**The Macrotheme Review**
***A multidisciplinary journal of global macro trends***

# Organizational Learning - the boost to Organizational Performance: An Organization Development assessment amongst Austrian business entities

Christoph Schreder
*University of Latvia, Latvia & DIPLOMA University of Applied Sciences, Germany*

**Abstract**

*Organizational Learning is a major factor in an organizations development in both economic as well as organizational terms. This is true even more so, as the momentum of change driven by technological and macroeconomic developments is getting ever greater. In a series of quantitative surveys amongst organizations in different branches of business the author gathers relevant data different provinces in Austria and suggests interdependencies as well as possible consequences for organizations and highlights some suggestions for the further course of action both in research and on a company level. The research project is based on the hypothesis of Organizational Learning influencing Organizational Performance in the sense of economic resilience and vice versa. Furthermore the author assumes a positive connection between Human Resource Management (HRM) firstly positively influencing Organizational Learning and secondly also directly positively influencing Organizational Performance. Preliminary findings suggest however, that the presupposed connection is weaker than anticipated respectively the direction of the presupposed mutual influence is not predetermined.*

Keywords: Organizational Learning, Organizational Performance, Learning Organization, Organization Development

## 1. Introduction

Leaning on the opinion of (Celik, 2014) knowledge is the most important source of wealth in the information society and learning on an individual basis in not enough to sustain it. “Knowledge increasingly becomes a key factor for productivity, it has also become a currency for competitive success” (Egan et al., 2004), as contemporary economies are increasingly based on knowledge and information (Kuo, 2011; OECD, 1996). Accordingly the ability of companies to develop, produce and sell products and services regardless of their branch of business stems from professional knowledge and know-how. This seems to be all the more true as the technological revolution is accelerating a global transformation of the competitive environment (Kuo, 2011). In other words the possibility to generate profits and hence the very source of existence of every business unit is directly linked to its collective relevant knowledge and know-how. Building up, renewing and fostering of this vital resource therefore should be a major concern of any business entity, as argumentum e contrario the converse argument, namely resisting the need for innovation is likely to result in a businesses' downfall (Kuo, 2011; Leavy, 1998).

Consequently, organizations should learn to succeed (Vemić, 2007) and not surprisingly therefore, recent research shows that an increasing number of organizations implement Organizational Learning strategies (Chen et al., 2005, 2006; Ju et al., 2005; Lee, Les Tien-Shang, and Franco Gandolfi, n.d.; Lin and Kuo, 2007; Pai, 2006) and introduced various professional training programs with the goal of improving Organizational Performance (Choy et al., 2006; Davenport, Thomas H., David W. De Long, and Michael C. Beers, n.d.; Gold, Andrew H., Arvind Malhotra, and Albert H. Segars, 2001; Lin and Kuo, 2007; Reus and Liu, 2004; Wickramasinghe, Nilmini, n.d.).

As most of the successful organizations define themselves as Learning Organizations (Vemić, 2007), this research project accordingly seeks to deepen and widen the understanding of the anticipated connections between Organizational Learning and Organizational Performance with special emphasis on the economy in Austria.

## 2. Learning Organizations & Organizational Learning

The concept of learning can be understood from various points of view; however, there is rarely agreement within disciplines as to what learning is and how it occurs (Fiol and Lyles, 1985a). Consequently different abstract concepts with now and again considerable overlap have been evolving alongside or simultaneously to each other. So, in order to get a clear notion of the theme the main concepts should be delineated briefly.

An organization that intentionally builds up and fosters strategies and structures concerning Organizational Learning experience have been labeled as Learning Organizations. The characteristics of the learning organization is described by Peler (et al. 1989 in Dasgupta, 2012, p. 3) as "an organization which facilitates the learning of all its members and continually transforms itself" and, according to Pedler, M., J. Burgoyne, and T. Boydell. (1991 in Dasgupta, 2012), "should consciously and intentionally devote to the facilitation of individual learning in order to continuously transform the entire organization and its context."

According to (Celik, 2014) learning may be defined as permanent change in behavior as a result of consolidated application of experiences where Organizational Learning is a process which coordinates systemic changes and the purpose of this activity is to facilitate the adoption of the new condition (Leon, 2011). Whereas this definition underlines the importance of accommodating change, Fiol and Lyles (1985) state that "Organizational learning means the process of improving actions through better knowledge and understanding" and therefore point out the inherent necessity of knowledge management. Huber (1991 in Hanvanich, 2006) also substantiates that view of Organizational Learning by describing is as a process consisting of four stages, which are: acquisition, dissemination, interpretation and, storage of knowledge. In accordance with the aforementioned authors the approach by López et al. (2005, p. 228) to Organizational Learning highlights the processual character of the latter by defining it as "a dynamic process of creation, acquisition and integration of knowledge aimed at the development of resources and capabilities that contribute to better organizational performance.". The pivotal parameters of the concept therefore are summed up by Duncan, R., Weiss, A. (1979; in Lin and Kuo, 2007) by stating that Organizational Learning is concerned with developing knowledge and therefore is considered a continuous process of knowledge creation, acquisition and transformation.

Taking into account the aforementioned the definition and concepts of Organizational Learning the definition by the author in the context of this work respectively the understanding of the abstract concept that pours in the further research proceedings is: "Organizational Learning is an attitude towards continuous advancement by means of acquisition, distribution, and interpretation of knowledge aimed at the development of lasting capabilities contributing to competitive Organizational Performance".

In the eyes of the author, this notion of Organizational Learning appropriately acknowledges the necessary qualities relevant for the research interest. First and foremost the paramount quality of the connection between knowledge as input, the learning process as the pivotal point and the consequential organizational output. And secondly, an ever faster changing economic environment necessitates a non-static understanding of Organizational Learning, as otherwise it would become outdated before long. Therefore the set of attributes and connections, in the mind of the researcher, need to be understood as an attitude towards a certain end, e.g. Organizational Performance, rather than an externally imposed or internally happening process, as it is perceived by most previous authors. And in that sense, as it is the belief of the author, Organizational Learning should contribute to a lasting, competitive Organizational Performance, as the overriding importance for any organization is long-term survival.

## 3. Organizational Performance

"Organizational performance is the ultimate dependent variable of interest for researchers concerned with just about any area of management. This broad construct is essential in allowing researchers and managers to evaluate firms over time and compare them to rivals. In short, organizational performance is the most important criterion in evaluating organizations, their actions, and environments." (Richard et al., 2009, p. 1)

Nonetheless, "the definition of 'organizational performance' is a surprisingly open question with few studies using consistent definitions and measures"(see Kirby, 2005). Instead, performance measurement as dependent variable is so accepted in management research that its structure and definition is rarely explicitly justified (March and Sutton, 1997).

As a matter of fact “previous studies that underline the positive effects that organizational learning has on business performance differ on what they understand by performance” (López et al., 2005a).

Where “the prescriptive literature considers financial results as business performance (Lei et al., 1999). The author seeks to gain a broad, holistic understanding of Organizational Performance as basis for measurement, as “although these outcomes are important, there may be more proximate outcomes that may mediate the relationship with financial results” (López et al., 2005a). A complete notion of Organizational Performance it seems should facilitate all aspects of outcomes. Organizational Performance accordingly has also been defined as “accumulated end results of all the organization’s work processes and activities.” (Robbins and Coulter, 2002). The definition recognizes the holistic nature of the abstract concept as incorporates “all the organization’s work processes and activities”. For Richard et al. (2009) Organizational Performance “encompasses three specific areas of firm outcomes: financial performance (profits, return on assets, return on investment, etc.); market performance (sales, market share, etc.); and shareholder return (total shareholder return, economic value added, etc.)”.

