

NARRATIVE AND EVENT ANALYSIS IN ORGANIZATIONAL LEARNING AND CHANGE; THE CASE OF THE DYNEMICS PROJECT

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ABSTRACT

The purpose of the presentation is to outline and discuss methods for narrative and event analysis within the framework of learning and change in complex systems. The DynEmics project is used as the context for the discussion. The aim of DynEmics is to isolate the factors that influence learning and change, and shape the direction of corporate environmental management practice. The paper indicates how a combination of methods will be used in the trying to unravel the dynamic aspects of environmental management. This paper describes the reasons for using event and narrative analysis and focuses on the links between events and narratives. This means to understand the actor's interpretation of who and what mattered in the event, and to analyse the events within the framework of the theoretical notions on learning and change in complex systems (cf. Roome and Dieleman, 1998 and 1999). The paper proposes a new combination of the usage of stories (story mapping) and explains how this new method will be applied in the empirical work in the DynEmics project.

The authors hope to stimulate a discussion on two levels: methodology and epistemology. At the methodological level the key question concerns the potentials of the methods described. At the epistemological level, the key question concerns the way that the approach can result in a better understanding of the dynamics of learning and change in complex systems.

Key words: environmental management, learning and change, narrative analysis, events analysis

1. INTRODUCTION

The DynEmics project must be understood in the context of the history of environmental management research. An emerging body of knowledge on business environmental management has developed in the past ten years. To a large extent this has focused on the development of tools to enable companies to understand their environmental impacts and to implement environmental management procedures (it includes - techniques, methods, manuals and systems). Moreover, until recently, conceptualisations of environmental management in business have made little use of the theoretical insights from traditional

management and organization theory. The research that has been undertaken has been mainly explorative, prescriptive or normative and relatively static in orientation. Research on the emergence of environmental responsibility in business enterprises remains relatively scant (Post and Altman, 1994).

The integration of environmental issues in organizational processes and strategies has mainly been described by through the use of stage or phase models. These models are generally quite static and place companies in one of a number of alternate stages relative to other companies. Existing models therefore give little insight into the processes of change that take place within enterprises, or, the mechanisms that influence and bring about change. Furthermore, existing models have different descriptive vocabularies and few models have been empirically tested.

The understanding of the relationship between the processes of change internal to companies and the influence of external stakeholders is not well developed. To date the influence of external stakeholders on organizational change and dynamics of environmental management has been addressed in rather general terms. In addition to the traditional pressures on companies from regulators, legislation and neighbours, there is increasing pressure in domestic and international markets, supply chains, industrial networks and trade associations. The way these pressures are interpreted by (different parts of) an organization and how this affects decision making has rarely been analysed in a comprehensive way.

The aim of the DynEmics program is to deepen the theoretical foundation on which environmental management is based. The program will build on the existing body of knowledge in order to develop empirically grounded explanations of the dynamic aspects of environmental management practice.

The overall research issue addressed by the program is:

"How and why does the process of corporate environmental management practice develop over time in relation to the interaction of drivers, forces and actors within and around companies? How does this contribute to theories about organizations, institutions, strategic management, marketing, and how can this be understood within the framework of a meta-theory on organizational learning in complex systems?"

To develop an improved understanding of these processes and the role and interaction of actors the program is built around four linked research projects (see section 6 of this paper). In developing the program methodology attention is given to several key elements:

1. Project-specific methodologies and research frameworks

The different research projects all have first of all their own project specific research methods (qualitative and quantitative) through which they will collect project specific data. Secondly each project collects data that are relevant on the program level and will be distributed among the groups and for the purpose of analysis in a meta-project.

2. Business Panel

A business panel is developed that represents environmental management practice in industry. The members of this panel are involved in advising on the research and

periodically report on their performance, actions and decisions. Contributions from the panel are used as an input to the different research projects. Fieldwork is conducted within the companies with members of the panel.

3. Cross-project case studies

Several joint and cross-project case studies will be developed. These case studies focus on a number of companies that will participate in the business panel and will present an analysis of the companies, based on the different perspectives each research group has been applying. Each case study will focus on the similarities and differences that have been found in using different theoretical angles. These differences and similarities will be analysed in the context of the meta-theory.

4. Meta-project

A methodology is developed with the aim to conduct a project that overarches the four different projects. The aim of the meta-project is to develop a meta-theoretical approach on learning and change in complex networks, and to develop a methodology for empirical analysis based on event analysis and narrative analysis. This paper describes the methodology that is developed within the framework of the meta-project.

