The Role of Intellectual Capital in a Credit Cooperative: A Multivariate Analysis

Carmem Leal[1], Carla Susana Marques[2], Carlos Peixeira Marques[3] and Elizomar Braga-Filho[4]
[1,2,3]**Universidade de Trás-os-Montes e Alto Douro, CETRAD, Vila Real, Portugal**
[4]**UNICRED – João Pessoa, Brazil**
cleal@utad.pt
smarques@utad.pt
cmarques@utad.pt
elizomarfilho@live.com.br

Abstract: To stay ahead of their competitors, firms need to create and develop proactive strategies that emphasize factors that differentiate them from others in their sector. In this sense and given the current scenario of marketplace instability and uncertainty, the way firms develop and manage their intellectual capital (IC) is crucial. Firms can be distinguished from their rivals in terms of their ability to identify, invest in and manage their IC – in other words the knowledge over which they exercise control or influence – an intangible asset that is not as easily quantifiable or replicable as other assets. In today's globalized and highly competitive world, the only way to compete with producers benefiting from low production costs is to invest in people, and this requires organizations to believe in the creative ability, emotional intelligence and adaptability of their staff and collaborators. Human resources with appropriate skills, motivation and commitment are the key to increased competitiveness because only they have the capacity to create products and services with greater value for the consumer and thereby generate better performance by the organization. Numerous studies have highlighted the role of IC as a key driver of organizational performance due to its centrality as an asset in the value creation process (Chen, Shih and Yang, 2009; Kang and Snell, 2009; Campisini and Costa, 2008). However, few studies have demonstrated the relationship that may be developed between various aspects of IC and the satisfaction felt by the staff involved (Longo and Mura, 2011). Employee satisfaction (in general) and promotion opportunities expressing organizational recognition of staff contributions (in particular) provide a stimulus to greater committed to the organization's interests and thereby enhance productivity, effectiveness and efficiency. Clearly, since human resources (HR) constitute the only asset that, strictly speaking, the organization does not *own*, and that the time and money it spends on training can easily be wasted if staff turnover is high, it is crucial for 21st century organizations of all types to attract, develop and above all *retain* qualified, committed and satisfied staff. Our focus on Credit Cooperatives (CC) is explained by their emergence as a significant alternative to large financial corporations - especially private banks. CCs are able to offer specific and attractive benefits to their members and can play a key role in stimulating socioeconomic development at the territorial level (Araújo and Silva, 2011; Seguí-Mas and Izquierdo, 2010). The aims of the research reported on here were (1) to identify which aspects of IC most influence employee satisfaction in the financial institutions analyzed and (2) to specify the type of influence these dimensions have on staff satisfaction. Data were collected using a questionnaire based on Bontis (1998) applied to all employees of a CC in north-eastern Brazil. After processing the data using SPSS 21.0, it was found that (1) Human Capital is not an unidimensional concept and was further subdivided into training and participation; and (2) only structural and relational dimensions of IC affected respondents' satisfaction positively. By making known to organizational leaders and managers that there exists a link – albeit indirect – between IC and organizational performance may encourage them to invest more in an intangible asset that has the intrinsic ability to create sustainable flows of value for both client and organization.

Keywords: intellectual capital, credit cooperatives, human capital, structural capital and relational capital

1. Introduction

To stay ahead of their competitors, firms need to create and develop proactive strategies that emphasize, but nevertheless, without losing sight of the priority of ever more fully meeting the needs of their customers. In the shift from an industrial to a knowledge society, fixed assets – easily quantified and valued in accounting terms – gradually lose their role as the principle determinant of competitive advantage and thereby of company, product and brand differentiation because, as technology evolves, firms can replicate their competitors' conditions and/or costs of production with increasing ease and rapidity. However, assets such as client loyalty to rival's brand, a competitor's organizational culture built up over a period of years, or the motivation and commitment of key staff members are generally much more difficult to imitate. Among these intangible assets, knowledge (in the broadest sense of the term) functions as the main catalyst of competitive advantage and sustainable success, particularly via its contribution to innovation (Youndt, Subramaniam and Snell, 2004; Subramaniam and Youndt, 2005). Matos and Lopes (2008) urged organizations to adopt a more strategic approach, above all by valuing (in both senses of the term – giving value to and generating value

