

Context assessment as a basis for appropriate support of individual and organizational learning

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Abstract. Work-related learning is influenced not only by trainee characteristics, trainers and learning material but also by situational elements and the organisational context in which the learning takes place. Within the project PROLIX a first version of a learning assessment guideline (LAG) has been developed. It permits the analysis of those organisational domains identified as crucial for learning, knowledge transfer and didactic strategy. The attributes of specific didactic models have been related to the significant aspects of these organisational factors and permit conclusions to be drawn on the selection and application of didactic models based on the results of the LAG. The assumptions included in this correlation will be validated using empirical data. In addition, the results of the assessment will also be used to provide the respective management teams with decision support regarding suitable measures for improving the organisational environment with regard to learning and knowledge exchange.

Keywords: organizational learning, knowledge management, didactic models, situated learning, organizational context

1 Introduction

A number of different scientific disciplines occupy themselves with the topic of learning and knowledge exchange in organisations. The HRD, Training and Workplace Learning fields focus primarily on individual learning aimed at improving job performance. The Organisational Learning (OL) and Knowledge Management (KM) in general do not concentrate on such individual learning. Their main interest lies in the understanding and management of the collective capabilities of organisations enabled by organisational learning and knowledge. However, this is, in turn, also based on the systemic interaction and integration of individual learning and human resource capabilities. Consequently, although these two different (and extensive) areas of applied research are relatively distinct, they both nonetheless deal with topics which are strongly linked.

Placing the focus on the role of the organisation and the organisational context in both fields raises the following questions. In HRD: Can any organisational factors be identified which systematically influence the outcomes of individual learning? And in OL/KM: Is it possible to improve the outcomes of work-related learning and knowledge transfer in organisations using OL/KM.

2 Research questions and objectives

In the framework of the EU-funded project “Process-oriented Learning and Information Exchange” (PROLIX), the following research questions will be studied:

1. Which organisational domains can be regarded as critical success factors for the enablement of work-related learning and knowledge exchange within organisations?

A Model of Organisational Domains (MOD) will be developed to address this question.

2. Is it possible to support the design of a didactic strategy by an assessment of the status quo of crucial organisational domains?
The first version of an online assessment and decision support information for use in the definition of a didactic strategy will be provided and tested.

3. Can an assessment serve to identify appropriate management measures that will help it improve its ability for learning and knowledge transfer?
The first version of an online assessment and decision support information for management measures will be provided.

This subtask covers three outcomes in the PROLIX project:

1. An online survey targeted at the analysis of a specific organisation with regard to the circumstances required for successful implementation of process-oriented learning and knowledge transfer (LAG).
2. Information for training designers on the implications of organisational characteristics for the didactic design of learning activities (decision support for didactic strategy).
3. Information for management on suitable measures for improving the organisational environment with respect to learning and knowledge transfer (decision support for management measures).

3 The Impact of Organisational Characteristics on Individual Learning

Since the late 80s literature has become available which recognises not only the impact of the individual but also that of the organisation itself on individual learning processes and/or success. Several authors in the HRD field highlight the significance of the organisational context and have subsequently also addressed the aspects of learning outcomes and motivation (e.g. [2], [3]). Other publications and studies

analyse organisational factors affecting work-related learning (e.g. [4], [2], [5], [6], [7], [8]).

To study the transfer of knowledge and capabilities in organisations, one must first clarify the nature of such knowledge and capabilities. From a mechanistic point of view, they can be regarded as easily transferable commodities. However, research findings suggest that the use of data and information in organisations is dependent on the subjective interpretation of those individuals and groups who transform this input into actions and performance. Particular emphasis is given to this aspect in situated approaches to knowledge and learning (e.g. [9]). For this reason, it has been proposed that companies must seek to influence and support knowledge management capabilities in several different areas (e.g. leadership and company culture) by deploying and integrating available methods, instruments and technologies to provide a beneficial environment for the use and creation of knowledge and competencies. In doing so, organisations must also actively encourage and support participation [9]. Since individuals can be seen as operating both independently and interdependently, it is their socially-derived personal history, values and ways of knowing that mediate the way they participate and learn in social practice, e.g. in the workplace. They need to find meaning and value in the learning activities offered. Inconsistencies between workplace and employee values may lead to resistance. Different skills, abilities and ways of motivating employees to participate are required, for example, to attract the interest of and motivate reluctant participants. Opportunities to participate and receive support seem to be essential for achieving rich learning outcomes (see [3]).