Taking into account the aforementioned the definition by the author of Organizational Performance in the context of this work respectively the understanding of the abstract concept that pours in the further research proceedings is “a holistic approach incorporating the end results of all the organization’s work processes and activities directed at lasting competitive advantage; especially concerning economic performance, competitiveness, and human resources.”

The aim of this work is not to focus on a specific characteristic or set of characteristics but much rather to get a comprehensive view of a company’s state respectively development. Accordingly the approach to Organizational Performance in this project will be a holistic one taking into account the output of all the end results of a company’s work processes and activities. Where, derived from the relevant literature on the topic in combination with the direction of the current research project three areas seem to be of paramount importance. First, economic performance as factual basis for long-term survival in a competitive environment. Second, competitiveness in the sense of a broader basis for competitive advantage as foundation for the right to exist. And third, human resources as partition and centerpiece of OL. Furthermore, in the mind of the researcher it is important to incorporate the aim all the processes and activities are directed at, which is lasting competitiveness of the respective organization.

## 4. Research model

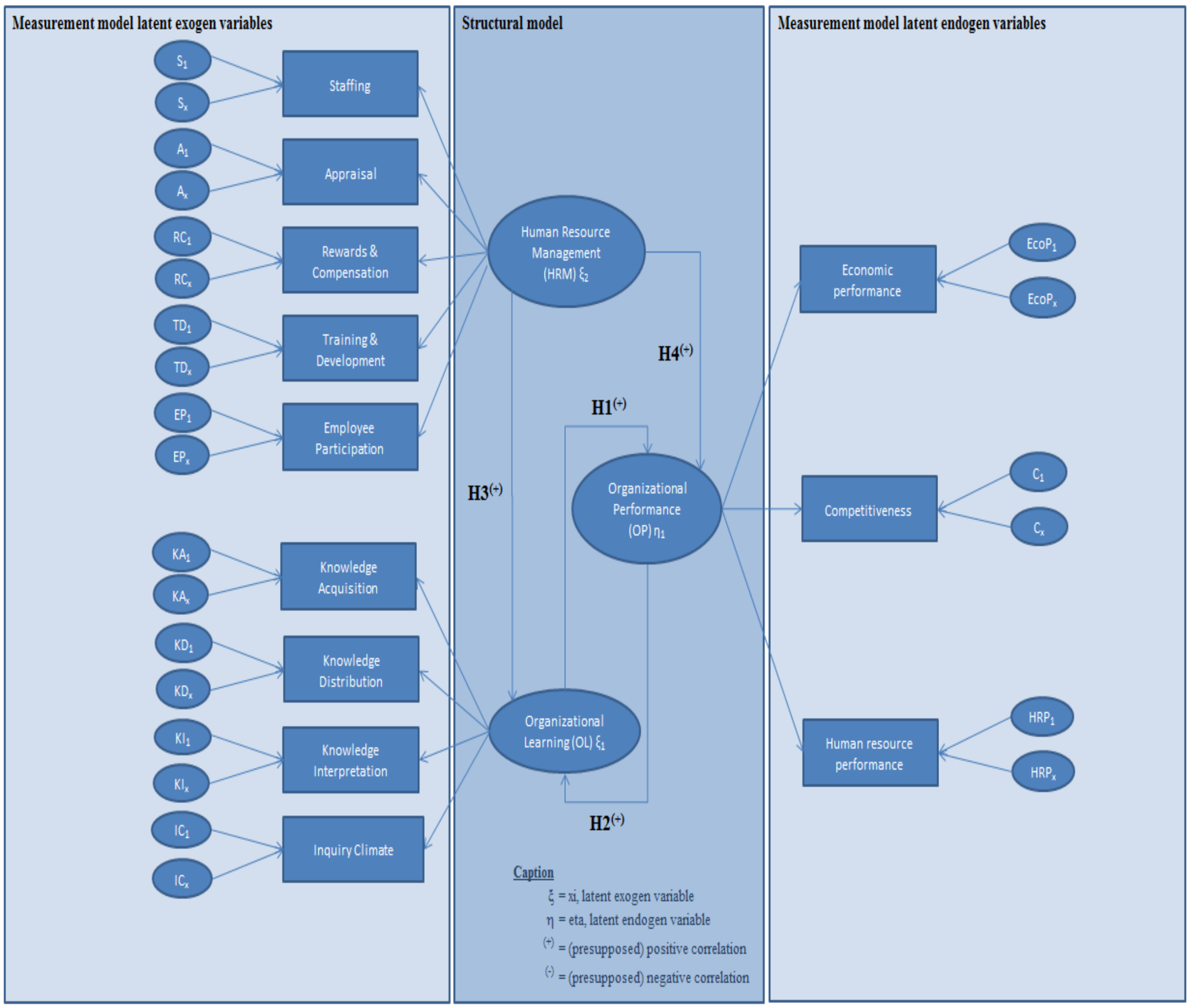
After an extensive literature review of the work that has been done approximately the last two decades the Structural Equation Model (SEM) includes dimensions suggested by various researchers as well as extensions and adaptations made by the author. The exogen variable of Organizational Learning was derived based on the findings of (Kuo, 2011; Lin and Kuo, 2007; Lopez, 2006). The exogen variable of HRM (Human Resource Management) as part of

Organizational Learning was derived based on previous works of (Gomez-Mejia, 2010, p. -; Gupta, Ashok K., and Arvind Singhal, 1993; Kuo, 2011; Lin and Kuo, 2007; Schuler and Jackson, 1987). The dimensions of the endogen variable of Organizational Performance was derived based on the earlier research of Huselid 1995; Delaney and Huselid 1996; Lopez 2006; Lin and Kuo 2007; Gurbuz and Mert 2011.

Regarding the development of the SEM, due to the given similarity in scope and setting the author opted to lean – amongst others - on the models of earlier research made by (Kuo, 2011; Lin and Kuo, 2007; Lopez, 2006) concerning the presupposed core connection between Organizational Learning and Organizational Performance. Furthermore the SEM takes into account the presupposed influence of HRM with a focus on the influence of Training & Development.

The figure below shows the Structural Equation Model (SEM) of the research project following the modeling suggestions by Buch (2007):

Figure 1: Structural Equation Model (SEM) of the research project




## 5. Research Design

The research design is based on an empirical approach, defined by Black (1999, p. 3) as

"information, knowledge and understanding gathered through experience and direct data collection". As a first step it was the attempt of the author to sum up previous findings and experience in the field via a thorough research review as well as a pre-study of expert interviews. On these foundations direct data collection was used via the introduction of a survey.

As defined by Fink (2003, p. 1) "surveys are systems for collecting information from or about people to describe, compare, or explain their knowledge, attitudes, and behaviour." For the current work an online survey with 35 questions was designed – the full questionnaire is provided in the appendix. Following the argument of Bradburn (2004) the "precise wording of questions plays a vital role in determining the answers given by respondents" all questions were designed to incorporate the largest possible target group of participants, e.g. the broad term "organization" was consistently used to address any form of business entity, instead of possibly narrowing the spectrum by using a term like "company" or "business". Furthermore, in order to achieve "a high response rate, accurate sampling and a minimum of interviewer bias" a self-administered questionnaire was chosen, as suggested by Oppenheim and Oppenheim (1992; p. 103 in Sach, 2013). The implementation of the survey took place via e-mail, as participants were contacted and asked to participate in the survey via an attached link to the online questionnaire.

The questionnaire was developed in English and the final version of the questionnaire was translated into German language, as the survey took place in a German speaking country. The total sample was set at 2.363 as the sample size promised an acceptable base for causal-analytical research (cf. Backhaus et al. 2000, p. 493 in Siems 2003, p. 210). The data collection took place over a total period of approximately 8 months in five different provinces of Austria.