from) the intellectual capital held by its employees, and by integrating them into the processes of creation, sharing and application of knowledge. It is on this basis that analysts have concluded that a firm may be distinguished from its rivals by its ability to identify, invest in and manage its IC – in other words the knowledge over which it exercises control or influence – an intangible asset that is not as easily quantifiable or replicable as other assets. In today's globalized and highly competitive world, the only way to compete with producers benefiting from low production costs is to invest in people, and this requires organizations to believe in the creative ability, emotional intelligence and adaptability of their staff and collaborators. Human resources with appropriate skills, motivation and commitment are the key to increased competitiveness because only they have the capacity to create products and services with greater value for the consumer and thereby generate better performance by the organization.

It is precisely the relevance of IC for twenty-first century organizations that this study seeks to elucidate, by focusing on how employees of a Brazilian Credit Cooperative (CC) perceive the investment in and management of IC by their organization. While recognizing that we are exploring a very specific reality which is quite distinct from mainstream "traditional banking", our research seeks to determine whether, in the opinion of their employees, it is due to these specificities that CCs manage knowledge in the way that they do, or if there is something more fundamental at work that applies to knowledge management regardless of the type of organization under scrutiny.

With this research we aim, above all, sensitize administrators and decision-makers to the importance of effective and efficient management of IC, valuable resource and particularly suitable to establishing a sustainable and easily replicable asset.

This paper is structured as follows: after the introduction, we briefly review the literature pertaining to the main concepts employed. Then we discuss the methodological procedure adopted and propose a model that may explain the relationship between the management of intellectual capital and staff satisfaction, which is subsequently, tested using factorial analysis and a regression equation. Lastly, the findings, implications and limitations of this research are discussed.

2. Literature review and research model

2.1 Intellectual capital

The approach to the concept of IC began as a concern of the business sector to explain the difference between market value and book value of a listed company on the market, and this difference can be explained by the price that investors attach to intangible assets that cannot be evaluated in an accurate way, but have the potential to create value for investors in the future (Edvisson and Malone, 1997). Since the late nineteenth century to the present day, much has been written about the intangible assets of companies and their respective importance (Guthrie; Ricceri and Dumay, 2012; Cañibano, García-Ayuso and Sánchez 2000; Dumay 2009b; Wyatt, 2008).

The last decade has seen a progressive dematerialization of the strategic resources of the organization (Longo and Mura, 2011), with knowledge increasingly becoming the key driver of sustained positive organizational performance (Spender, 2007). Today, both in the academic and business communities, there is not only greater recognition of the importance of knowledge (in particular) and intangible assets (in general) as key sources of competitive advantage, but more effort is being invested in designing the most appropriate ways of managing organizational knowledge. From this perspective, as Sveiby (1997), Subramaniam and Youndt (2005), Reed, Lubatkin and Srinivasan (2006), Campisini and Costa (2008), Chen, Shih and Yang (2009), and Kang and Snell (2009), among others have shown, increased productivity and improved organizational performance depend largely on the efficient management of these resources.

Knowledge and IC are not synonyms: the concept of IC is much broader and includes a wide range of techniques, skills and areas of knowledge that an organization's human resources possess (Kaplan and Norton, 2004), and over which it can exercise a variable degree of control or influence. Despite the plethora of definitions of IC, it is typically conceptualized as constituting part of so-called human capital (HC), often defined as the totality of intangible resources internally available to an organization to reach its objectives, including the knowledge, skill, innovativeness and abilities of each staff member, as well as organizational

values, culture, and philosophy. In developing their metrics for intellectual capital, Edvinsson and Malone (1997) focused mainly on the added value accruing to the organization's HC as a result of the investments it makes in education and training. Zambon (2002), Youndt, Subramaniam and Snell (2004) and Lee (2010) suggest that HC also embraces crucial organizational characteristics and competencies, such as attitudes and motivation, leadership traits, innovativeness and adaptability. Though Ferreira and Martinez (2011) agree broadly with Edvinsson and Malone (1997) that the distinctive features of HC are those that provide added value to organizations, they attribute particular importance to the "tacit" (subjective) and "explicit" (objective) knowledge components of HC that are accumulated over the years. In the past, organizations have often only recognized the importance of this type of capital when employees have left, and when these intangible assets become available to competitors (Dastgir and Mohammadi, 2009).