Approaches like situated learning emphasise the social context of learning processes and regard knowledge as socially constructed ([9], see also the overview of learning theories in [10]). Work as such is recognized as a source of learning. Informal learning does not occur in the absence of action like formal training but in the presence of both action and reflection.

Consequently, a shift from training to learning can be observed in the field of HRD [1]. "Learning arrangements closely linked to the workplace are at the center of attention, for example, mentoring, self-study, learning-by-doing, intercollegiate consultation, special work assignments, reflection-in-action, work-related learning projects, coaching, and work experiments" ([11] quoted in [1]).

A working situation's potential to provide a supportive learning environment depends very much on the way work is organised and on the work processes ([12], p. 160). Consequently, the complete working and learning context must be analysed: "...if we are to further our understanding of the process of workplace learning then we must move beyond a narrow focus on the process of interaction in the immediate workplace that has characterized recent research." [12], p. 160.

4 Model of Organisational Dimensions (MOD)

On the basis of the literature survey and analysis, a Model of Organisational Dimensions (MOD) is proposed that has a major impact on process-oriented learning and knowledge transfer. The model aims to integrate three different perspectives on learning within organisations: HRD, OL/KM and Activity Theory.

4.1 Perspectives on Learning within Organisations

The success of instruments and methods aimed at fostering organisational learning and the development of an organisational knowledge base is influenced by both the characteristics of the organisation in question and the habits of its employees. Within the OL/KM discourse, a variety of structuring frameworks have been developed and several models and assessment methods proposed which are relevant for the analysis of organisations (e.g. [16]).

Knowledge transfer constitutes a very important objective of OL/KM. For this reason, these approaches were both regarded relevant for the definition of the LAG and its outcomes. Some of these different models are discussed in [17] and used for the development of a model of organisational dimensions.

Activity theory focuses on the interaction between human activity and consciousness within the relevant environmental context. It provides a framework for analysing learning needs, tasks and outcomes within organisations. The socio-cultural, socio-historical lens of activity theory helps managers and learning designers to analyse human activity systems. One fundamental assumption in this approach is the notion that conscious learning emerges from, not prior to, activity [13].

4.2 MOD and Activity Systems

This MOD covers the following dimensions, pictured in the rectangles in Fig. 1 (see also [17]):

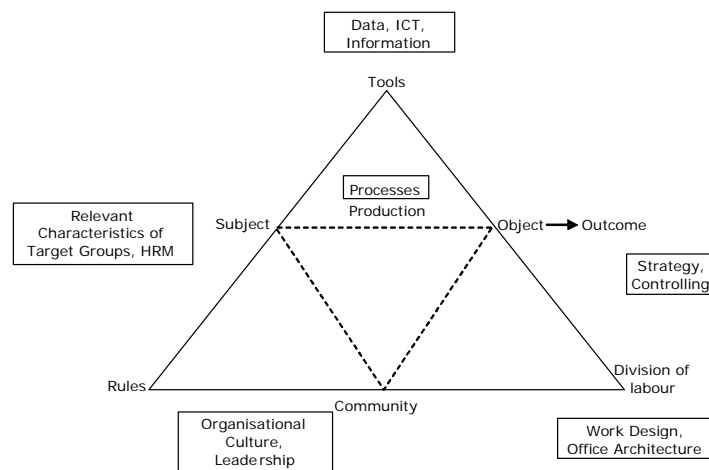


Fig. 1. Model of the organisational dimensions relevant for learning and knowledge transfer within an activity system (MOD) (adaption of [14], p. 135)

As shown in Fig. 1 an activity system can be visualized in the shape of a triangle (see [14], p. 135). These dimensions (subject, tools, object, etc.) have been related to

corresponding factors (characteristics, data, strategy, etc.) in the structure of a human activity system. The relevant characteristics of the target groups and users relate to the subject, i.e. an individual or group engaged in the activity. Data, information and ICTs have been attached to the tools which mediate between the subject and the object, i.e. the physical or mental product. Organisational culture includes common espoused values and basic underlying assumptions. Leadership has the potential to influence organisational culture to certain extent. The community, on the other hand, shares a common set of rules. For this reason, the organisational culture and leadership factors have been clustered with rules and community. Work design and office architecture are connected to task specialization and division of labour. The organisational functions of strategy definition/implementation and controlling have been added to the outcome of the activity, because they focus on the targets and verification of the results of the activities in line with strategy.