The total accomplished response rate of 8.0 per cent seems to be within a tolerable margin regarding previous research in that field, e.g. López et al. (2005) 7.8 per cent; Pablos (2002) 6.5 per cent. From that figure as well as the feedback from the review of the questionnaire it can be concluded that the questionnaire was adequate for the target group in terms of handling, length, and understandability and so forth.

## 6. Measurement Model

Following the proceedings suggested by Siems (2003, p. 194 et seqq.) regarding the developing of the measurement model, the abstract constructs of OL, HRM and OP deduced earlier are so-called latent variables which can, due to their multidimensionality, only be grasped by observing their different aspects. Measurement accordingly took place indirectly by looking at diverse indicators or items given in the appendix.

Within the causal analysis these partial models, e.g. of OL, are named measurement models. The measurement models for the three abstract constructs OL, HRM and OP were deduced based on previous research in the field and current standard of knowledge.

The developing of the data collection architecture took place by deduction as mentioned above in the context of the measurement model development for the three abstract constructs of: OL (9 items; Q1-Q9), HRM (12 items; Q10-21), and OP (8 items; Q22-Q29).

Most of these items were adopted from previous research work in the field. The remaining items were complemented by the researcher based on recommendations from scientific literature review as well as interviews with professionals and academics working in the field.

The measurement scale development was centered on a Likert Scale, as McLeod (2008) points out "various kinds of rating scales have been developed to measure attitudes directly (i.e. the person knows their attitude is being studied). The most widely used is the Likert Scale". Likert-type or frequency scales are designed to measure attitudes or opinions by using given choices to respond (cf. Bowling, 2009; Burns and Grove, 1997).

Accordingly these ordinal scales measure levels of agreement/disagreement and assume that the strength/intensity of experience is linear, i.e. on a continuum from strongly agree to strongly disagree, and makes the assumption that attitudes can be measured (McLeod 2008). In that sense it is a multiple point scale allowing the respondents to articulate how much they agree or disagree with a particular statement. Respondents in the current work were offered a four-point Likert Scale with no "neutral" value in an attempt to get more pointed results.

Based on these considerations measurement items were defined and phrased in statements. The evaluation took place along a four-point Likert-scale (cf. Likert, 1932) with one extra scale for non-applicable values (e.g. fully agree / mostly agree / mostly disagree / fully disagree / unknown to me or n/a ).

## 7. Development of the research procedure

Leaning on the suggestions by Siems (2003, p. 211 et seqq.) a data analyzing procedure was conceptualized suitable for the specific hypothesis in the context. The development was based on the following reflections:

- Organizational Performance (OP), Organizational Learning (OL) as well as Human Resource Management (HRM) are – as discussed already earlier – complex, latent and abstract constructs and their interdependencies are best measured via a causal analysis (Gölzner, 2014; Hammann and Erichson, 2000, p. 200; Homburg and Giering, 1996, p. 5 et seqq.).
- The causal analysis is set up as a confirmatory analysis, i.e. in the first step a theoretical model is developed which is in a second step parameterized on the basis of the structure of the empirical data and evaluated according to "criteria of good quality" (Hammann and Erichson, 2000, p. 200 in Siems, 2003, p. 211). The confirmatory nature of the method, however, has to be qualified by the fact that the presumed structure of the SEM (Structure Equation Model) in the course of the analysis may be modified. (Homburg and Hildebrandt, 1998, p. 20; Jörgeskog, 1977, p. 273). This is true for example for items eliminated because of weak reliability or the possible modification of the SEM by parameter expansion respectively contraction, i.e. the gradually inclusion or elimination of parameters (cf. Homburg and Hildebrandt, 1998, p. 30 et seq.).

- The "criteria of good quality" for measurement in social sciences are basically the objectivity, reliability and validity. In order to meet these criteria the procedure necessitates mainly two analyzing methods: first, factor analysis, i.e. finding out the loading or the strength of the connexion between items either within an abstract construct (e.g. HRM), parts of an abstract construct or between whole abstract constructs. Second, reliability analysis which will come as an inherent product of the factor analysis. (cf. Gölzner, 2014)

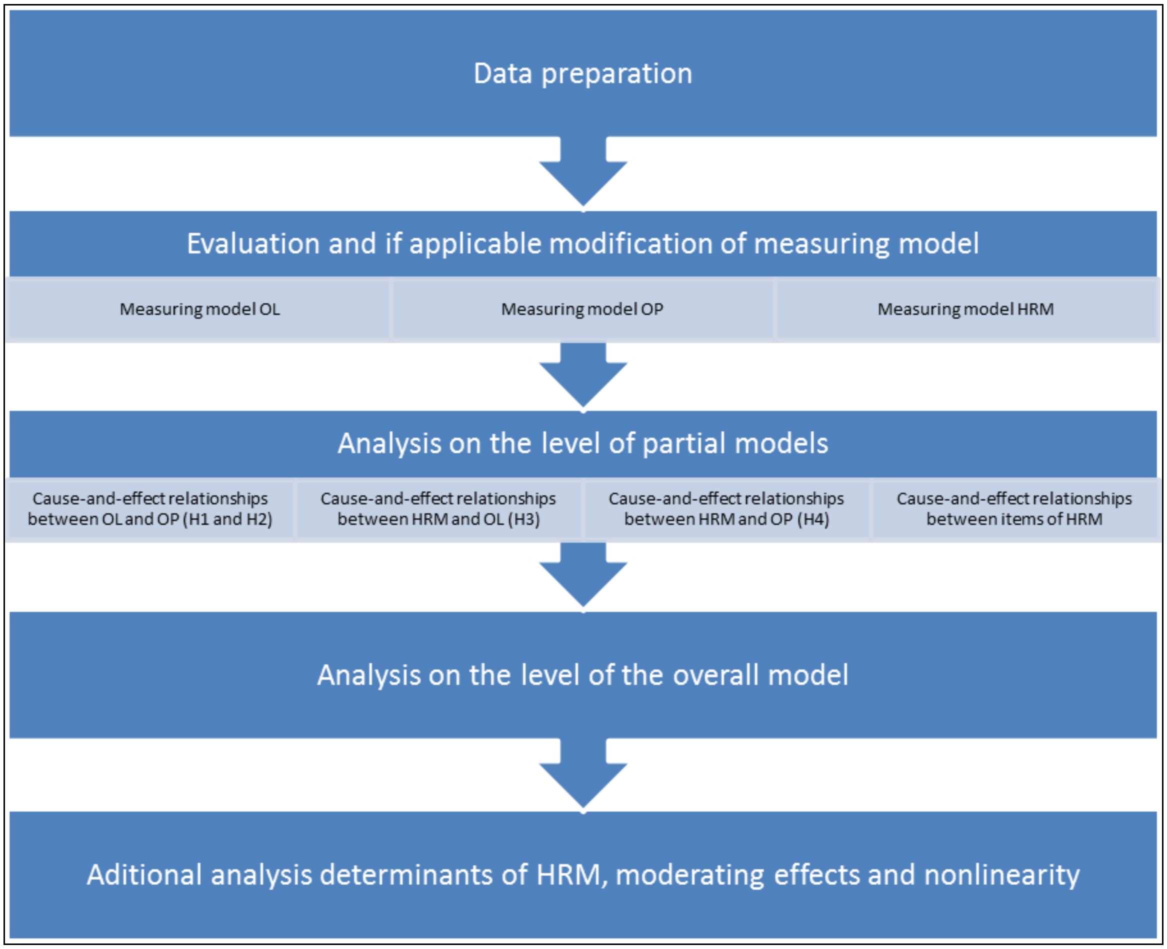
Grounded on the above considerations a successional procedure was introduced; starting at the lowest model level and ending at the overall model. This roadmap corresponds to the usual proceedings which is to first evaluate the measuring model and consecutively the structural model or SEM (Hammann and Erichson, 2000, p. 202).