2 WHY EVENT ANALYSIS AND NARRATIVE ANALYSIS?

The choice for event analysis and narrative analysis is based on the epistemological and ontological starting points of the DynEmics project. The starting point is first of all the notion of organizational learning in complex systems. Complex systems theory departs from the position that all systems are constituted of subsystems and are in relationship with each other. The theory enables to investigate the way different subsystems (organizational structures, legislative requirements, marketing, external environment) are simultaneously influenced by the working of all systems with which they are in a dynamic environment. Studying the complex interrelationships enables to understand the nature of change, the feedback mechanisms that take place in every step of the learning process and the dynamics in change processes. The project conceives environmental management as a complex system of interrelationships among various highly emergent and very fluid subsystems of thought and practice.

A second starting point and key ontological assumption of the project is the assumption that reality exists in the form of multiple mental constructions. Humans are seen “as symbolic actors”, interpreting their surroundings and modifying their actions according to the way reality is meaningful to them.

These assumptions give rise to the need to understand the pattern and nature of this perceived reality as a way to understand how individuals relate to their surroundings. Organizational behaviour takes place in a web of fragmented and multiple contexts and unfolds itself through a multitude of kaleidoscopic movements. The challenge for the project is first of all linking the individuals to the organization (as context) and understanding how individuals and organizations co-produce social realities that support learning. It is emphasised that the notion of complex systems implies that the concern is not with causal relationships but to identify the combination(s) of factors that serve as antecedents or inputs to learning and change. The project will explore the views and

thoughts of the people involved in the research. Through “story-telling” and presentation or argumentation, the dynamic aspect of the processes under investigation will be revealed.

Three aspects are specifically of importance: the aspects of time, space and (in-) visibility. Events in organizations, in terms of happenings that are essential in understanding developments and change, are not necessarily well-bounded events in terms of time and place or visibility. They may occur in different parts of an organization, though movements should be linked and looked upon as one event. They may take place within the heads of people (invisible) or in terms of observable movements and actions, but again a combination of those two may very well be possible too. According to Foucault, approaching this highly complex reality by using well established traditional observation and data gathering techniques is like leading a life of a medieval peasant among modern city folks (Foucault, 1980). In other words, the traditional scientific techniques simply fall short in observing reality, seen as a complex and multiple mental construction.

Methods have been developed to analyse reality, taking the above mentioned epistemological and ontological assumptions as a starting point. These methods rely on narratives and stories, and aim to understand events within their narrative contexts. The challenge of these methods is to (de-) construct or (de-) code stories in such a way that the interpretation of reality of the story-teller, and his or her interpretation of the events and the change that is related to those events, can be understood.

3 THE RELATIONSHIPS BETWEEN EVENTS AND NARRATIVES: THE PLOT

Methods of events analysis and narrative analysis date back to the nineteen sixties and are based upon two important traditions, first of all the use in literature and secondly the use in phenomenology. During the sixties, analyses were mainly structuralist analysis. The ambition was to tell grand stories and to compete with previous grand stories. The use of the narrative was rather limited and mostly used within literature (Czarniawska, 1997). This changed at the end of the nineteen seventies with the introduction of poststructuralist and post-modern approaches to narrative analysis. The article of Brown "The Position of Narrative in Contemporary Society" of 1980 is one of the oldest publications on the use of narratives in social science.

One of the first attempts to extend the use of narrative analysis beyond literature was by Alasdair McIntyre (1990). According to McIntyre, social life itself is a narrative. When we describe our experiences we never restrict ourselves to behaviouristic observation. In stead we describe our experiences in terms of behaviour, actions and interpretations of actions and behaviour in terms of intentions, causes and effects. It is the description, and the links within the description, which give meaning to the story and to social life. According to McIntyre, we cannot describe our experiences in terms of sensory descriptions because we would be confronted with an uninterpretable world (McIntyre, 1990). Schütz, working in a phenomenological tradition, has stated very comparable starting points. According to him, we cannot understand human behaviour if we ignore its intentions, and we cannot understand intentions if we ignore the settings (Schütz, 1973). Reality must be "unpacked" to reveal several substatements that in fact it entails. In this unpacking, we must take the complex reality with the aspects of time, space and (in-) visibility in consideration, as well

as the aspects of multiple metal models that are always to be found. A narrative is suited to do that.

The structure of a narrative is in fact rather simple. The key is the idea of "story" and "storytelling", but the narrative is more precise than just a story. In general terms, a narrative requires three elements:

- first an original state of affairs,
- secondly an event and
- thirdly the consequent state of affairs

Event analysis and narrative analysis are therefor closely linked to each other. In fact, the position chosen here is to look at events within the context of narratives. An event is at the centre of a narrative or, a narrative in its basic form requires an event (see Czaniawska. 1998).