Human capital is constituted and accumulated via social processes that involve a wide range of interactions between tacit and explicit knowledge at the individual and group levels, resulting in a quantitative and qualitative expansion within the organization (Nonaka and Takeuchi, 1996). Faced with this type of mechanism, the key challenge of knowledge management is to acquire from the individual employee and transfer to itself those components of employees' tacit personal knowledge and declarative explicit knowledge that can enhance overall organizational performance. This transfer process is interactive (undertaken with staff consent and participation) and "spiral" (performed cumulatively/iteratively).

However, HC is not the only component of intellectual capital (IC). A degree of consensus exists among researchers: three distinct "sub-capitals" within IC are usually identified: human, structural and relational capital, with increments in organizational value apparently resulting from interactions between these three components (OECD, 2008; Martinez-Torres 2006; Lee, Kang and Lee, 2005; Youndt, Subramaniam and Snell, 2004; Roslender and Fincham, 2004; Bontis, 1998; Atrill, 1998; Lynn 1998; Dzinkowski, 2000; Wall, 2005; Kristandl and Bontis, 2007).

In line with many other authors (Atrill, 1998; Lynn, 1998; Dzinkowski, 2000; Leal, Fernández and Prata, 2003; Ferreira and Martinez, 2011), in the research reported on here, we adopt the IC concept developed by Bontis (1998). Taking into account the various studies hitherto conducted, the three dimensions of IC may be characterized as follows:

- *Human Capital*: In general, HC is the commonest and most valuable source of organizational IC (Ghoreyshi, 2007), even though an organization cannot be said, strictly speaking, to own it. Being primarily associated with the implicit or tacit capital possessed by employees (Nonaka and Takeushi, 1996), its management is inherently challenging, above all with regard to its transfer/absorption and its further development. Furthermore HC includes the collective knowledge, creativity and innovation of the organization (Zambon, 2002). It constitutes, according to Leal, Marques, and Fernández (2012), the pillar of intellectual capital, which is much more than the operation and financial transactions.

- *Relational Capital*: Relational Capital (RC) consists of all relations (e.g. commercial, power, cooperation) established between individuals, and/or within groups and organizations of all types, that result from a strong sense of belonging and a highly-developed capacity for collaboration, typical of people and/or organizations that share a common culture (Capello and Faggian, 2005).

- *Structural Capital*: Structural Capital (SC) encompasses all processes, systems, structures, brands, intellectual property and other intangible assets owned by the organization, but that are not explicitly valued or reflected in its accounts (Suciu, 2009). Though certain SC components can be legally protected by patents (Ross *et al.*, 1997), unlike HC, it is an intangible asset that can be readily modified, reproduced and shared within companies (Zambon, 2002).

2.2 Intellectual capital and staff satisfaction

Numerous studies have highlighted the role of IC as a driver of organizational performance, inasmuch as it is an asset that contributes significantly to the value creation process (Chen, Shih and Yang, 2009; Kang and Snell, 2009; Campisini and Costa, 2008; Reed, Lubatkin and Srinivasan, 2006; Youndt and Subramaniam, 2005; Sveiby, 1997). However, few studies have attempted to identify what type of relationship may exist between the various components of IC and staff satisfaction (Longo and Mura, 2011).

Legitimately, staff satisfaction can be taken to mean that employees who feel that their organization recognizes their work – above all by rewarding them with career advancement opportunities – tend to become more committed to its aims and interests, and that this more embedded commitment translates into higher levels of productivity, effectiveness and efficiency. Longo and Mura (2011), for example, demonstrated the strong positive influence of IC's main components on individual employee performance in an Italian food company, and that improved individual performance was associated with staff satisfaction. Clearly, since human resources (HR) constitute the only asset that, strictly speaking, the organization does not *own*, and that the time and money it spends on training can easily be wasted if staff turnover is high, it is crucial for 21st century organizations of all types to attract, develop and above all retain qualified, committed and satisfied staff.

