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LITERARY ANALYSIS AS A METAPHOR IN PROCESSUAL RESEARCH: A STORY OF TECHNOLOGICAL CHANGE

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Abstract — This paper suggests that elements of literary analysis such as a plot, characterization, theme and style can be used metaphorically to guide data analysis and write-up in processual research that entails telling a story of a particular sequence of events or actions. How literary analysis as a metaphor can be used not only to guide research but assess the completeness of a research report, is illustrated with a field study of technology adoption in a Finnish pre-press firm. © 1997 published by Elsevier Science Ltd. All rights reserved

Key words: Processual research, literary analysis, metaphor, technology adoption.

INTRODUCTION

Why would one want to use literary analysis and its concepts such as a plot, a theme, and characterization as a metaphor in processual research? At the first glance, there does not seem to be many similarities between art (literature) and research. However, like literature (with the focus on novels and plays here), reporting processual research entails telling a story, or a description of a series of events and actions that is used to explain some phenomenon (cf. Pettigrew, 1985: 287; Van de Ven and Poole, 1995: 512). To quote Van de Ven and Poole (1995: 512):" A process theory [is] an explanation of how and why an organizational entity changes and develops" [emphasis added]. The thesis of this paper is that telling a story in a research report can benefit from knowledge of literary analysis.

Recent years have witnessed an increased interest in process vs. variance research (Mohr, 1982) in several fields such as psychology, economics, political science and even linguistics (Abbott, 1995), and with it an interest in different methodological approaches, such as the use of the narrative and event structure analysis (Abbott, 1992; Griffin, 1993). While these approaches have taught us a lot about reporting coherent stories and help systematically uncover the causal structure of the events in the story, the principles of literary analysis provide additional insight to ensure that the "story" is complete, i.e. intelligible and convincing as a description (the "how") and an explanation (the "why"). Understanding of literary analysis can guide both the analysis and write-up of processual data, as well as gauge the research report for its readiness for publication . It is not unprecedented to use literary analysis metaphorically in an unrelated field. Spence (1982) for example, relates literary analysis to the use of the narrative in psychoanalysis.

In this essay I will try to emphasize that processual research is often iterative and lengthy: the researcher goes from the raw data to a comprehensive description (the plot) of the process studied

to the theoretical explanation (the theme) and back again in order to refine the description and explanation and to validate it by actual raw data (cf. Weick, 1989). Each iteration usually refines the description and explanation further, spiralling between concretes (the data) and abstractions (explanations) towards a deeper understanding of the phenomenon under study. This kind of spiralling is the pattern by which all knowledge advances, labelled "the spiral theory of knowledge" (Peikoff, 1996). Accelerating and facilitating this spiralling process is where the value of the literary analysis metaphor lies.

For example, had I discovered the literary analysis metaphor when I first started to do processual research, the lengthy data analysis and writing processes would have been shorter. And some premature journal submissions of manuscripts that did not have clear plots (I tried to say everything), not to speak of themes, would have been avoided. Revisions based on the reviewers' and colleagues' comments would have also been more focused and thus faster.

In order to show how literary analysis can be used as a guiding metaphor during data analysis and write-up in processual research, this paper first provides a condensed story of technological change from a field study of mine (Woiceshyn, 1997), and then discusses the similarities and differences between literary analysis and the analysis of processual data, and the application of the former to the latter. The discussion of literary analysis is based on the romantic school of literature and the essay "Basic Principles of Literature" (1971) by Ayn Rand.* The use of the metaphor is illustrated by applying it to the study on technological change. The paper concludes with a discussion of the process of processual research and the value of the literary analysis metaphor.

THE STORY OF TECHNOLOGICAL CHANGE IN A FINNISH PRE-PRESS FIRM IN 1971–1990

Fuller details and methods of the research that produced this story are reported in Woiceshyn (1997). In the interest of space, only a condensed version of the story that emerged from manager interviews, company documents and industry data is reported here.

In 1991 Beta (not its real name) was a small Finnish pre-press company, with about 35 employees and an annual revenue of approximately 17 million Finnish marks. It offered comprehensive pre-press services to both printers and advertising agencies. This story focuses on two areas to describe the processes of technological change: typesetting and color separation (creation of a print surface, such as a film, from a color original, such as a photograph). In the previous 20 years (since 1971), Beta had experienced a particular pattern of technological change: there were seven waves of change in the form of alternating peaks and throughs.

Initially, there were very few investments in new technology, and not much was spent on them. There were few external pressures to change technology: the economy was expanding, equipment manufacturers had not launched new equipment for a while, and competition had not yet intensified. In addition, Beta was moderately profitable.

