

This approach is different from the presumption of intellectual capital advocates such as Youndt *et al.* (2004), or Reed *et al.* (2006) that such capital can be identified and measured by asking senior management whether their employees made good use of IT programmes, how much they spent on R&D, and whether their HRM practices were considered ‘the best’ or ‘among the best’ in their sector. Unlike the questionnaire approach of Youndt *et al.* (2004), or Reed *et al.* (2006) which invited multiple choice answers to finite questions, the methodology of the one-to-one interviews was open-ended and aimed explicitly at not becoming a ‘spoken questionnaire’. In this regard it also differed from the recommendations of structured interviewing from its advocates such as Anderson (1997) or Dipboye (1997), where the last thing you should do is allow interview discourse to be led by the interviewee. The interviewer’s main responsibility was to steer the discourse from one domain to another to ensure a comparable degree of balance in the life and work experience covered by their discourse, but also to look for fragments of discourse which could prove to be ‘fractals’ of a larger picture of their in depth tacit knowledge, latent abilities and implicit skills.

6. The Data Base and Data Analysis

The case study was undertaken for the European Commission with a remit to enhance the concept of lifelong learning and to develop a methodology and architecture for a European Certificate of Informal Learning. The project was to follow through the Lisbon Agenda on lifelong learning and funded by the European Union’s Socrates-Leonardo Programme (Oliveira, 2004).

- The sample included 30 interviewers and 238 persons (51.7% women) interviewed in a four countries (Portugal, Italy, Ireland and Hungary).
- The age composition was Young People (aged 18 to 22) 16.8%; Young Adults (aged 23-34) 35.7%; Adults (aged 35-44) 15.5%; people in Mid Life (>45) 25.2%; and Others 6.7%.
- 45% of those interviewed were fully employed, 14.7% were employed part-time, and 29.8% were unemployed.

6.1. Data Base and Data Collection

The basis of the data collection was one-to-one audio taped semi-structured interviews around five domains of life experience including childhood, education, recreation, relationships and work. Explicit learning through formal education and training were distinguished from implicit learning which either was informal and tacit, or non-formal in the sense of learned by example (Figure 5 above).

For data analysis, interview discourse was analysed by a customised coding system developed within a grounded theory approach. The criteria for coding were KAS (knowledge, ability, skills) and VBP (values, beliefs and personality) (Figure 6). Meaning of discourse within these criteria was coded in relation to its use in Context (Wittgenstein, 1953, Mintzberg, 2004 and Figure 6), including

both the context of the interview and that of the learning-from-life (LFL) and learning-from-work (LFW) trajectories of the individual interviewees. Data processing was by SPSS for Windows and non-parametric tests (Cramer's V).

6.2. Findings

The main findings from the four country case studies are summarised in Table 1 below. None of the 240 interviewees found the interviews intrusive or asked to end it. Initial hesitation in some cases was countered by gained self confidence as interviewees realised that they were not a test but a chance to talk about themselves, their experience, their current situation, what they wanted from life or work (often related to work-life balance) and also, when in employment, what was inefficient or inadequate in their work environment and how it could be remedied.

In effect, the interviews succeeded because they concerned not only about what people did or were performance assessed on, but about who they were and are, and what they could do in a different job, or within the same job or work group. Some, grasping this early, plunged in straightaway with remarkable frankness. Many, on finding that time was up, said they regretted that it was so, commenting typically that they could not remember a time when they had had such a chance to really talk about themselves. All of which is consistent with Mintzberg's (2004) finding that many managers later found his Reflection Module to be a 'life changing experience' (Mintzberg, *ibid.*, p. 301).

Table 1
Attributions of Learning from Formal Education, from Life and from Work

	Education	LfL	LfW	Accredited
Specific Knowledge	32.4	25.6	17.6	31.5
General Knowledge	26.1	40.4	5.5	19.3
Abilities	14.3	39.4	20.6	12.2
Skills	14.3	33.1	23.5	15.1
Values	2.9	75.6	8.8	–
Beliefs	2.1	20.2	6.1	–
Personality	5.5	19.7	9.7	1.3

LfL: Learning-from-Life

LfL includes informal learning from childhood, recreation and relationships as well as direct attribution to life experience.

LfW: Learning-from-Work

LfW includes non-formal and informal learning.

Education includes both formal instruction and training.

Percentage figures do not round due to other criteria in the sample.

Source: T. C. T. Oliveira (2004), *A Methodology and Architecture for a European Certificate of Informal Learning*. Brussels: Socrates-Leonardo.