2.3 Credit cooperatives in Brazil

In Brazil, for many types of clients, Credit Cooperatives (CCs) have recently emerged as a potent alternative to large financial corporations, especially private banks. In a highly competitive financial system in which, nonetheless, access to financial markets for many has become more costly and restrictive, CCs offer attractive benefits to their members (Araújo and Silva, 2011). If Spain's experience is representative, even though they have only a small market share, in certain types of contexts and territories, such institutions have become extremely influential in facilitating and stimulating local socio-economic development (Seguí-Mas and Server Izquierdo, 2010). Brazilian CCs are undergoing significant transformations in search of greater economies of scale and efficiency (Fontes-Filho, Marrucie and Oliveira, 2008), with the aim of offering their members lower interest rates, simpler procedures, and greater access to better products and services (deposits, investments, loans, financing, insurance, etc.) than their corporate competitors (Pinheiro, 2008).

2.4 The research model

The research model (Figure 1) reflects the main question that was addressed in our contacts with UNICRED - JP: *How do CC staff perceive the three main components of intellectual capital and its implications for employee satisfaction*?
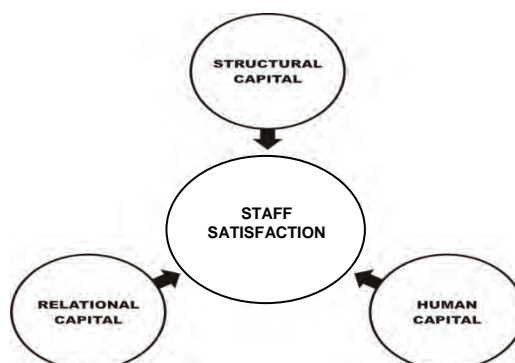

Figure 1: Conceptual model

In this manner, the following propositions were defined:

> ***Proposition 1***: *Structural capital positively affects staff satisfaction at UNICRED-JP.*

> ***Proposition 2***: *Relational capital positively affects staff satisfaction at UNICRED-JP.*

> ***Proposition 3***: *Human capital positively affects staff satisfaction at UNICRED-JP.*

3. Methodology: Population, sample and procedures

This case study of a Brazilian credit cooperative is analyzed using a quantitative methodology because all 109 of UNICRED's employees completed questionnaires. The data were processed using SPSS21 – first by applying an exploratory factorial analysis (using the maximum likelihood method and, with respect to the rotation of factors, the direct *oblimin* method) and subsequently employing multivariate analysis. Based on the resulting constructs, a linear regression based was performed.

The questionnaire drew heavily on Bontis (1998), adapted to the particular context of CCs, with a view to assessing respondents' perceptions regarding the importance of the human, structural and relational

components of intellectual capital, and how those perceptions affected their job satisfaction; the respondent was asked to express their degree of agreement with the statements in the questionnaire using a Likert scale in which 1 corresponded to "I strongly disagree" and 5 corresponded to "I totally agree".

3.1 UNICRED João Pessoa: An overview

Constituted on December 19th 1990 and approved by the Central Bank of Brazil on April 26th 1993, UNICRED João Pessoa has proven to be a successful financial institution whose progress, *a priori*, owes much to the unity of purpose established between its members, staff and leadership, driven by the commitment of its employees. It has six branches geographically located to serve its membership base which today has risen to over 9,300 members. The credit cooperative's impressive performance has given it credibility and prestige in the eyes of the public and its competitors: from a modest beginning, today UNICRED-JP boasts total assets of around R$ 550 million (178 million €), equity of over R$ 190 million (61 million €), a loan portfolio in excess of R$ 400 million (130 million €), more than R$ 60 million (215 million €) in deposits and R$ 260 million (84 million €) in investments.