Accordingly, following a commonly accepted stepping (Siems, 2003, p 212) of data preparation and examination of data quality, below in a first step the used measuring models was tested for their suitability using factor analysis as well as reliability analysis.

Thereafter several partial models were evaluated in analogy with the construction of the structural model respectively hypothesis development in order to localize possible deficits of validity.

Following the suggested approach of Siems (2003, p. 213) the figure below gives an overview of the single steps which are explained further below in conjunction with the evaluation of the data material:

Figure 2: Overview of the approach of quantitative data analysis




## 8. Findings & Conclusions

Leaning on Siems (2003, p. 199 et seqq.) first of all the data set was examined for possible vertical and horizontal accumulations of missing values. The analysis was conducted – as most of the data analysis - in SPSS 19.0 . In the current dataset the highest figure for missing values occurs with the last question (Q34) with a percentage of 11.3 missing values. Also, values above 10.0 percent can be found only from Q24 onward indicating that the increase in missing values is due to the fact that respondents gradually dropped out of the survey all together but is not correlated with the underlying data (questions). Using the MCAR ("missing completely at random") condition with the level of significance of 0.05 as reference for the given dataset (Sig. = 0.143) the significance level clearly was exceeded and it can be assumed that the missing values are indeed completely at random and the MCAR condition is met (cf. “IBM SPSS Missing Values 20,” 2011, p. 1 et seqq.).

The construct and data quality was evaluated - following the suggested proceedings by Siems (2003, p. 199 et seqq.) - using a reliability analysis where the suitability of the items to measure a scale was examined. First the three abstract constructs (OL, OP and HRM) were evaluated separately and hereinafter the overall model. In doing so the usual threshold value of the Cronbach’s Alpha of 0,70 (cf. Siems 2003, p. 200) was imposed. In the case of HRM a Cronbach‘s Alpha of 0,856 was reached directly, i.e. without elimination of any items and can therefore be considered internally consistent. For OL a Cronbach‘s Alpha of 0,850 was reached directly and in the case of OL a Cronbach‘s Alpha of 0,874 was reached directly, i.e. without elimination of any items. For the overall model a Cronbach‘s Alpha of 0,878 was reached directly (Q1 to Q34) and can therefore be considered internally consistent. Furthermore, the ‘Cronbach's Alpha if Item Deleted’ shows that by elimination of any item Cronbach’s Alpha could not be increased significantly. Consequently all the partial models as well as the overall model were considered internally consistent and suitable for further analysis. A set of the full tables is given in the appendix.

In the following step the aim was an analysis accounting for the variance including that one found in the correlation coefficients and error variance, and was therefore set up as a principal components analysis respectively factor analysis, as a factor analysis is a method of data reduction (Institute For Digital Research and Education, 2014) by seeking underlying unobservable (latent) variables that are reflected in the observed variables (manifest variables), in order to reduce the complexity of the data structure. Accordingly, an exploratory factor analysis was carried out, which is suitable for a situation without a predefined idea of the structure or how many dimensions are in a set of variables (Torres-Reyna, 2014).

The principal components analysis has been conducted in three major steps:

1st Step: Assessment of suitability of data

2nd Step: Component extraction

3rd Step: Factor rotation and interpretation

1st Step: Factor analysis is based on the correlation matrix of the variables involved, and correlations usually need a large sample size before they stabilize reduction (Institute For Digital Research and Education, 2014). Citing the advice by Comrey and Lee (1992 in Tabachnick and Fidell, 2001, p. 588) in that respect regarding the sample size: 50 cases is very poor, 100 is poor, 200 is fair, 300 is good, 500 is very good, and 1000 or more is excellent. Furthermore, as a rule of thumb, a bare minimum of 10 observations per variable is necessary to avoid computational difficulties (Institute For Digital Research and Education, 2014). The total sample size was 177 cases and therefore within the tolerable margin.

To determine the factorability of the correlation matrix displaying the relationships between individual variables Tabachnick and Fidell (2007) recommended inspecting the correlation matrix for correlation coefficients over 0,30 (see also e.g. Hair et al. 1995) and items with loadings below that threshold were eliminated for each partial model respectively component, i.e. HRM: Q4; OP: Q29 and OL: Q10, Q16 and Q19.

Following a frequently used suggestion (cf. University of Texas at Austin, 2014) communalities for each variable greater than 0,50 were retained. Variables that were not meeting that criterion were eliminated in an iteration loop. Values less than 0,5 indicate that the item does not fit well with the other items in its component. By eliminating these items the explanatory power of the analysis improves, as the percentage of total variance explained increased. Regarding the threshold value items were excluded as follows: HRM: Q3, Q5 and Q9; OL: Q11, Q20 and Q21.

Using the widely accepted Kayser-Meyer-Olkin (KMO) Measure of Sampling Adequacy as an index to examine the appropriateness of factor analysis for the data set high values between 0,5 and 1,0 indicate that a factor analysis is appropriate (cf. for example Tabachnick and Fidell, 2001). For the set of remaining variables in the total sample the values were well above the threshold (HRM: 0.826, OL: 0.828 and OP: 0.839).

Furthermore the Bartlett's Test of Sphericity should be significant ($p<0,05$) for factor analysis to be suitable (cf. Hair et al., 1995 or Tabachnick and Fidell, 2001). As the sig. for the sample for all components was 0.000 this criterion was met.

2nd Step: in order to derive valid components all the remaining items selected in the process described above were subject to further analysis of the overall model as elaborated below:

Principal component analysis are a way of testing the construct validity, as suggested before (Bachman 1990, pp. 262-263 ;Brown, 1996, p. 246 or 1999, p. 281). In order to arrive at a convergent validity (i.e., the similar tests load together) a series of tests was administered and those tests that logically should be related turned out to load on the same factor, while tests that would logically be less related load on different factors.

In that sense a number of approaches was used for deciding on the number of factors (or rather components) to include (cf. Gorsuch, 1983, pp. 164-171). In the current work the author used three common approaches: Kaiser criterion; Scree plot, and Parallel analysis.

The Kaiser criterion is centered on the so-called eigenvalue which a given factor measures the variance in all the variables which is accounted for by that factor. As in factor analysis, eigenvalues are used to condense the variance in a correlation matrix, "the factor with the largest eigenvalue has the most variance and so on, down to factors with small or negative eigenvalues that are usually omitted from solutions" (Tabachnick and Fidell, 1996, p. 646).

As a widely accepted threshold (see for example Lance and Vandenberg, 2009) an eigenvalue of 1,00 or higher is recommended. The Total Variance Explained table outlines 4 components with sufficient loadings. Nonetheless, the other approaches used in the selection process can provide overriding reasons for selecting other numbers of factors (Gorsuch, 1983, pp. 164-171).