The key aspect to a narrative is the plot. The plot is the way in which the different elements of the narrative are being brought together, in such a way that the narrative makes sense. The easiest way of bringing a plot into a narrative is to add chronology, that is, to order the elements in a certain time frame. What is essential in a narrative is the fact that the plot of a narrative is always **"PUT"** there. This is a key issue and as such a narrative distinguishes itself from traditional scientific techniques, where a plot (or sequence of happenings, the "logic" of events) is projected or presented as being **"found"** in the events, rather than being put there by narrative techniques. Related to that is the fact that we have a tendency to turn chronology (and then, ..then) into causality (as a result....). Sequences appear to be "found" and appear to have a logical order. Both aspects however are fruits of our interpretation of reality, in stead of objective descriptions of reality. Narrative analysis and event analysis take this as an explicit starting point and build upon the fact that this is a necessary starting point.

4 THE LOGO-SCIENTIFIC AND NARRATIVE MODE OF KNOWING

Narrative analysis is rooted in non-scientific methodology and uses non-scientific (or experimental scientific) techniques. An important issue here is the difference between a logo-scientific mode of knowing ("explanation") and a narrative mode of knowing ("understanding") (Bruner, 1990). Explanation is rooted in the logo-scientific mode of knowing. An explanation is achieved by recognising an event as an instant of a general law or as belonging to a certain category. For instance, we take a company with a major problem in water pollution. The company assesses several solutions to tackle this problem and decides to invest in a water purification system. The company chooses not to invest in cleaner technology. If we want to explain this choice, the following explanation is plausible. First of all, the investment is putting a major constraint on the financial situation of the company. Secondly, law does not prescribe the use of cleaner technology. Investments are not mandatory. Therefor, and "ergo", the company does not invest. This explanation fits into general theories and understanding of company behaviour and is easily explained by referring to general "laws" on economic behaviour (in terms of profit maximising or optimising). In an interview with company representatives, this explanation could be confirmed.

The narrative has the following simple structure:

- the company faces a major problem in water pollution
- the company assesses options and invests in a water purification system
- the company is capable of controlling its major problem in water pollution

The explanation however is not based on the specific complex characteristics of the company involved, but on general assumptions of company behaviour in certain circumstances and on the fact that the specific "behaviour" of the company fits within the general category of behaviour alternatives. Because of that, certain intentions are ascribed to the behaviour of the company. This is not contested, as the option that the company chooses, makes sense from a point of view of traditional economic theory.

Within the narrative mode of knowing, understanding is achieved by integrating an event into a plot, by which it becomes understandable in relation to the context of what has happened. According to Polkinghorne (1987), narratives exhibit an explanation in stead of demonstrating it. The event "this company invests in a water purification and system does not invest in cleaner technology" can be described and understood as follows. The company has no prior experience with cleaner technology. Therefore, it is reluctant to invest in such type of technology. As environmental legislation does not prescribe the use of such technology, there is no immediate need to invest. The environmental manager of the company prefers to invest in a new water purification system. He is trained in operating these systems and is confident that such a system will enable the company to control its major waste stream. Moreover, by investing in a water purification system he ensures his position as environmental technologist. Environmental consultants that the company uses to work with, confirm this opinion and raise some question marks with respect to the use of cleaner, in-process technology to tackle the specific problems at hand. The company assesses that the investment in a water purification system, even though it is a major one with substantial financial consequences, is to be preferred. It will solve the companies' key environmental dispute with the legislative authority.

The narrative still has the same simple structure:

- the company faces a major problem in water pollution
- the company assesses options and invests in a water purification system
- the company is capable of controlling its major problem in water pollution

The difference however lies in the description of the plot. The plot of the second narrative is first of all much richer. It takes several dimensions into consideration. It looks at the prior experience of the company, the training of the key actors involved, the interaction of the company with some of the stakeholders that play an essential role, regulatory requirements and the preference and estimations of the environmental manager as the key actor. Secondly the plot is not written in such a way that it assumes logic or causality. It may very well be that the environmental manager was aiming for an investment in a water purification system from the beginning. The information that he received from different sources may very well have served as a justification of a choice that he wanted to make anyway, in stead of leading him towards that choice.

A key question remains whether the plot is to be accepted as a mode of knowing. The strength of a narrative lies in the perceived coherence of the dimensions of the story and the sequence of the events, rather than in the falsity or truth of the story elements. In that sense the plot determines the power of the narrative. The acceptance of a narrative and its interpretation (fact or fiction) is situationally negotiated or, rather, arrived at.