4. Results

4.1 Factor analysis

In order to evaluate the dimensionality of capital, 14 indicators were subjected to exploratory factor analysis (EFA). Following Hair, Black, Babin, and Anderson (2010), all variables were checked for a measure of sample adequacy (MSA) above .5 (the range was between .593 and .914) and the overall MSA has a meritorious value of .815, confirming that this set of variables is suitable for EFA. Factors were extracted by maximum likelihood and obliquely rotated. A three factor solution was expected, but failed to uncover the theoretical dimensions of human, structural, and relational capital. Instead, the four factor solution (Table 1) is straightforwardly interpretable, uncovering SC and RC, while showing two separate dimensions of HC: the first factor related to Continuing Education Programs; the third factor, involving motivation to participate with opinions and ideas. The division of HC in these two factors is not strange in an organization where open dialogue is encouraged and employees are called to participate in strategic planning. This can somehow justify the seeming contradiction between the theoretical model and the empirical results shown in table 1.

Table 1: Factor loadings (pattern matrix), reliability and mean scores

Items	Factors			
	Training (HC)	Structural (SC)	Participation (HC)	Relational (RC)
HC_2 Continuing Education Programs are adequate in terms of quantity to my needs	**0.990**	0.070	0.160	-0.007
HC_3 Continuing Education Programs are adequate in terms of areas that I need	**0.737**	-0.031	-0.171	0.004
SC_1 Managers constantly seek learning opportunities	0.068	**0.867**	0.028	-0.142
SC_5 Managers guide and train their subordinates in accordance with the institution's goals	-0.052	**0.779**	-0.100	-0.142
SC_2 Managers ensure that organizational actions are consistent with the values of the Cooperative	-0.044	**0.644**	-0.079	0.120
SC_3 I consider that the UNICRED-JP employees are excellent	0.041	**0.569**	0.044	0.025
SC_7 Employees working in team, committed to the UNICRED-JP goals	0.065	**0.563**	0.093	0.326
SC_5 There is exchange of experience/knowledge among employees of UNICRED-JP	-0.030	**0.556**	-0.127	0.128
SC_6 Work teams believe that UNICRED-JP will follow their suggestions	0.083	**0.545**	-0.101	0.088
HC_1 I am encouraged to suggest ideas within organization	0.009	0.147	**-0.839**	-0.006
HC_4 I feel encouraged to give my opinion within organization	0.034	-0.010	**-0.831**	0.063
RC_3 I am confident in the future of the relationship between UNICRED-JP and our clients	0.036	-0.069	-0.045	**0.746**
RC_2 The UNICRED-JP seeks to satisfy the needs of its members	-0.040	0.044	-0.011	**0.660**
RC_1 UNICRED-JP has products that differentiate it from the competition	0.019	0.044	-0.018	**0.565**
Cronbach's Alpha	0.817	0.863	0.871	0.649
Mean score	4.394	4.337	4.179	4.609

According to Hair *et al*. (2010), the loadings (greater than ± .545) are of practical significance for this sample size. Although a considerable cross-loading is apparent for SC_7, the overall factor structure is deemed simple. With a χ^2 of 53.859 for 41 df, the goodness-of-fit test shows that the four factors reproduce the items' variance-covariance matrix, i.e. the matrix reproduced by the model is not different from the input matrix (p=.086).

Having established the factor structure, a composite measure of each factor was obtained by averaging the scores of the items with the respective highest factor loadings (Hair *et al.*, 2010). The mean scores are truly high (Table 1), ranging from 4.179 (Participation) to 4.609 (RC). By averaging multiple indicators for each facet of the IC construct, one can more accurately estimate their effect on staff satisfaction, given that these composite measures are less prone to measurement error (Hair *et al.*, 2010). However, a word of caution should be given to the consistency of the RC's items, as the value of alpha (.649) is slightly below the generally agreed upon lower limit of .7.

4.2 Multiple regression analysis

In line with this study's aims, staff satisfaction at UNICRED - JP was defined as a dependent variable, explained by the dimensions of IC. As seen in Table 2, all IC factors have positive highly significant bivariate correlations with staff satisfaction. However, since predictors are positively correlated themselves, a stepwise multiple regression analysis may identify which factors are significant and which are not, given the presence of the others. Using the forward method, SC is selected as the first predictor (Table 2), explaining about 25% of the satisfaction's variance. RC is included next, resulting in an overall R^2 of 28%. None of HC dimensions is deemed to be significant in this multivariate analysis.