Table 1. Total Variance Exaplained

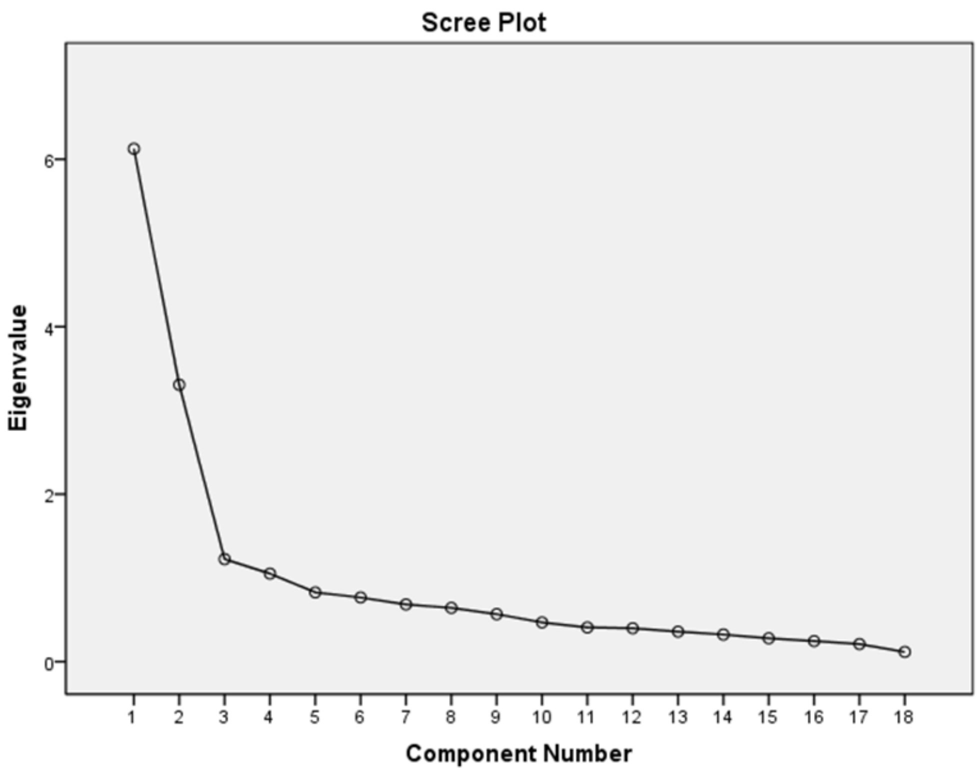
| Component | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | | Rotation Sums of Squared Loadings[a] |
|---|---|---|---|---|---|---|---|
| | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % | Total |
| 1 | 6,125 | 34,027 | 34,027 | 6,125 | 34,027 | 34,027 | 4,708 |
| 2 | 3,306 | 18,367 | 52,395 | 3,306 | 18,367 | 52,395 | 3,446 |
| 3 | 1,224 | 6,802 | 59,197 | 1,224 | 6,802 | 59,197 | 4,699 |
| 4 | 1,051 | 5,840 | 65,037 | 1,051 | 5,840 | 65,037 | 2,979 |
| 5 | ,827 | 4,595 | 69,632 | | | | |
| 6 | ,766 | 4,256 | 73,888 | | | | |
| 7 | ,683 | 3,796 | 77,684 | | | | |
| 8 | ,642 | 3,567 | 81,250 | | | | |
| 9 | ,567 | 3,149 | 84,400 | | | | |
| 10 | ,468 | 2,602 | 87,002 | | | | |
| 11 | ,409 | 2,271 | 89,273 | | | | |
| 12 | ,399 | 2,218 | 91,490 | | | | |
| 13 | ,358 | 1,990 | 93,481 | | | | |
| 14 | ,324 | 1,798 | 95,278 | | | | |
| 15 | ,279 | 1,549 | 96,827 | | | | |
| 16 | ,245 | 1,362 | 98,189 | | | | |
| 17 | ,210 | 1,167 | 99,356 | | | | |
| 18 | ,116 | ,644 | 100,000 | | | | |

Extraction Method: Principal Component Analysis.

a. When components are correlated, sums of squared loadings cannot be added to obtain a total variance.

The Scree Plot shows the proportion of variance for each principal component. The principal components are sorted in decreasing order of variance, so the most important principal component is always listed first. Generally, components on the 'steep slope' or before the 'elbow' are retained as the ones on the 'shallow slope' contribute little to the solution. Accordingly, the Scree Plot justifies the retention of only two components.

Figure 3: Scree Plot




As third approach a parallel analysis was conducted to systematically compare the obtained Eigenvalues of the sample data against a randomly generated set of Eigenvalues. Following the suggestions given by (Patil et al., 2007) components should be retain if the Eigenvalue from the sample data is greater than the one from the randomly generated data set. In this case the results from two independent parallel analysis – see appendix - suggest keeping the first two components.

Taking into consideration the different approaches of the principal components analysis two components were retained to grasp the connection between Organizational Learning and Organizational Performance, as suggested by the scree plot and the parallel analysis. This procedure seems to be in line with the commonly accepted scientific approach described by Abidi (2004 in Lewis-Beck et al., 2004): “In general, only a (small) subset of factors is kept for further consideration and the remaining factors are considered as either irrelevant or nonexistent (i.e., they are assumed to reflect measurement error or noise).”

3rd Step: The next stage of data interpretation is the factor rotation to determine the suitability of the before mentioned (2 component) solution. Most of the rationale for rotating factors was put forward by Thurstone (1947) who advocated its use because this procedure simplifies the factor structure and therefore makes its interpretation easier and more reliable (i.e., easier to replicate with different data samples). Going more into detail three parameters were scrutinized: Pattern Matrix, Total Variance Explained; Component Correlation Matrix.

Giving the components meaning: Systematically analyzing the Pattern Matrix (see appendix) for variables with loadings of 0.5 or higher on the respective component, the clustering unearthed the following components: ‘Development Readiness’ and ‘Dynamic Business Position’. For the given data set 52.395% of the total correlations are explained by the 2 components solution, as shown in the Total Variance Explained table above. The Component Correlation Matrix shows the strength in the relationships between the components. Despite the original hypothesis the Correlation Matrix shows a low correlation (0.137) between ‘Development Readiness’ as placeholder for Organizational Learning and ‘Dynamic Business Position’ as placeholder for Organizational Performance.

This preliminary analysis of the given dataset therefore suggests that OL and OP are not necessarily causally linked with each other, despite a vast amount of research supporting this connection. A meta-analysis - the author makes no claim to being complete - found that roughly 75% per cent (49 cases) of the examined scientific works over roughly the last two decades fully support the view that OL and OP are directly and positively linked to each other, whereas only 8% (5 cases) disagreed and 17% (11 cases) only partly agreed – see appendix.

To clarify the results from the factor analysis a partial multiple regression analysis was conducted for the partial model of OL. The outcomes suggest that the model – as derived above based on earlier research – does not depict a coherent concept given the table of excluded variables (see appendix).

The assumption of OL being coherent holistic concept therefore should be questioned. Nonetheless, the results support the hypothesis that single items of OL (e.g. Q20. “Making suggestions about internal improvements and innovations is common within your organization.”) significantly contribute to Organizational Performance (e.g. “The organizations business situation is better than sectoral average.”). Further analysis of the dataset, also using different analytical methods, is suggested to substantiate respectively explain this outcome in the light of previous findings.