The traditional view is that science should keep to facts and logic, leaving stories and narratives to literature, this being a sediment of pre-modern times and oral societies. This traditional view however is limited. McCloskey (1990) points out that, contrary to the perceived practice of science, the sciences can be said to use a tetrad of rhetorical figures such as stories, metaphors, statements, lists and formal logic. Czaniawska. (1998) adds that experimental writers and artists like Borges, Cortazar and Escher play with formal logic such as linguistic and visual paradoxes. On the other hand, social science seldom uses formal logic, because logic is used in the sense of syntactic rules.

As a consequence we argue that the use of narratives is very interesting as they potentially enable to understand developments in complex systems, respecting the multiple mental nature of reality.

5 NARRATIVES IN ORGANIZATIONAL RESEARCH

According to McClosky (1986) economics is full of stories and metaphors and this is also how it should be: metaphors condense stories and stories examine metaphors. "Stories criticize metaphors and metaphors criticize stories" (McClosky, 1990). Stories and metaphors however have different tasks to accomplish (see figure 1). A narrative is a mode of association, of putting different things together (and, and, and), whereas metaphors are ways of substitution (or,or,or). Alternatives to a narrative are tables, lists and categories. Alternative to a metaphoric mode of substitution is, are labels and idealtypes. Through labeling of objects and phenomena, and by means of characterising them with metaphors, they are characterised and given a proper name (cf. Latour, 1988 and Czaniawska, 1997).

	way of association and categorisation in organizational research: "and, and"	way of substitution and characterisation in organizational research: "or, or"
In logo-scientific mode of knowing	tables, lists and categories	labels, idealtypes
In narrative mode of knowing	stories	metaphors

Figure 1: ways of describing and analysing in organizational research

The use of narratives in organization studies can be found in different forms. Within the realm of the narrative, Czaniawska (1997 and 1998) distinguished among "tales of the

field" and "tales from the field". We will add to these two categories two new categories, one being "the field as a tale" and the other "tales as the field".

5.1 Tales of the field (story collecting)

Tales of the field can be described as a narrative form of organizational research that collects organizational stories. This approach can be found in many case studies such as research case studies, educational case studies and fictive cases. These cases all use chronology as the main organizational device. Early records of narratives of the field, collected in the field, can be found in the work of Clark (1972), Mitroff and Kilmann (1975)

Collecting narratives can serve several objectives and is important, due to several reasons. The importance is related to the idea that organizational narratives are an important mode of knowing and communicating in organizations. According to Weick (1995), much of organizational life is spent reading and listening to stories already made and interpreting them within a set of already existing rules and schemes. Weick calls this sensemaking, a process of constructing plausibility and coherence in reality. In this view, stories are an important tool in day-to-day knowledge and understanding. Stories have the attribute that they simplify the world and are therefore useful as guides for action. Collecting stories give the opportunity to gain an inside-in view on what happens in an organization. At the same time these stories can serve to gain insight in the variety of mental models and definitions of reality that exist within an organization. By means of asking several people to tell the story behind a certain event, the diversity in perspectives and mental models can be made explicit. At the same time stories are useful for research as they do simplify reality (and therefore make understanding and analysis easier), but not to the extent that formal models, normally used in genuine science, do simplify reality.

5.2 Tales from the field (story writing)

Tales from the field can be described as a narrative form of organizational research that is written in a storylike fashion. Writing stories give the opportunity to gain an outside-in view on what happens in an organization. The early use of narratives often assumed that organizational narratives can be treated as artefacts and as the organizational reality that is "out there", waiting "to be collected". The use of narratives is then implicitly or explicitly linked to a logo-scientific mode of knowing, assuming that through proper observation or interviewing (or in a more generic sense: data collection) the reality can be described, understood and explained. Gradually it was more and more acknowledged that in collecting stories, the collector made an interpretation of the organizational reality. In that way a researcher contributes to the process of storytelling as a means of constructing meaning in organizational realities.

These forms can complement, illustrate and scrutinise the logo-scientific forms of reporting. It is in this way that "putting a plot" in a narrative instead of "finding a plot" must be understood. The researcher must however render account of the fact that he or she constructed the story, rather than simply write down what the "empirical reality" unfolded to him or her. In order to do that it is necessary to establish the provenience of the story. A number of questions need to be raised and answered: Is this a story that is rooted in stories told in the field? If so, in which situation is the story told? If so, does it contain quoted

formulations and from who? If not, why is the story constructed as it is and how is the plot developed?