Table 2: Predictors of staff satisfaction

	Bivariate		Multivariate		
IC Factors	**ρ**	**p**	**Beta**	**t**	**p**
Structural	.504	.000	.447	5.159	.001
Relational	.320	.001	.179	2.061	.042
Participation	.287	.002	.085*	1.249*	.345*
Training	.261	.006	.018*	0.948*	.215*
*Statistics for inclusion in a model with SC and RC					

These results show that only two (P1 and P2) of the three initial propositions could be confirmed. In that, only structural and relational capital positively affect the degree of staff satisfaction. Surprisingly HC showed no significant influence on the satisfaction of the CC staff, unlike the structural and relational capital. It is advisable to develop further analyses to explain this lack of explanatory power of HC, as well as the particular dimensionality of the concept found in this study. However, it was apparent in responses to the questionnaire (unreported here) some negative attitudes of staff regarding compensation, evaluation, and promotion, which may interfere in the relation between HC and satisfaction.

From this we can conclude that IC have a positive influence on staff satisfaction at UNICRED-JP. These results confirm the conclusions drawn by Ichniowski *et al*. (1996) concerning the direct effect on staff satisfaction of an organization's investment in structural capital and, consequently, their argument that improvements in staff performance in organizations whose IC has a substantial structural component, should strategically invest in collaborative projects, organizational learning processes and knowledge-sharing, all of which are considered relevant in the promotion in positive staff perceptions. More recently, Longo and Mura (2011) also found a strong positive relationship between structural and relational capital and improvements in staff members' individual performance, resulting in increased staff satisfaction.

5. Conclusions

The application of our questionnaire in a Brazilian credit cooperative – an organization with very particular management and institutional characteristics – enabled us to confirm the importance of investing in and competently managing all three components of IC, and that this policy can positively influence the degree of satisfaction of its employees. Our factorial and regression analyses permitted us to conclude that investing in the structural and relational dimensions of IC has a positive influence – both individually and collectively – on staff satisfaction.

Surprisingly to us, regarding the literature, the dimension of human capital does not seem to affect the staff satisfaction, even presenting particular characteristics in this study (subdivision in training and participation). This result may be due to internal (management) situations that are not seen by its staff as positive (wage and career issues, performance evaluation, etc.).

Our study has limitations, as does any empirical research. First, the sample size is small and limited to a single case study organization, which substantially reduces the extent to which we may generalize the results. However, we believe these results provide both a warning and an incentive for IC managers not only at UNICRED – JP, but those active in all types of organizations.

The constraints referred to above suggest a number of hypotheses for future research. To test the validity of the results for the credit cooperative as a whole, and in order to constitute a database that would provide more robust and better substantiated results, the same questionnaire could be applied in all six UNICRED – JP branches in the North and Northeast region of Brazil. Indeed, this follow-up project is already under way, using a triangulated approach, through which we will collect data on the satisfaction levels of staff, managers and clients regarding UNICRED's IC policy. The validity of these and subsequent results, as well as the possibility that the CC business model provides IC managers with particular advantages and thereby delivers greater value and quality to clients, could then be tested more widely within the CC sector, and/or in other "alternative" financial organizations.

In conclusion, the main purpose of this preliminary study has been to demonstrate in a sector somewhat unfamiliar to researchers, the importance of IC management, and to motivate CC managers and decision-makers, to continue investing in the intangible assets that currently constitute a "secret weapon" for organizational success, and to further improve IC management. However, for sustained success, more coherent policies and strategies for investment in staff qualifications, skill upgrading and motivation must be developed, so that a more concerted commitment exists among all those interested in improved organizational performance. Until improved policies and strategies are in place, a more precise measurement of the effective returns on IC investments will not be practicable, nor will the mainstreaming of more appropriate IC management techniques to a wider range of organizations be possible.

References

Araújo, E. and Silva, W. (2011) "Cooperativas de crédito: A evolução dos principais sistemas brasileiros com um enfoque em indicadores económico-financeiros". *Revista Contemporânea de Economia e Gestão*. (Brazil) vol 9, nº1 Jan/June.