**References**

Abidi, H., 2004. Factor Rotations in Factor Analyses.
Bachman, L.F., 1990. Fundamental considerations in language testing. Oxford University Press, Oxford.
Baker, W.E., Sinkula, J.M., 1999. The Synergistic Effect of Market Orientation and Learning Orientation on Organizational Performance. J. Acad. Mark. Sci. 27, 411–427. doi:10.1177/0092070399274002
Becker, B., Gerhart, B., 1996. THE IMPACT OF HUMAN RESOURCE MANAGEMENT ON ORGANIZATIONAL PERFORMANCE: PROGRESS AND PROSPECTS. Acad. Manage. J. 39, 779–801. doi:10.2307/256712
Black, T.R., 1999. Doing quantitative research in the social sciences: an integrated approach to research design, measurement and statistics. SAGE, London.
Bontis, N., 2002. Bontis, Nick, Crossan, M. and J. Hulland. (2002) "Managing an Organizational Learning System by Aligning Stocks and Flows", Journal of Management Studies, 39, 4. [WWW Document]. URL http://www.business.mcmaster.ca/mktg/nbontis/ic/publications/BontisJMS.pdf (accessed 9.4.12).
Bowling, A., 2009. Research methods in health. Open University Press, Maidenhead.
Bradburn, N.M., 2004. Asking questions: the definitive guide to questionnaire design--for market research, political polls, and social and health questionnaires, Rev. ed. ed. Jossey-Bass, San Francisco.
Brockman, B.K., Morgan, R.M., 2003. The Role of Existing Knowledge in New Product Innovativeness and Performance. Decis. Sci. 34, 385–419. doi:10.1111/1540-5915.02326
Brown, J.D., 1996. Testing in language programs. Prentice Hall Regents, Upper Saddle River, N.J.
Buch, S., 2007. Strukturgleichungsmodelle: ein einführender Überblick. ESCP-EAP Europäische Wirts chaftshochschule Berlin.
Burns, N., Grove, S.K., 1997. The Practice of Nursing Research Conduct, Critique, & Utilization. W.B. Saunders and Co., Philadelphia.
Calantone, R.J., Cavusgil, S.T., Zhao, Y., 2002. Learning orientation, firm innovation capability, and firm performance. Ind. Mark. Manag. 31, 515–524. doi:10.1016/S0019-8501(01)00203-6
Celik, N., 2014. THE TRANSITION FROM CLASSICAL ORGANIZATIONS TO LEARNING ORGANIZATION IN ACCOMMODATION BUSINESSES: THE CASE OF IN THE SERVICE SECTOR. Macrotheme Rev. 3, 88–98.
Chen, C., 2007. The effect of organizational change readiness on organizational learning and business management performance. Bus. Rev. Vol. 8, 68–74.
Chen, H.-C., Holton III, E.F., Bates, R., 2005. Development and validation of the learning transfer system inventory in Taiwan. Hum. Resour. Dev. Q. 16, 55–84. doi:10.1002/hrdq.1124
Chen, S.-H., Yang, C.-C., Shiau, J.-Y., 2006. The application of balanced scorecard in the performance evaluation of higher education. TQM Mag. 18, 190–205. doi:10.1108/09544780610647892
Choy, C.S., Yew, W.K., Lin, B., 2006. Criteria for measuring KM performance outcomes in organisations. Ind. Manag. Data Syst. 106, 917–936. doi:10.1108/02635570610688850
Comrey, A.L., Lee, H.B., 1992. A first course in factor analysis. Lawrence Erlbaum Associates, Hillsdale, NJ.
Dasgupta, M., 2012. Conceptual Paper: Organizational Learning and Its Practices. SAGE Open 2. doi:10.1177/2158244011432198
Davenport, Thomas H., David W. De Long, and Michael C. Beers, n.d. Successful knowledge management projects. Sloan Manage. Rev. 39.2, 43–57.

Delaney, J.T., Huselid, M.A., 1996. THE IMPACT OF HUMAN RESOURCE MANAGEMENT PRACTICES ON PERCEPTIONS OF ORGANIZATIONAL PERFORMANCE. Acad. Manage. J. 39, 949–969. doi:10.2307/256718
Duncan, R., Weiss, A., 1979. Organizational learning: implications for organizational design. Res. Organ. Behav. Vol. 1, 75–123.
Egan, T.M., Yang, B., Bartlett, K.R., 2004. The effects of organizational learning culture and job satisfaction on motivation to transfer learning and turnover intention. Hum. Resour. Dev. Q. 15, 279–301. doi:10.1002/hrdq.1104
Fernandes, B.H.R., Mills, J.F., Fleury, M.T.L., 2005. Resources that drive performance: an empirical investigation. Int. J. Product. Perform. Manag. 54, 340–354. doi:10.1108/17410400510604511
Fink, A. (Ed.), 2003. The survey kit, 2nd ed. ed. Sage Publications, Thousand Oaks, Calif.
Fiol, C.M., Lyles, M.A., 1985a. Organizational learning. Acad. Manage. Rev. Vol. 10, 803–813.
Fiol, C.M., Lyles, M.A., 1985b. Organizational learning. Acad. Manage. Rev. Vol. 10, 803–813.
Flores, L., Catalanello, R., Rau, D., Saxena, N., 2008. Organizational learning as a moderator of the effect of strategic planning on company performance. Int. J. Manag. Vol. 25, 569–77.
Galbreath, J., Galvin, P., 2006. Accounting for performance variation: how important are intangible resources? Int. J. Organ. Anal. 14, 150–170. doi:10.1108/10553180610742773
García-Morales, V.J., Jiménez-Barrionuevo, M.M., Gutiérrez-Gutiérrez, L., 2012. Transformational leadership influence on organizational performance through organizational learning and innovation. J. Bus. Res. 65, 1040–1050. doi:10.1016/j.jbusres.2011.03.005
García-Morales, V.J., Llorens-Montes, F.J., Verdú-Jover, A.J., 2006. Antecedents and consequences of organizational innovation and organizational learning in entrepreneurship. Ind. Manag. Data Syst. 106, 21–42. doi:10.1108/02635570610642940
Goh, S.C., 2001. THE LEARNING ORGANIZATION: AN EMPIRICAL TEST OF A NORMATIVE PERSPECTIVE. Int. J. Organ. Theory Behav. 4, 329–355. doi:10.1081/OTB-100105408
Goh, S.C., Elliott, C., Quon, T.K., 2012. The relationship between learning capability and organizational performance: A meta-analytic examination. Learn. Organ. 19, 92–108. doi:10.1108/09696471211201461
Gold, Andrew H., Arvind Malhotra, and Albert H. Segars, 2001. Knowledge management: An organizational capabilities perspective. J. Manag. Inf. Syst. 18.1, 185–214.
Gölzner, H., 2014. Analysemethoden.
Gomez-Mejia, L.R., 2010. Managing human resources, 6th ed. ed. Pearson/Prentice Hall, Upper Saddle River, N.J.
Gorsuch, R.L., 1983. Factor analysis, 2nd ed. ed. Lawrence Erlbaum Associates, Hillsdale, NJ.
Guest, D.E., 1997. Human resource management and performance: a review and research agenda. Int. J. Hum. Resour. Manag. 8, 263–276. doi:10.1080/095851997341630
Guest, D.E., Michie, J., Conway, N., Sheehan, M., 2003. Human Resource Management and Corporate Performance in the UK. Br. J. Ind. Relat. 41, 291–314. doi:10.1111/1467-8543.00273
Gupta, Ashok K., and Arvind Singhal, 1993. Managing Human-Resources for Innovation and Creativity. Res.-Technol. Manag. 41–48.
Gurbuz, S., Mert, I.S., 2011a. Impact of the strategic human resource management on organizational performance: evidence from Turkey. Int. J. Hum. Resour. Manag. 22, 1803–1822. doi:10.1080/09585192.2011.565669
Gurbuz, S., Mert, I.S., 2011b. Impact of the strategic human resource management on organizational performance: evidence from Turkey. Int. J. Hum. Resour. Manag. 22, 1803–1822. doi:10.1080/09585192.2011.565669