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We also established in the case study that Matte Blanco's (1975) 'sets-within-sets' of meaning gain significance in terms of making sense of implicit logic in both work and life experience. For instance what people have learned from the general set of life experience both tends to be greater than what they learn from the sub-sets of formal education. It also tends to influence both the set of their life skills, and the sub-set of their values, beliefs and personalities in a manner which work alone will not, while in turn the dispositions which they acquire from life in the manner of Bourdieu (1977, 1984, 1990), will influence the sub-sets of their attitude to work and the degree to which they are disposed or otherwise to cooperate and contribute to a particular work group or work environment. We elaborate this also in the summary report below on the findings of case study findings.

Drawing on the concept of tacit and implicit learning at varying levels of consciousness (Polanyi, 1962; Cleeremans, 1997), and based on the twin concepts of 'iterative' interviewing and of 'implicit logic' in discourse (Oliveira, 2000, 2001, 2002, 2004, 2005), the findings demonstrate that while formal education and lifelong learning (LfL) by extended training is explicit and credited, implicit skills learned-from-life (LfL) and informal and non-formal skills learned-from-work (LFW) are not, but may be identified and profiled in a manner facilitating three types of accreditation: general, vocational and professional.

7. Discussion of Findings and Conclusions

The findings demonstrate that most learning and acquisition of personal attributes relevant to employment are gained informally or non-formally from life or work, and that such learning is tacit and implicit in nature. They confirm the claims of Bourdieu (1987, 1988, 1990) on the influence of habitus or life experience on the acquisition of values, beliefs and personality. They disconfirm Becker's (1964, 1993) claim that 'experience is too difficult to measure'.

The findings indicate that learning-from-work and learning-from-life may be consistently under-valued in the rationale, conceptual framework and methodology of the literature on human or intellectual capital. There also is a similar under-valuation in much discourse on lifelong learning to the degree that this neglects tacit knowledge and implicit learning and focuses only on further formal education and training.

The findings support the case both for deconstructing the claims for 'intellectual capital', and also deconstructing what otherwise tends to be rhetoric, however well meaning, on the need for 'lifelong learning'. They indicate that there are limits to presuming that such learning is simply readier access to formal training or retraining. The four country case study (Oliveira, 2004) followed the commitment of the Lisbon Agenda to lifelong learning, and found that it was possible to identify and explicate tacit knowledge learned-from-life as well as knowledge non-formally learned-from-work in a manner consistent with both Nonaka's (1994, 1998) stress on 'explicating the tacit', and recognising within it the importance of learning from work and life experience both for innovative methods of work organisation and individual self-fulfilment.

The presumption of the advocates and practitioners of 'intellectual capital' to capture *all* knowledge, abilities and skills relevant to increasing the competitiveness an organisation (Reed *et al.*, 2006),

clearly is not realised if this is no more than discourse with senior management about their employees use of IT, or R&D or HRM (Youndt *et al.*, 2004; Reed *et al.*, 2006), and fails to develop a methodology to identify tacit knowledge or implicit skills. Organisational inertia also may mean that senior management fails to identify the non-formal learning-from-work and informal learning-from-life of employees, even on a representative sample basis of a kind which might enable them to achieve 'reflective practice' Schön (1983, 1987, 1991) at work group level.

Organisations aiming to increase their competitive advantage by drawing on tacit knowledge and implicit learning therefore would be well advised to adopt a methodology of one-to-one open-ended unstructured interviews with their personnel as the basis for group reflective practice. Such a methodology can identify both non-formal learning-from-work and also informal learning-from-life of a kind which may be relevant to enhancing learning-at-work. Although whether they may chose to do so with the explicit aim of asserting rights to their employee's intellect in these regards, to enhance shareholder value (Edvinsson & Sullivan, 1996), or recognising it on the premise of shared stakeholder value, and reinforced psychological contract, is a wider issue that only is raised rather than developed in this paper.