Atrill, P. (1998) *Intellectual assets: the new frontier*. ACCA Students' Newsletter, 34, pp.56-59.

Bontis, N. (1998) "Intellectual capital: an exploratory study that develops measures and models", *Management Decision*, vol 36, nº2, pp.63 – 76.

Campisi, D. and Costa, R. (2008) "A DEA-Based Method to Enhance Intellectual Capital Management". *Knowledge and Process Management*, Vol.15, nº3, pp.170 -183.

Cañibano, L., García-Ayuso, C.M. and Sánchez, P. (2000) "Accounting for intangibles: a literature review." *Journal of Accounting Literature*, Vol19, pp. 102-30.

Capello R. and Faggian A. (2005) "Collective learning and Relational Capital in local innovation processes", *Regional Studies* nº 39, pp. 75-87.

Chen, Shih, S., and Yang Y (2009) "The role of intellectual capital in knowledge transfer", *IEEE Transactions on Engineering Management* vol. 56, nº3, pp.402–411.

Choi B. and Lee H. (2003) "An empirical investigation of KM styles and their effect on corporate performance", *Information and Management* Vol.40, nº5, pp. 403–417.

Dastgir M. and Mohammadi K. (2009) "Intellectual capital: an intermitted treasure for organizations". *Tadbir Journal*. nº 214: pp. 28-34.

DeVellis, R. F. (1991) *Scale development: Theory and applications*. Newbury Park, CA: SAGE Publications

Dumay, J. C. (2009) "Intellectual capital measurement: a critical approach". *Journal of Intellectual Capital*, vol.10 nº2, pp.190–210.

Dzinkowski, R. (2000) "The measurement and management of intellectual capital: an introduction". *Management Accounting, 78*(2), 32-36.

Edvinsson, L. and Malone, M. (1997) *Intellectual Capital: Realizing Your Company's True Value by Finding Its Hidden*. Harper Business. New York.

Ferreira, A. and Martinez, L. (2011)"Intellectual Capital: Productivity and Investment Perceptions", *RAC*, Curitiba, Brazil, vol.15, nº2, pp.249-260.

Fontes-Filho, J., Marucci, J., and Oliveira, M. (2008). "Governança cooperativa: participação e representatividade em cooperativas de crédito no Brasil". *RCO – Revista de Contabilidade e Organizações* – FEARP/USP, vol 2, nº4, Sept./Dec., pp.107 - 125.

Ghoreyshi S. (2007) *Designing a model for measuring intellectual capital in organizations*. Master's thesis, Imam Sadegh University, Faculty of Management and Islamic Theology, Tehran, Iran.

Guthrie, J., Ricceri, F., and Dumay, J. (2012) Reflections and projections: A decade of intellectual capital accounting research. *British Accounting Review, vol.*44, nº2, pp.68-92.

Hair, J. F., Black, W. C., Babin, B. J., and Anderson, R. E. (2010) *Multivariate data analysis* (7th ed.). Upper Saddle River, N.J.; Harlow: Pearson Education.

Ichniowski, C.,Kochan, T., Levine, D., Olson C. and Strauss, G. (1996) "What works at work: overview and assessment", *Industrial Relations*, nº 35, pp. 299–333.

Kang, S. and Snell A. (2009) "Intellectual capital architectures and ambidextrous learning: a framework for human resource management", *Journal of Management Studies* 46(1), 65–92.

Kaplan, R. S., and Norton, D. P. (2004) *Strategy maps: converting assets into tangible outcomes*. Boston, MA: Harvard Business School Press.

Kristandl, G. and Bontis, N. (2007) "The impact of voluntary disclosure on cost of equity capital estimates in a temporal setting". *Journal of Intellectual Capital*, vol.8 nº 4, pp. 577-594.

Leal, C., Fernández, M. T and Prata, M., (2003) *A Valorização do Capital Intelectual – Um estudo de caso de uma empresa brasileira"*, XXIII Jornadas Hispano-Lusas de Gestión Cientifica, Málaga, ISBN 978-989-704-020-7.