*There are, of course, other literary theories besides romanticism discussed by Ayn Rand in her essay (see e.g. Harris, 1992; Makaryk, 1993). However, the metaphor offered by the romantic theory of literature is the most appropriate for processual analysis. Unlike for example naturalism, modernism and postmodernism, romantic literature (represented by such writers as Dostoevsky, Hugo, Rostand, and Schiller) presents an explicit plot and theme — an explanation of how and why something happens, driven by the characters' (volitional) pursuit of values. This is in opposition to the subsequent movements in literature that are based on a deterministic premise (i.e. ignore the human agency) and do not present logical plots, and since naturalism, even coherent themes. Ayn Rand's essay was selected for use here for its succinctness and clarity. Others, e.g. E.M. Forster (1974), have discussed literary principles from the romantic perspective, although not as systematically and precisely as Ayn Rand.

The founder had recently died, and his widow hired and fired a succession of managers who did not have much impact. The only constant in management was the Technical Director who was a skilled platemaker by training and preferred the quality of manual work to that produced by new equipment.

After the initial "through", Beta experienced a small "peak": technology adoptions were more frequent and they were made quickly. Phototypesetting machines had been introduced to the market, and Beta bought its first ones. A new Marketing Manager whose background was in typesetting championed them. Competition had increased significantly, particularly in phototypesetting, and the Marketing Manager was also exposed to the requests of customers for higher quality and less expensive phototypesetting services. The Technical Director conceded to the investments as phototypesetting was not a threat to his craft of plate making.

The peak was followed by a through again: with its phototypesetting adoption completed, Beta decided to get into color separation as well, and entered with an relatively inexpensive, low-end machine. This remained the only technology adoption for the period. The equipment manufacturer had recently introduced the low-end color scanner, and one of Beta's competitors had bought it right away. Customers were also demanding their work to be done with a scanner. In addition, Beta's performance had deteriorated somewhat. In other words, there were several external pressures for adopting color separation technology.

The Marketing Manager had left to start his own typesetting firm, and the Technical Director, although generally opposed to new technology, felt the external pressures. In addition, the President of the company favored investment in this new technology.

During another peak Beta moved from stand-alone phototypesetters into a modular typesetting system which was much faster, had larger capacity and produced better quality type. This transition took several separate investments. There were many external prompts that facilitated this decision. Beta's performance had deteriorated significantly, the economy had sunk into a recession, and Beta had failed to attract more advertising agencies, their targeted customers, and higher margins.

The President, who had been very "hands-off" until then, decided to make the investments, in response to requests from several advertising agencies who demanded better quality typesetting. The Technical Director opposed the technology investments, and left Beta when the President pushed through his decision on the basis of his majority ownership.

The peak waned into a through: technology investments halted; there were only two investments. The first color scanner had proved defective and was finally exchanged, and the rest of the old typesetting equipment was upgraded. After the Technical Director had left, the President sought out another investor, who was appointed the Chairman. The new Chairman treated Beta as an investment opportunity, and wanted to minimize his risk. He opposed any new investment proposals made by the President, and they were cancelled or postponed as the two major shareholders battled each other.

This was followed by a technology investment "boom": the purchases that had been on hold for the last three years, were all made. By this time the Chairman had concluded that he was not earning the return he wanted, sold back his shares, and left. The President, now the sole decision-maker and an avid believer in serving the high-margin advertising segment with sophisticated technology, realized all the proposals that the Chairman had turned down during the previous period. It also helped that the economy was growing rapidly, and competition remained intense. These were the outside incentives for the investment program.

The peak continued with a major adoption: a new pagemaking system extending the capabilities of a stand-alone color scanner was bought. The previous scanner investment had

tightened Beta's financial situation considerably, and the economic recession and intensified competition did not make it any easier. The Board of Directors expressed concern for the risk of bankruptcy. The technology investment was made nevertheless. The President had been looking for a new investor ever since the Chairman left and found it in the Production Manager of a competitor. To make joining Beta more attractive to the Production Manager, the President offered him the title of the president while he himself became the chairman. (To avoid confusion, the new president will be still called here the Production Manager, and the new chairman the President.) True to his expertise in production and color separations, the Production Manager championed new investment in the page-making system, citing that state-of-the-art equipment will keep production efficient and impress customers. The President who had given the decision-making authority to the Production Manager when he joined Beta, was now more concerned about Beta's financial situation and survival and tried to oppose big investments.