The stories can have multiple functions. They can be used as means of communication, towards the organizations studied as well as to the scientific community and the business community. They also function as vehicles to understand and apprehend the complexity of organizational life. As such the stories can be looked upon as sensemaking, and as constructions that provide plausibility and coherence to the organizational reality. Czaniawska (1998) strongly advocates this use of the story. According to her, narrative forms of reporting will enrich organizational studies.

5.3 The field as a tale (story reading)

The field as a tale can be described as a narrative form of organizational research that interprets and conceptualises existing organizational stories (in the form of tales of and tales from the field). Organizational theory becomes in this approach a form of story reading. Story reading is especially relevant following Weick's assumption that learning and interaction, as well as acculturation, takes place through stories. Reading, and consequently analysing and interpreting stories is a way of understanding learning and change. In this approach, organizational narratives, as the main mode of knowing and communicating in organizations, are an important focus for organizational researchers.

The key to story reading is to do an analysis that enables researchers to interpret the story in the context of a specified theory, model or theoretical framework. Reading stories result in an outside-out view on what happens in an organization. It is carried out by people outside the organization with the aim to contribute to an objective outside the organization: linking the story to theory with the aim of gaining theoretical understanding. The plot, the sequence of events, can enable the researcher to link the development around a certain events to specific variables, aspects or dimensions. If for instance a theory on learning is used and a researcher wants to assess what types of learning took place within the organization, the researcher should compare the narrative with the theoretical framework developed. In case the interest focuses on types of learning such as single loop learning, double loop learning, learning by doing or learning by interacting, a researcher will have to assign specific variables, aspects or dimensions to these types of learning, and analyse the story within the framework of these variables.

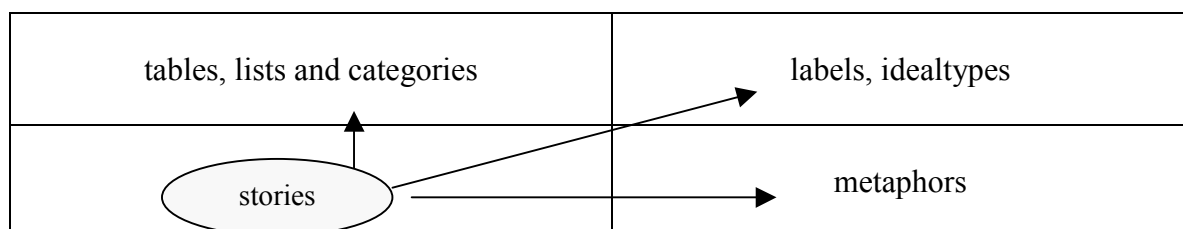


figure 2: the links between stories, tables, labels and metaphors.

Notice that stories can contribute to theoretical understanding that is rooted in a logoscience mode of knowing, as well as to theoretical understanding within a narrative mode

of knowing (see figure 2). It is in this particular sense that stories can complement, illustrate and scrutinise a logo-scientific forms of reporting.

5.4 Tales as the field (story mapping)

Story mapping can be described as a narrative form of organizational research that aims at comparing narratives with the intent to stimulate feedback and reflection within a context of learning and change. This feedback can be shaped in different formats.

Different storytellers can be confronted with their own story. This may be a reason for reflection. Reflection may result in an alternative understanding of the sequence of events by the storyteller. This mapping can take place among various storytellers of the field and among storytellers of the field (inside-in perspective), storytellers from the field (outside-in perspective) and story reader (outside-out perspective). We expect that narratives have an even much higher potential for learning and change when:

- narratives of various storytellers, and
 - various types of narratives (tales of and tales from the field),
- are compared with each other in an explicit context of feedback and reflection.

Narratives can first contribute to an understanding of the multiple mental character of reality through comparing various mental models or definitions of reality of storytellers. Secondly narratives can "grasp" the system characteristics of reality and contribute to a better understanding of the complexity of concrete events in day-to-day settings. Finally, narratives can contribute to understand reality in the context of specific theories and models.

6 THE USE OF EVENT AND NARRATIVE ANALYSIS IN DYNEMICS

Within DynEmics all four types of narrative analysis are used. A combination of story collecting, story writing and story reading will lead towards story mapping in a series of interactive sessions among the organizations and the researchers involved. Story collecting is used to gain an inside-in perspective on what is happening in the company. Story writing is used to gain an outside-in perspective on what has happened in the company. Story reading has the aim of confronting the narratives with theories on learning and change whereas story mapping aims at an exchange of views among the divers actors around the events that is described in the narrative. This comes down to 1 central actor in the company and up to 5 key actors around the central one, either within or outside the company. Additionally it involves a researcher from one of the thematic DynEmics research groups and the DynEmics researcher in charge with the meta-project.