Leal, C., Marques, C., and Fernández, M. T., (2012) *"Capital Intelectual – O Contributo Invisível"*; XV Encontro da AECA, Ofir, Portugal, ISBN 978-84-15467-51-9.

Lee S, (2010) "Using a fuzzy AHP intellectual capital evaluation model for assessing their performance contribution in a university". *Expert Systems with Applications*. 37: 4941-4947.

Lee, K. Lee, S. and Kang, I. (2005) "KPMI: measuring knowledge management performance", *Information and Management* nº42, pp.469–482.

Longo, M. and Mura, M. (2011) "The effect of intellectual capital on employees' satisfaction and retention." *Information and Management* nº48, pp.278–287.

Lynn, B. (1998) "Intellectual capital". *CMA Management,* nº72, pp. 10-15.

Malhotra, N. (2001*) Pesquisa de Marketing: uma orientação aplicada*. Porto Alegre, Brazil: Bookman.

Martinez-Torres, M. (2006) "A procedure to design a structural and measurement model of intellectual capital: an exploratory study", *Information and Management vol.*43 nº5, pp. 617–626.

Matos, F. and Lopes, A. (2008) *Gestão do capital intelectual: A nova vantagem competitiva das organizações*. *Comportamento Organizacional e Gestão*, vol.14, nº2, pp.233-245.

Nonaka I and Takeuchi, H. (1995) *The knowledge-creating company: How Japanese companies create the dynamics of innovation*, New York: Oxford University Press.

Nunnally, J. C. (1978) *Psychometric theory*. New York: McGraw-Hill Inc.

OECD. (2008) *Measurement, Reporting and Valuation of Intellectual Assets - the Investor View*, OECD Experts' Workshop, Washington DC.

Pinheiro, M. (2008) Cooperativas de crédito : história da evolução normativa no Brasil. 6th ed. Brasília: Banco Central do Brasil ISBN 85-99863-03-7.

Reed, K. Lubatkin, M. and Srinivasan, N. (2006) "Proposing and testing an intellectual capital-based view of the firm", *Journal of Management Studies* vol43, nº4, pp.867–893.

Roslender, R., and Fincham, R. (2004) "Intellectual capital accounting in the UK: A field study perspective", *Accounting, Auditing & Accountability Journal*, Vol. 17, n º2, pp.178 – 209.

Ross, J., Ross, G., Edvinsson, L. and Dragonneti, N. (1997*) Intellectual Capital: Navigating in the New Business Landscape*. Macmillan Business, London.

Seguí-Mas, E., and Server Izquierdo, R. (2010) "Caracterización del Business Capital de las Cooperativas de Crédito através del Analisis Delphi". *Revesco* vol103, nº3, pp.101-122.

Spender, J.C. (2007) "Data, meaning and practice: how the knowledge-based view can clarify technology's relationship with organizations", *International Journal of Technology Management* vol.38, nº(1/2), pp.178-196.

Subramaniam, M. and Youndt, M. (2005) "The Influence of Intellectual Capital on the types of innovative capabilities, *Academy of Management Journal*, vol 48, nº3, pp.450–463.

Sveiby, K.E. (1997) *The New Organizational Wealth: Managing and Measuring Knowledge-Based Assets,* Berrett-Koehler, New York, NY.

Suciu, M. (2009) "Intangible assets and intellectual capital as key factors of Romania's convergence". Working Papers of the National Institute of Economic Research, National Institute of Economic Research, Budapest, Romania.

Youndt, M. A., Subramaniam, M. and Snell, S. A. (2004) "Intellectual capital profiles: An examination of investments and returns", *Journal of Management Studies,* nº41, pp. 335–362.

Wall, A. (2005) "The measurement and management of Intellectual Capital in the public Sector: taking the lead or waiting for direction?" *Public Management Review*, vol*7, nº*2, pp. 289-303.

Wyatt, A. (2008) "What financial and non-financial information on intangibles is value-relevant? A review of the evidence." *Accounting and Business Research*, vol.38, nº3, pp. 217–256.

Zambon, S. (2002) "Accounting, intangible and intellectual capital: an overview of the issues and some considerations", Working Paper 4, University of Ferrara, Ferrara, Italy.