Hair, J., Anderson, R., Tatham, R., Black, W., 1995. Multivariate data analysis, 4th ed. ed. Prentice-Hall Inc., New Jersey.
Hammann, P., Erichson, B., 2000. Marktforschung, 4., überarbeitete und erweiterte Auflage. Lucius & Lucius, Stuttgart.
Hanvanich, S., 2006. The Relationship of Learning and Memory With Organizational Performance: The Moderating Role of Turbulence. J. Acad. Mark. Sci. 34, 600–612. doi:10.1177/0092070306287327
Hartog, D.N., Verburg, R.M., 2004. High performance work systems, organisational culture and firm effectiveness. Hum. Resour. Manag. J. 14, 55–78. doi:10.1111/j.1748-8583.2004.tb00112.x
Heeseok Lee and Byounggu Choi, 2003. Knowledge Management Enablers, Processes, and Organizational Performance: An Integrative View and Empirical Examination. J. Manag. Inf. Syst. Volume 20, pages 179–228.
Hoffman, J.J., Hoelscher, M.L., Sherif, K., 2005. Social capital, knowledge management, and sustained superior performance. J. Knowl. Manag. 9, 93–100. doi:10.1108/13673270510602791
Homburg, C., Giering, A., 1996. Konzeptualisierung und Operationalisierung komplexer Konstrukte: ein Leitfaden für die Marketingforschung. Mark. Z. Für Forsch. Prax. 5–24.
Homburg, C., Hildebrandt, L., 1998. "Die Kausalanalyse: Bestandsaufnahme, Entwicklungsrichtungen, Problemfelder." Die Kausalanalyse: Ein Instrument der empirischen betriebswirtschaftlichen Forschung. Stuttgart.
Hsu, Y.-L., Lee, C.-H., Chih, W.-H., Chiu, T.-Y., 2009. Organizational learning as an intervening variable in the life insurance industry. Bus. Rev. Vol. 12, 174–86.
Huber, G.P., 1991. Organizational Learning: The Contributing Processes and the Literatures. Organ. Sci. 2, 88–115. doi:10.1287/orsc.2.1.88
Hult, G.T.M., Ketchen, D.J., Nichols, E.L., 2003. Organizational learning as a strategic resource in supply management. J. Oper. Manag. 21, 541–556. doi:10.1016/j.jom.2003.02.001
Hung, R.Y.Y., Yang, B., Lien, B.Y.-H., McLean, G.N., Kuo, Y.-M., 2010. Dynamic capability: Impact of process alignment and organizational learning culture on performance. J. World Bus. 45, 285–294. doi:10.1016/j.jwb.2009.09.003
Huselid, M.A., 1995a. The Impact of Human Resource Management Practices on Turnover, Productivity, and Corporate Financial Performance. Acad. Manage. J. Vol. 38, pp. 635–672.
Huselid, M.A., 1995b. The Impact of Human Resource Management Practices on Turnover, Productivity, and Corporate Financial Performance. Acad. Manage. J. Vol. 38, pp. 635–672.
IBM SPSS Missing Values 20, 2011.
Institute For Digital Research and Education, 2014. Annotated SPSS Output: Factor Analysis [WWW Document]. URL http://www.ats.ucla.edu/stat/spss/output/factor1.htm (accessed 2.24.14).
Jashapara, A., 2003. Cognition, culture and competition: an empirical test of the learning organization. Learn. Organ. 10, 31–50. doi:10.1108/09696470310457487
Jiang, X., Li, Y., 2008. The relationship between organizational learning and firms' financial performance in strategic alliances: A contingency approach. J. World Bus. 43, 365–379. doi:10.1016/j.jwb.2007.11.003
Jiménez-Jimenez, D., Valle, R.S., Hernandez-Espallardo, M., 2008. Fostering innovation: The role of market orientation and organizational learning. Eur. J. Innov. Manag. 11, 389–412. doi:10.1108/14601060810889026
Jörgeskog, K.G., 1977. Factor analysis by least squares and maximum likelihood methods.
Ju, T.L., Chen, S.-H., Li, C.-Y., Lee, T.-S., 2005. A strategic contingency model for technology alliance. Ind. Manag. Data Syst. 105, 623–644. doi:10.1108/02635570510599995

Keskin, H., 2006. Market orientation, learning orientation, and innovation capabilities in SMEs: An extended model. Eur. J. Innov. Manag. 9, 396–417. doi:10.1108/14601060610707849
Khandekar, A., Sharma, A., 2006. Organizational learning and performance: Understanding Indian scenario in present global context. Educ. Train. 48, 682–692. doi:10.1108/00400910610710092
Kirby, J., 2005. Toward a theory of high performance. Harv. Bus. Rev. 83, 30–39, 190.
Kodjo, J., Changjun, D., 2009. HRM Practices and Organizational Performance: An Empirical Analysis. Int. J. Bus. Manag. 4.8, 117.
Kontoghiorghes, C., Awbre, S.M., Feurig, P.L., 2005. Examining the relationship between learning organization characteristics and change adaptation, innovation, and organizational performance. Hum. Resour. Dev. Q. 16, 185–212. doi:10.1002/hrdq.1133
Kuo, T.-H., 2011. How to improve organizational performance through learning and knowledge? Int. J. Manpow. 32, 581–603. doi:10.1108/01437721111158215
Lance, C.E., Vandenberg, R.J. (Eds.), 2009. Statistical and methodological myths and urban legends: doctrine, verity and fable in the organizational and social sciences. Routledge, New York.
Leavy, B., 1998. The Concept of Learning in the Strategy Field: Review and Outlook. Manag. Learn. 29, 447–466. doi:10.1177/1350507698294004
Lee, Les Tien-Shang, and Franco Gandolfi, n.d. A tertiary school organisation on the road to become a learning organisation. Int. J. Innov. Learn. 4.3, 290–307.
Lei, D., Slocum, J.W., Pitts, R., 1999. Designing organizations for competitive advantage: the power of unlearning and learning. Organ. Dyn. Vol. 37, 24–38.
Leon, R.D., 2011. Moving from Organizational Learning to Learning Organization.
Lewis-Beck, M.S., Bryman, A., Liao, T.F. (Eds.), 2004. The Sage encyclopedia of social science research methods. Sage, Thousand Oaks, Calif.
Likert, R., 1932. A technique for the measurement of attitudes. Archives of psychology.
Lin, C.-H., Peng, C.-H., Kao, D.T., 2008. The innovativeness effect of market orientation and learning orientation on business performance. Int. J. Manpow. 29, 752–772. doi:10.1108/01437720810919332
Lin, C.-Y., Kuo, T.-H., 2007. The mediate effect of learning and knowledge on organizational performance. Ind. Manag. Data Syst. 107, 1066–1083. doi:10.1108/02635570710816748
Lopez, S.P., 2006. Human Resource Management as a Determining Factor in Organizational Learning. Manag. Learn. 37, 215–239. doi:10.1177/1350507606063443
López, S.P., Peón, J.M.M., Ordás, C.J.V., 2005a. Organizational learning as a determining factor in business performance. Learn. Organ. 12, 227–245. doi:10.1108/09696470510592494
López, S.P., Peón, J.M.M., Ordás, C.J.V., 2005b. Organizational learning as a determining factor in business performance. Learn. Organ. 12, 227–245. doi:10.1108/09696470510592494
Mansour, N., Gara, E., Gaha, C., 2014. Getting inside the black box: HR practices and firm performance within the Tunisian financial services industry. Pers. Rev. 43, 490–514. doi:10.1108/PR-03-2013-0052
March, J.G., Sutton, R.I., 1997. Crossroads—Organizational Performance as a Dependent Variable. Organ. Sci. 8, 698–706. doi:10.1287/orsc.8.6.698
Marqués, D.P., Simón, F.J.G., 2006. The effect of knowledge management practices on firm performance. J. Knowl. Manag. 10, 143–156. doi:10.1108/13673270610670911
McLeod, S.A., 2008. Likert Scale.
Mills, A.M., Smith, T.A., 2011. Knowledge management and organizational performance: a decomposed view. J. Knowl. Manag. 15, 156–171. doi:10.1108/13673271111108756
Mottaleb, K.A., Sonobe, T., 2011. An Inquiry into the Rapid Growth of the Garment Industry in Bangladesh. Econ. Dev. Cult. Change 60, 67–89. doi:10.1086/661218