In and around 4 different companies, 7 narratives are "written", leading towards a total of 28:

- 1 narrative is "written" by the central actor in a company;
- 5 narratives are "written" by key actors (within or outside the company) around the central one;
- 1 narrative is "written" by a researcher from one of the thematic DynEmics research groups;

In addition to that, the narratives will be analysed within the context of learning and change. The word "writing" does not necessarily mean that the respondents have to actually "write" themselves in terms of using pencils and keyboards. The writing can take place in terms of real story "telling". The researcher will then tape the words of the respondent.

The narratives will be build up around “events” that will all concern an environmental management related activity. This can be for example the introduction of a product with environmental attributes, the establishment of an environmental policy and management system, change in environmental training, a community oriented environment program, the introduction of pollution control equipment or the participation in an industry-regulator compact.

6.1 The structure of the narrative

An important issue is the question to what extent a storyteller is left totally free to tell his or her story. In DynEmics a certain structuring of the narrative is looked for. This is related to the need to compare the various narratives and to analyse them within the context of learning and change. Knowing that the plot is the key to sensemaking in a narrative, and that the plot exhibits the way a storyteller sees his or her reality, it is acceptable to structure the narrative, provided that the way the plot is written is left to the storyteller. The structuring of the narrative reflects the earlier work carried out in the meta-theory (cf. Roome and Dieleman, 1998 and 1999).

A standard format of a narrative is constructed (see figure 2), around a number of key aspects like "the plot" or "event story", an "information and idea map" and a "network map". Based on these maps, a description of the organizational space and the environmental and physical space will be constructed.

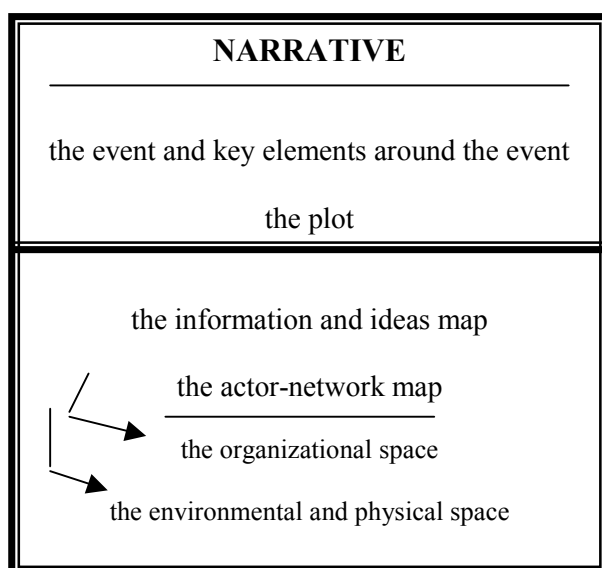


Figure 3: the structure of a narrative

The respondent are handed over a card with the list of the key aspects that we want him or her to address. This guides this process of constructing the plot. The actors are asked to write the story, addressing specific "what, who, where, when and how" questions:

- "what happened"; "what were the key stages", "what were the major events and happenings", "what processes and activities were involved", "what responses were made"
- "who was involved", "who was responsible", "who took major decisions,
- "when did key stages enrol,
- "where did the major activities and movements take place and how did the event enrol"

6.1.1 The 'information and ideas map' and the 'actor-network map'

The information and ideas map will identify the types of information, ideas, tools, techniques and concepts used by the focal organization to understand and interpret the event. For example this will involve identifying what types of information was used in analysing the options available to the company – for example whether information was developed about costs/benefits; the environmental consequences of change, the organizational implications of change, information about stakeholders' perspectives or concerns through focus groups, polls etc. It will also assess whether decisions were based on concepts such as pollution prevention or product stewardship. The actor-network map will identify the key actors involved in the narrative. This can involve actors within the company and actors around the company.

6.1.2 The organizational, environmental and physical space

- Organizational space: the space defined by the form and properties of the network of interactions between actors (organizations and individuals). These interactions are mediated through formal (designed) and informal systems and structures, which involve aspects such as rules, routines that are connected to the distribution of power and authority and access to resources at any point in time.
- Environmental and physical space: the space defined by the systems, processes and distribution of resources in natural and semi-natural systems at any point in time.