References

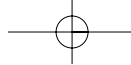
- Anderson, N., & Shackleton, V. (1993). *Successful selection interviewing*. Oxford: Blackwell.
- Akbar, H. (2003). Knowledge levels and their transformation: Towards the integration of knowledge creation and individual learning. *Journal of Management Studies*, 40 (8), 1997-2022.
- Ambrosini, V., & Bowman, C. (2001). Tacit knowledge: Some suggestions for operationalization. *Journal of Management Studies*, 38 (6), 811-829.
- Archibugi, D., & Pianta, M. (1996). Measuring technological innovation through patents and innovation surveys. *Technovation*, 16 (9), 451-468.
- Archibugi, D., & Iammarino, S. (2002). *The globalization of technological innovation: definition and evidence*. Rome: National Scientific Research Council (CNRS).
- Bartlett, F. C. (1995). *Remembering: A study in experimental and social psychology*. Cambridge: Cambridge University Press.
- Baumard, P. (1999). *Tacit knowledge in organisations*. London: Sage.
- Becker, G. S. (1993). *Human capital* (3rd ed.). Chicago: University of Chicago Press.
- Becker, G. (2006). Lunch with the FT. *The Financial Times*, June 17th-18th.
- Berry, D. C. (Ed.) (1997). *How Implicit is Implicit Learning?* Oxford: Oxford University Press.
- Cleeremans, A. (1997). 'Principles for implicit learning'. In D. C. Berry (Ed.), *How Implicit is Implicit learning?* Oxford: Oxford University Press.
- Colenso, M. (2000). *Kaizen strategies for organisational change: Evolution and revolution in the organisation*. London: Financial Times-Prentice Hall.
- Conway, N., & Briner, R. (2005). *Understanding psychological contract at work*. Oxford: Oxford University Press.

Oliveira & Holland

- Cooley, M. (1987). *Architect or bee?* London: Hogarth.
- Dennett, D. C. (1995). *Darwin's dangerous idea*. London: Allen Lane-Penguin Press.
- Denison, E., & Poullier, J.-P. (1967). *Why Growth Rates Differ*. Washington: The Brookings Institution.
- Dipboye, R. L. (1997). Structured selection interviews: Why do they work? Why are they underutilized? In N. Anderson & P. Herriot (Eds.), *Handbook of Selection and Assessment*. Chichester: John Wiley.
- Edmonson, A. C., Winslow, A. B., Bohmer, R. M. J., & Pisano, G. P. (2003). Learning how and learning what: Effects of tacit and codified knowledge on performance improvement following technology adoption. *Decision Sciences*, 34 (2), 197-223.
- Edvinsson, L. (2000). Some perspectives on intangible and intellectual capital 2000. *Journal of Intellectual Capital*, 1 (1), 12-16.
- Edvinsson, L., & Sullivan, P. (1996). Developing a model for managing intellectual capital. *European Management Journal*, 14 (4), 356-364.
- Edvinsson, L., & Malone, B. (1997). *Intellectual capital: The proven way to establish your company's real values by measuring its hidden brainpower*. New York: Harper Business.
- Feiwei, G. R. (1975). *The Intellectual Capital of Michael Kalecki*. Knoxville: University of Tennessee Press.
- Foss, N., & Knudsen, T. (2003). The resource-based tangle: towards a sustainable explanation of competitive advantage. *Managerial and Decision Economics*, 24, 291-308.
- Hasher, L., & Zacks, R. T. (1984). Automatic processing of fundamental information. *American Psychologist*, 48, 1372-1388.
- Leana, C. R., & van Buren, H. J. III. (1999). Organizational social capital and employment practices. *Academy of Management Review*, 24 (3), 538-555.
- Manyika, J. (2006). The coming imperative for the world's knowledge economy. *The Financial Times*, May 16th.
- Matte Blanco, I. (1975). *The unconscious as infinite sets*. London: Duckworth.
- Matte Blanco, I. (1988). *Thinking, feeling and being*. London: Routledge.
- Mintzberg, H. (1975). The Manager's Job. *Harvard Business Review*, July-August, 1975. Reprinted in *Harvard Business Review on Leadership* (1998, pp. 1-36). Boston, MA: Harvard Business School Press.
- Mintzberg, H. (2004). *Managers, Not MBAs*. London: Financial Times-Prentice Hall.
- Nahapiet, J., & Ghoshal, S. (1998). Social capital, intellectual capital and organizational advantage. *Academy of Management Review*, 23, 242-266.
- Nonaka, I. (1994). A dynamic theory of organisational knowledge creation. *Organisation Science*, 5 (1), 14-37.
- Nonaka, I., & Takeuchi, H. (1995). *The knowledge-creating company*. New York: Oxford University Press.
- Oliveira, T. C. T. (2000). Implicit logic in unstructured interviewing. *Selection Development Review*, 16 (1).
- Oliveira, T. C. T. (2001). Power in panel interviewing. *Selection Development Review*, 17 (3).
- Oliveira, T. C. T. (2002). Procedural justice in panel interviewing. *Selection Development Review*, 18 (3).
- Oliveira, T. C. T. (2004). *An architecture and methodology for a european certificate of informal learning*. Report to the Education and Cultural Affairs Directorate General of the Commission of the European Union (Socrates-Leonardo, 2002-0579/01-001 JAC).
- Polanyi, M. (1958). *Personal knowledge*. Chicago: University of Chicago Press.