OECD, 1996. Working Party on Statistics, Knowledge-Based Industries. Organization for Economic cooperationa and Development (OECD), Paris.
Oppenheim, A.N., Oppenheim, A.N., 1992. Questionnaire design, interviewing, and attitude measurement. Continuum, London; New York.
Pablos, P.O. de, 2002. Knowledge management and organizational learning: typologies of knowledge strategies in the Spanish manufacturing industry from 1995 to 1999. J. Knowl. Manag. 6, 52–62. doi:10.1108/13673270210417691
Pai, J.-C., 2006. An empirical study of the relationship between knowledge sharing and IS/IT strategic planning (ISSP). Manag. Decis. 44, 105–122. doi:10.1108/00251740610641490
Palacios-Marques, D., Ribeiro-Soriano, D., Gil-Pechuan, I., 2011. The Effect of Learning-Based Distinctive Competencies on Firm Performance: A Study of Spanish Hospitality Firms. Cornell Hosp. Q. 52, 102–110. doi:10.1177/1938965510391654
Park, Y.K., Song, J.H., Yoon, S.W., Kim, J., 2014. Learning organization and innovative behavior: The mediating effect of work engagement. Eur. J. Train. Dev. 38, 75–94. doi:10.1108/EJTD-04-2013-0040
Patil, V.H., Surendra, N.S., Sanjay, M., Donavan, D.T., 2007. Parallel Analysis Engine [WWW Document]. URL http://smishra.faculty.ku.edu/parallelengine.htm (accessed 2.26.14).
Pedler, M., J. Burgoyne, and T. Boydell., 1991. The learning company: A strategy for sustainable growth.
Peler, M., Boydell, T., Burgoyne, J., 1989. Towards the Learning Company. Manag. Learn. 20, 1–8. doi:10.1177/135050768902000101
Prieto, I.M., Revilla, E., 2006. Assessing the Impact of Learning Capability on Business Performance: Empirical Evidence from Spain. Manag. Learn. 37, 499–522. doi:10.1177/1350507606070222
Reus, T.H., Liu, Y., 2004. Rhyme and Reason: Emotional Capability and the Performance of Knowledge-Intensive Work Groups. Hum. Perform. 17, 245–266. doi:10.1207/s15327043hup1702_6
Rhodes, J., Lok, P., Hung, R.Y.-Y., Fang, S.-C., 2008. An integrative model of organizational learning and social capital on effective knowledge transfer and perceived organizational performance. J. Workplace Learn. 20, 245–258. doi:10.1108/13665620810871105
Richard, P.J., Devinney, T.M., Yip, G.S., Johnson, G., 2009. Measuring Organizational Performance: Towards Methodological Best Practice. J. Manag. 35, 718–804. doi:10.1177/0149206308330560
Robbins, S.P., Coulter, M., 2002. Management, 7th Edition, chapter 20 - CONTROLLING FOR ORGANIZATIONAL PERFORMANCE. ed. Prentice Hall.
Rose, Raduan Che, Naresh Kumar, and Ong Gua Pak, 2009. The effect of organizational learning on organizational commitment, job satisfaction and work performance. J. Appl. Bus. Res. JABR 25.6.
Rowland, C., Hall, R., 2014. Management learning, performance and reward: theory and practice revisited. J. Manag. Dev. 33, 342–356. doi:10.1108/JMD-08-2012-0110
Ruiz-Mercader, J., Meroño-Cerdan, A.L., Sabater-Sánchez, R., 2006. Information technology and learning: Their relationship and impact on organisational performance in small businesses. Int. J. Inf. Manag. 26, 16–29. doi:10.1016/j.ijinfomgt.2005.10.003
Sach, R., 2013. The Impact of Feedback on the Motivation of Software Engineers. Open University, Milton Keynes.
Saunila, M., 2012. A conceptual framework for the measurement of innovation capability and its effects. Balt. J. Manag. 7, 355–375. doi:10.1108/17465261211272139
Schuler, R.S., Jackson, S.E., 1987. Linking Competitive Strategies with Human Resource Management Practices. Acad. Manag. Exec. 1, 207–219. doi:10.5465/AME.1987.4275740

Siems, F., 2003. Preiswahrnehmung von Dienstleistungen. Konzeptualisierung und Integration in das Relationship Marketing (Basler Schriften zum Marketing, 365 Seiten, Wiesbaden, zugl. Dissertation Universität Basel.). Wiesbaden.
Spicer, D.P., 2006. Organizational Learning in Smaller Manufacturing Firms. Int. Small Bus. J. 24, 133–158. doi:10.1177/0266242606061836
Tabachnick, B.G., Fidell, L.S., 1996. Using Multivariate Statistics. Pearson Education Inc., Boston, MA.
Tabachnick, B.G., Fidell, L.S., 2007. Using Multivariate Statistics. Pearson Education Inc., Boston, MA.
Theriou, G.N., Chatzoglou, P., 2014. The impact of best HRM practices on performance – identifying enabling factors. Empl. Relat. 36, 535–561. doi:10.1108/ER-02-2013-0025
Thurstone, L.L., 1947. Multiple factor analysis.
Tippins, M.J., Sohi, R.S., 2003. IT competency and firm performance: is organizational learning a missing link? Strateg. Manag. J. 24, 745–761. doi:10.1002/smj.337
Torres-Reyna, O., 2014. Getting Started in Factor Analysis [WWW Document]. URL http://dss.princeton.edu/training/Factor.pdf
Tseng, S.-M., Lee, P.-S., 2014. The effect of knowledge management capability and dynamic capability on organizational performance. J. Enterp. Inf. Manag. 27, 158–179. doi:10.1108/JEIM-05-2012-0025
University of Texas at Austin, 2014. Principal component analysis.
Vemić, J., 2007. EMPLOYEE TRAINING AND DEVELOPMENT AND THE LEARNING ORGANIZATION. Econ. Organ. 4, 209–216.
Wang, C.L., 2008. Entrepreneurial Orientation, Learning Orientation, and Firm Performance. Entrep. Theory Pract. 32, 635–657. doi:10.1111/j.1540-6520.2008.00246.x
Weldy, T.G., 2009. Learning organization and transfer: strategies for improving performance. Learn. Organ. 16, 58–68. doi:10.1108/09696470910927678
Wickramasinghe, Nilmini, n.d. Fostering knowledge assets in healthcare with the KMI model. Int. J. Manag. Enterp. Dev. 4.1, 52–65.
Wu, C., Fang, K., 2010. Improving project performance through organizational learning: an empirical study. Technol. Anal. Strateg. Manag. Vol. 22, 261–76.
Wu, F., Cavusgil, S.T., 2006. Organizational learning, commitment, and joint value creation in interfirm relationships. J. Bus. Res. 59, 81–89. doi:10.1016/j.jbusres.2005.03.005
Yang, B., Watkins, K.E., Marsick, V.J., 2004. The construct of the learning organization: Dimensions, measurement, and validation. Hum. Resour. Dev. Q. 15, 31–55. doi:10.1002/hrdq.1086
Zack, M., McKeen, J., Singh, S., 2009. Knowledge management and organizational performance: an exploratory analysis. J. Knowl. Manag. 13, 392–409. doi:10.1108/13673270910997088