6.2 Story collecting

Within each of the 4 projects of DynEmics, one company will be chosen for the event analysis and narrative analysis. This means that the four topics that are covered by the four research teams will be subjected to the narrative analysis and event analysis. The four topics and their central research questions are:

1. Processes for the integration of environmental concerns in company strategies and practices: What pathways and mechanisms are used to integrate environmental concerns into organizational strategies and processes and how integrated are the outcomes?
2. Dynamic interactions between heterogeneous companies and environmental authorities: In what ways, and to what extent, do external stakeholders influence environmental decision making and practice?
3. The influence of stakeholder dynamics and networks on environmental practices in companies: To what extent, and through what mix of policy instruments, can authorities influence the environmental performance of companies, given the heterogeneity of their strategies, stakeholders and markets and the concern by authorities for effectiveness and efficiency?

4. The role of marketing in the environmental practices in companies: What is the influence of internal and external pressures on the incorporation of environmental issues in the formulation, organization and implementation of marketing strategies and programs?

Next to the central actor in the company, the 5 additional actors will "write" their own story, using a similar format. This actor will be asked to identify who inside or outside the organization was most important in the narrative (providing information, ideas, resources, blocking action etc). These five people will be contacted and told that the principal actor had identified them as playing a significant role in the narrative. They will be asked to write a narrative themselves and write who was important in shaping their contribution (through ideas, tools, information, resources, instructions and so on). At each stage the person who is contacted will be told who had identified them as having a role in the event. At each stage the actors (who operate within the organization) will be invited to identify what aspects of the company's activities and practices, structures, systems and routines, culture or organization design most supported and/or inhibited the outcome of the event.

6.3 Writing stories

Writing the stories will provide the project with an outside-in perspective. Parallel to the writing of the narratives by the people in the field, the researchers responsible for the different research projects within DynEmics will also write a narrative or 'event story'. This narrative will include a brief statement of the event together with a fuller description of the principal actor (responsible for managing the event within the company). It will include the other main actors identified by the principal actor as contributing to the response to the event (these contributions include ideas, creative contributions as well as blocks and barriers), the environmental issue(s) the event connects with and the organizational change that was designed and accomplished. The various departments or project teams within the organization involved in the narrative will be identified together with their role.

6.4 Reading stories

The method used in DynEmics will rely on the actor's interpretation of who and what mattered in their understanding of the event as this is regarded as the closest source to the process of environmental management. Inside-in perspective is seen as a highly important mode of understanding the companies. However, the narratives will at the same time be analysed within the framework of the theoretical notions on learning and change in complex systems. This means that the narratives will be analysed in the context of characteristics, aspects and dimensions of learning and change, as distinguished in the theoretical framework developed.

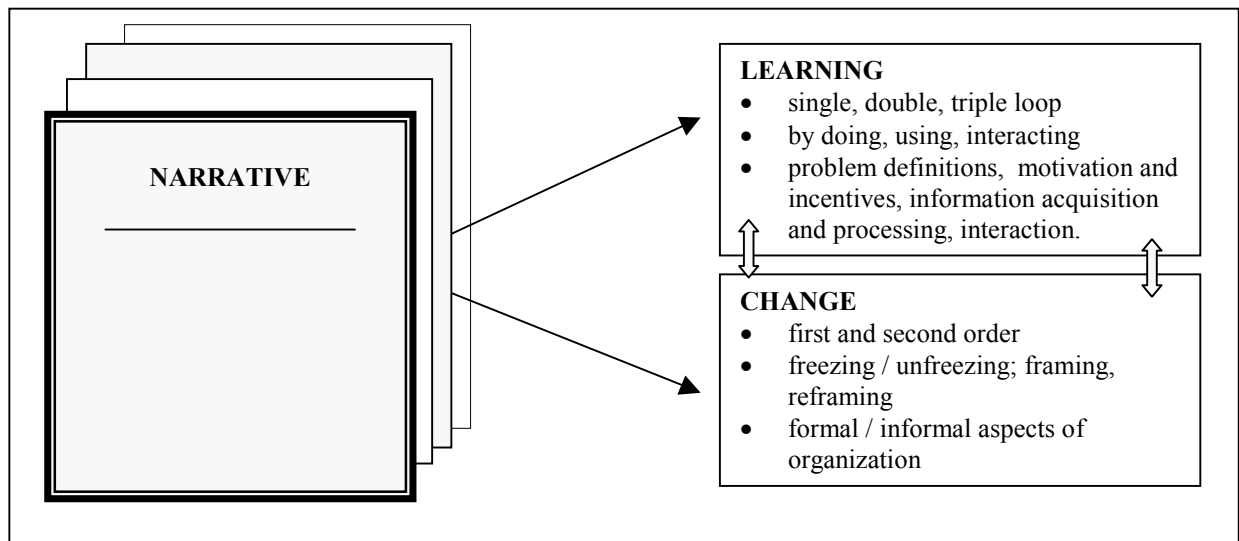


Figure 4: the reading of narratives in the framework of theories on learning and change