- Polanyi, M. (1962). Tacit knowing: Its bearing in some problems of philosophy. *Review of Modern Physics*, 34 (4), 601-616.
- Polanyi, M. (1968). *The Tacit Dimension*. London: Routledge.
- Porter, M. E. (1980). *Competitive strategy*. New York: Free Press.
- Porter, M. E. (1990). *The competitive advantage of nations*. New York: Free Press.
- Porter, M. E. (1998). *On competition*. Boston, MA: Harvard Business School Press.
- Priem, R. L., & Butler, J. E. (2001). Is the resource based 'view' a useful perspective for strategic management research? *Academy of Management Review*, 26 (1), 22-40.
- Reber, A. S. (1976). Implicit learning of synthetic languages: the role of instructional sets. *Journal of Experimental Psychology: Human Learning and Memory*, 2, 88-94.
- Reber, A. S. (1989). Implicit learning and tacit knowledge. *Journal of Experimental Psychology: General*, 118, 219-235.
- Reed, K. K., Lubatkin, M., & Srinivasan, N. (2006). Proposing and testing an intellectual capital based view of the firm. *Journal of Management Studies*, 43 (4), 867-894.
- Schön, D. A. (1983). *The reflective practitioner*. New York: Basic Books.
- Schön, D. A. (1987). *Educating the reflective practitioner*. San Francisco, CA: Jossey-Bass.
- Schön, D. A. (1991). *The reflective turn*. New York: Teachers College Press.
- Spender, J. C. (1992). Limits to learning from the west. *The International Executive*, 34, 389-410.
- St. John, M. F., & Shanks, D. R. (1993). Implicit learning from an information processing standpoint. In D. C. Berry (Ed.), *How Implicit is Implicit Learning?* Oxford: Oxford University Press.
- Stewart, T. A. (1997). *Intellectual capital: The new wealth of organizations*. New York: Harvard Business School Press.
- Sullivan, P. H. (2000). *Value driven intellectual capital: How to convert intangible corporate assets into market value*. New York: Harvard Business School Press.
- Sveiby, K. E. (1998). *Intellectual capital and knowledge management*. www.sveiby.com.au/IntellectualCapital.html
- Sveiby, K. E. (2001). A knowledge-based theory of the firm to guide in strategy formulation. *Journal of Intellectual Capital*, 2 (4), 334-358.
- Youndt, M. A., Subramaniam, M., & Snell, S. A. (2004). Intellectual capital profiles: An examination of investment and returns. *Journal of Management Studies*, 41 (2), 335-361.
- Wittgenstein, L. (1953). *Philosophical Investigations*. Oxford: Blackwell.
- Womack, J. P., & Jones, D. T., & Roos, D. (1990). *The Machine That Changed The World*. New York: Harper Collins.
- Womack, J., & Jones, D. (1996). *Lean Thinking*. New York: Simon and Schuster.
- Womack, J. P., & Jones, D. T. (2005). *Lean Solutions: How Companies and Customers Can Create Wealth Together*. New York: Simon and Schuster.

Resumo. O conceito de capital humano está associado, de uma forma particular, ao Nobel atribuído a Laureate Gary Becker e ao seu uso como base conceptual para explicar os custos de investimento em educação formal. Este artigo, sugere que 'capital intelectual' é uma re-designação de conhecimento,



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competências e experiência mais do que uma re-conceptualização da aprendizagem baseada nos recursos. Mais ainda, Becker optou por não incluir conhecimento, competências e experiências informais no seu conceito de capital humano, o que reflecte constrangimentos nas suas premissas. Este artigo, ao argumentar que quer o conceito de capital humano quer o de capital intelectual não identificam e avaliam conhecimento tácito e aprendizagem implícita, evidencia o crescente reconhecimento deste tipo de conhecimento e aprendizagem como chave para a vantagem competitiva das organizações. Ao analisar o que está subjacente aos conceitos de capital intelectual e humano, identificam-se os seus limites metodológicos e apresenta-se o contributo das teorias do conhecimento tácito e aprendizagem implícita para melhor compreender a aquisição de competências informais e não formais. O artigo ainda desenvolve e exemplifica a interface entre conhecimento tácito e explícito, em particular no que se refere aos conceitos de aprendizagem não-formal no trabalho e informal da vida, com referência a um estudo realizado na perspectiva de abordagem ao longo da vida e que envolveu quatro países europeus.

Palavras-chave: Capital humano, capital intelectual, conhecimento tácito, competências implícitas e capacidades latentes, aprendizagem da vida, aprendizagem no trabalho.