LITERARY ANALYSIS AS A METAPHOR: THE DIFFERENCES AND SIMILARITIES WITH ANALYSIS IN PROCESSUAL RESEARCH

The most obvious difference between analyzing literature versus processual data is that the former is an analysis of fiction, e.g. a novel created by the imagination of its author, whereas the latter is analysis of facts, e.g. a sequence of real events (although some historical sociologists would dispute this in their claim that all representations of reality are subjective, e.g. Heise (1989: 139). A novel (in the Romantic tradition), for example, is a selective recreation of reality by the author according to his or her values (Rand, 1971: 19–20), while processual research describes and explains reality (or some series of events in it) as it is, as perceived and interpreted by the researcher. In other words, the researcher is not an author. He does not recreate reality. Rather, the researcher is more like a reader of literature. A reader interprets what the author is saying in a novel or a play, and the researcher interprets what the data are saying about some phenomenon of reality. "Narratives must be 'unpacked' and analytically reconstituted to build a replicable causal interpretation of a historical event" (Griffin, 1993: 1100).

Due to the differences in analyzing literature and processual data we cannot directly apply literary analysis to the latter but can only use it as a metaphor. Let us look at the similarities between the two to see how the tools of literary analysis can be used metaphorically. The contribution of the literary analysis metaphor to processual research is summarized in Table 1.

1. *Plot*

Like literature (novels and plays in particular), processual research tells a story, in terms of a series of events or actions that leads to some outcome (i.e. a process). To paraphrase Pettigrew (1985: 287): "The process...is seen as a continuous, interdependent sequence of actions and events that is being used to explain the origins, continuance, and outcome of some phenomenon." The essence of a story is the plot. A plot can be defined as "a purposeful progression of logically connected events leading to the resolution of a climax" (Rand, 1971: 82). Process research entails a description of a "progression of events" that leads to a certain outcome(s) ("a climax") (cf. Van de Ven and Poole, 1995: 512), and the discovery of the causal patterns by the researcher that constitute the "logical connections" between the events.

Unlike an author planning a novel or a reader reading and analyzing it, the researcher does not have the freedom to start with the theme of the story or even characterization. Before he can unravel the "theme" of the story or the motivations of the main characters, he must first grasp at

Table 1. Contribution of the literary analysis metaphor to data analysis and reporting in processual research

Aspect of literary analysis/ Counterpart in processual research	Data analysis	Reporting

Plot/description or story	• Progression of events
	• Logical connections between events
	• Resolution of a climax
	• Focus on identifying *conflicts* that advance the plot:
	  • inner conflicts of actors
	  • conflict between actors
	  • conflict between actors' goals and the environment
		N/A — see "Style"

Characterization/explanation	• Actors'
	  • goals
	  • motivation: — premises
	  — values
	• Discovered through actors' words and actions
		N/A — see "Style"

Plot-theme/pattern identification or coding of events into conceptual tracks	• The pattern of reoccuring events, actions: • the central conflict or situation in terms of action	N/A — see "Style"
Theme/explanation	• An explanation that gives the story meaning and makes it intelligible • Derived from the plot-theme	N/A — see "Style"
Style	N/A	• The choice of content by circling between the plot, characterization and theme, and identifying their essential elements • The means of presenting the plot, characterization and theme in an *integrated* fashion

least a rudimentary plot: the progression of events to some kind of a "climax" or an outcome. Even this first step can be challenging, as the researcher needs to determine from the reams of field data which events are "logically connected" and essential for the progression of the story. Not all data can be reported in a naturalistic manner; they need to be delimited by telling a story with a plot.

The recognition of a plot is comparable to Van de Ven's (1988) approach of developing a chronology of events from processual data, and then coding those events into conceptual tracks (pp. 333–334), or Strauss' (1987: 220) construction of case histories. Also diagramming an event-structure from a narrative, indicating the causal relationships between events, is analogous to recognizing the plot of the story (e.g. Abbott, 1992; Griffin, 1993; Heise, 1989).

How was the plot of the story of Beta discovered? At the end of the data collection, I had complete documentation of technology investments in the study period (i.e. what equipment was purchased, when, and at what price, as well as a record of the investment decisions through the

minutes of board meetings), full financial statements, and the story from each manager about technological changes at Beta, as well as data about the economic and market conditions. All this information was potentially part of the story. I plotted technological changes over time by the amount of investments, and then contrasted that with Beta's financial performance and the economic and market conditions, hoping to find a pattern. But there was no story, no plot yet.

In order for all that data on Beta to shape into a story, some focus was needed. Further exploration of the principles of literary analysis helped find that focus. If the plot is understood as "a purposeful progression of logically connected events", it means that the characters must pursue some purpose or goal that motivates their actions (Rand: 82). For a plot to advance (as opposed to a description of a status quo), it must be based on *a conflict* or conflicts. These conflicts could be an inner conflict of one character, or a conflict of goals between characters. Since goals are not achieved automatically, conflict could also be in a form of obstacles (Rand: 85), i.e. conflict between characters' goals and their environment. Since all human actions are goal-directed (whether the actors are aware of it or not), descriptions of processes involving human actors need to entail the conflicts and obstacles they encounter in the pursuit of their goals.