Learning is chosen as the theoretical perspective, as this is widely accepted as one of the key processes through which development and change takes place. In economy, the emphasis on learning is closely related to the recognition of the condition of bounded rationality under which companies have to operate-. In management, it is generally recognised that learning is at the centre of processes of adaptation and implementation of changes in organizations. Learning is conceptualised as a process that involves individuals in the acquisition and processing of information (about changes), interaction (between a set of individuals and/or between individuals and their object world) that leads to an outcome (which provides evidence of learning). Within learning processes, different dimensions are distinguished. First of all the concept of learning will be analysed in terms of learning by doing, using and interacting. Secondly learning will be approached in terms of single loop, double loop and triple loop learning. Finally a distinction will be applied based on -among others- the work of Simon (1979 and 1991). This distinction involves the following dimensions:

1. problem definition. Problem definitions have great influence on the direction of learning processes and processes of change. They influence the actors and pieces of information that are incorporated within the process. Problem definitions deal with perspectives, images and perceptions.
2. motivation and incentives. Motivation is a key element in starting up and continuing learning and change. It is in relation to motivation, that incentives -both within and outside a company- play an important role.
3. information acquisition and processing. Information acquisition and processing is the core of learning. It is based on the capabilities of both companies and their surroundings and include both individual and organizational skills and knowledge.
4. interaction and exchange of information and resources. Interaction and exchange of information and resources, or "learning by interacting" is vital, both within a company as in relations with companies and their environment.

The concept of change will be approached as variations in organizational and/or environmental space observed over time. Time and change mutually dependent dimensions of the same phenomenon. For example, time is determined by reference to change --

changes in the earth's seasonal cycle, determined by the movement of the earth around the sun, defines a year). In the same way change is dependent on time – change is the difference between the state of organizational space or environmental space that arises over time. Within the concept of change, a distinction in first order change and second order change will be made. Furthermore, the analysis will focus on the identification of differences in change in the formal and informal organization. Finally mechanisms of change as unfreezing vs. freezing and framing and reframing will be analysed.

Finally, the method will involve the analysis of the actor's interpretation within the framework of three levels of contexts: the actor context, the organizational context and the institutional context.

Mapping stories

In 4 workshops (one workshop for each company) the various stories will be discussed and mapped among all the storytellers involved in the company's narrative. The aim of the workshops is to give feedback to all the participants and to discuss differences and similarities found in the narratives. It is expected that this feedback will result in reflection and an insight in how various people have understood the sequence of events, and consequently wrote the plot of their narrative. by the storyteller. This mapping will take place among the storytellers of the field (inside-in perspective), the storyteller coming from the research team (outside-in perspective) and the analyst of the metaproject of DynEmics (representing the outside-out perspective).



Figure 5: mapping narratives in a workshop with all storytellers united

The aim of the workshops is first to contribute to an understanding of the multiple definitions of reality of the various storytellers. Secondly the aim is to come to a collective understanding of the system characteristics of the reality and to arrive at a better understanding of the complexity of concrete events in day-to-day settings. Finally the aim is to discuss how the narratives can contribute to understand reality in the context of the theories on learning and change.

7 **TECHNIQUES FOR DATA COLLECTION**

Within the use of storytelling or narrative analysis, the methods of data collection can be several (Czarniawska, 1998). In DynEmics, a combination of techniques and methods for data collection will be used: content analysis, open en structured interviewing, participatory observation and workshops. The main research methodologies include the use of interviews and (participatory) observation to contribute to the development of the narratives.

Standard questionnaires and formalised or structured interview protocols are used for the collection of contextual data. This concerns factual information with respect to the individuals concerned, such as work experience and education. It concerns as well factual information with respect to features of the organization and the institutional setting in which the organisation functions. First of all, each group will collect primary research information –leading to a basic description of each company- from its set of case study companies. This information can be looked upon as basic information with respect to the companies. Secondly, each research group will also collect information within their “own” group of case-companies on behalf of the other research groups. This will be done to make sure that information that is of key relevance for each research question/research group will be collected within each of the participating firms.

Thirdly the narratives will provide the inside-in information about the events in the companies. The establishment of the business panel, and the regular interaction between members of the research teams and the company representatives on the panel, provide opportunities for (participatory) observation.

Finally, workshops in which stories will be mapped can be looked at as an additional means of data collection.

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