5 Learning Assessment Guideline

The design and evaluation of the LAG in the test environments consists of two empirical phases. The first phase, face-to-face and written interviews, has gathered crucial information relevant for the implementation of process-oriented learning with a focus on a management perspective. The second phase, an online survey, aims at gathering the employee perspective on workplace learning.

After a large pool of items in the LAG has been developed and applied to a large sample of subjects, several data analysis procedures are planned. In a first step, initial plausibility checks will be carried out on descriptive values to determine any data import/export errors and other technical problems during testing. Also included in this data cleaning process will be missing values management procedures, the recovery of missing values and the recoding of reverse scored items.

In the refinement stage for the large item pool, the emphasis will lie on detecting the weakest items, in particular those with very low or very high mean scores or low variation in the responses, since these will not offer sufficient information. A further selection criterion will be the extent to which responses to items are related to their thematic group.

One objective in the construction of the LAG is to generate consistent groups of items with an underlying structure, i.e. which technically belong to the same dimension or scale. The uni-dimensionality of a scale and the existence of sub-dimensions within a particular scale will be checked using a Principal Components Analysis (PCA, i.e. PROMAX), a statistical analysis method of deriving scales from relations in the data. To check the internal consistency of the scales, Cronbach's alpha coefficients will be computed.

This process should provide appropriate and salient items based on good test statistics. If the item pool becomes too small or essential topics are missing, new items will have to be developed or the wording of the rejected items changed. These changes will be examined using the procedures described above.

6 Decision Support

There is a lack of research on the correlation of organisational characteristics and suitable didactic measures. Based on the literature survey and analysis, a number of factors have been identified which appear to be linked to this issue. Through the empirical work carried out in the PROLIX project, data will be collected from the individual test bed organisations and should serve as the basis for verification of our assumptions.

6.1 Decision Support for Didactic Strategies

In accordance with the literature analysis, the following organisational aspects can be identified as relevant for the definition of a didactic strategy: ICT skills, peer support, supervisor support, workload¹, feedback, goal orientation, learning culture, and work processes (ability and authorisation to self-organise the work required).

The following have been defined for each of these organisational factors:

- Occurrences which support or do not support learning
- Potential challenges faced by the use of specific didactic models and underlying assumptions
- Potential benefits of using appropriate didactic models and related assumptions.

Based on the assumptions which had to be made, an attribute can be defined for each individual organisational factor. These attributes can be summarised as follows. ICT skills are relevant for e-learning and blended learning. Helpful peer support increases the motivation for collaborative learning. Supervisor support can increase the willingness of employees to participate in learning processes which require high levels of motivation and personal involvement. A very heavy workload obstructs self-organised learning. Employees should be familiar with providing and receiving feedback if required by the didactic models. A mastery goal orientation favours collaborative learning processes. A strong learning culture supports collaborative learning. A high degree of standardisation implies less familiarity on the part of the workforce with self-organised learning. These attributes can be summarised in list form as follows:

- Required usage of ICT (e-learning / blended learning)
- Collaboration
- Self-organisation
- Feedback.

Following the description of didactic models listed in deliverable 4.2 of the PROLIX project (University of Vienna, see also [10]), it is expected to be possible to search for these attributes to establish a connection between the organisational status quo and the selection of didactic models.

¹ Since this could not be assigned in the list of didactic models it is not taken into account in the following tables.

It should, however, also be noted that learning design rules in general should be understood in a probabilistic and not in a deterministic sense. “Applying a rule does not guarantee that we reach the desired outcome, but it does increase the probability that we will.” ([18], p. 5). This also applies to the proposed decision support information.

6.2 Decision Support for Management Measures

There are close links between individual learning and OL/KM and for this reason it is proposed to provide decision support for management measures based on both HRD and OL/KM and directed by the outcomes of the LAG.

OL/KM literature provides a rich portfolio of instruments and methods for interventions in organisations (e.g. [15]) HRD also provides valuable inputs for organisational measures (e.g. [4], p. 621). This allows the precise proposal of management measures as a consequence of specific deficiencies identified by the LAG.

The assessment results enable the provision of decision support for the respective management team. In line with the most significant areas identified which require improvement, appropriate measures and instruments can be proposed for a specific organisation.

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