It is important to recognize that although conflicts are central to the plot in romantic literature, we are not compelled to adopt the political view of organizations (e.g. Cyert and March, 1963; Hosking and Morley, 1991). While it is true that conflicts can occur between different actors within the same organization, as in the case of Beta, it is also feasible that the central conflict can be an internal conflict of values as when a manager faces an ethical dilemma, or an external obstacle, such as a capable competitor, that the organization's members can fight in a unified manner.

This principle of literary analysis — the centrality of conflict to the plot — guided me to focus on technological changes at Beta as they were the central source of conflict amongst the managers. Over time, the arguments and battles between managers were not over financial performance per se but over whether to make technology investments, and if yes, which ones. For example, the Marketing Manager advocated significant technology adoptions; the Technical Director opposed them (although in this case, not very strongly). The President pushed through significant investments; the Technical Director opposed adamantly, and ended up leaving. The President proposed technology investments; the Chairman rejected them. The Production Manager championed major adoptions of technology; the President opposed them.

Only after the centrality of conflict had become clear, did the story unravel and the wave-like peak- and-through pattern emerge. The focus on the clashes between different managers guided me to examine not just the dollar amounts of technology investments, but also the frequency of technology investments, and the rapidity of adoption decisions — both affected by the degree of conflict among managers — which made even clearer the wave-like pattern of technological change. The plot and other aspects of literary analysis as related to the story of Beta are presented in Table 2.

While the story of Beta may seem unremarkable in that political action to advance one own agenda is common in organizations (e.g. Hosking and Morley, 1991), it is surprising that many managers' beliefs lack (economic) rationality: they oppose or promote technology without regard to the economic and financial consequences, the basis of the long term survival of the firm. Economic rationality on the actors' part is, after all, a basic assumption in most literature on technology adoption (Woiceshyn, 1997).

2. *Characterization*

If we start with the premise that entities (human beings included) act according to their nature,

that "all human actions are goal-directed, consciously or subconsciously" (Rand, 1971: 83), and that conflicts are unavoidable since goal achievement is not automatic, it becomes crucially important to understand what drives the "characters" to act the way they do in order to explain change processes. In other words, we need to find out what the actors' goals are and why. In his discussion of processual research, Pettigrew (1985: 288) agrees when noting the relationship between structure, context and human action in organizational change processes:"...aspects of structure and context are mobilized or activated by actors and groups as they seek to obtain outcomes important to them." In other words, the literary analysis metaphor emphasizes the importance of the human agency (cf. Griffin, 1993).

In literary analysis "characterization is the portrayal of those essential traits which form the unique, distinctive personality of an individual human being" (Rand, 1971: 87). In processual analysis characterization is clearly a metaphor. The researcher does not "characterize" but he nevertheless has to determine which traits of the key people "in the story" are the essential ones for the progression of the events — judging from what they *say* and particularly, what they *do*. The researcher needs to establish why a person acts as he does: he needs to grasp the person's motivation. According to Rand (1971: 88), "motivation is a man's basic premises and values that form his character and move him into action." Again, people's premises and values can be uncovered by studying their words and actions.

In his political and cultural perspective on processual research, Pettigrew (1985: 281) considers organizations political systems consisting of different interest groups. These interest groups, such as technologists, accountants, or Human Resource specialists "...are likely to have different goals, time orientations, values, and problem solving styles. In short, they may have different rationalities, which provide the motive forces for their actions and reactions, along with the language and styles of behavior to express those actions" [emphasis added]. Pettigrew (1985: 281) also suggests that competition between different rationalities in part explain change processes in organizations. In Pettigrew's view, to understand processes of change, we need to investigate the values and goals of the key actors and groups — a parallel to characterization in literary analysis.

The characterization metaphor guided the discovery of motivations of Beta's managers. Their conflicts over technology investments made it clear that their values and goals regarding technology were different and contradictory. This was reinforced by statements such as: "The old equipment is still good" (the Technical Director), "My attitude was that we had to have proper tools" (the President), "How can it matter to customers with what equipment the work is done it the end result looks the same?" (the Technical Director), and "New tools are important...[The new page-making system] has magnificent PR value: the customer thinks we use it more than we do" (the Production Manager).

Analysis of actions and statements of Beta's five managers yielded the notion of "managerial beliefs" that helped capture the managers' motivations either for or against adopting technology.

The Technical Director held a set of beliefs that were labelled "superiority of craft". He believed in the superior quality of manual craft production and opposed new equipment investments. The Marketing Manager's belief set was called "priority of customer needs". He listened to customer requests carefully and observed changes in demand, and championed phototypesetting equipment at Beta. The President's beliefs can be summarized as "complete service to advertising agencies". He had observed that the advertising agencies provided the highest margins, and he wanted to invest in technology that could serve these customers best. At the core of the Chairman's beliefs was "secure investment", and he opposed new technology adoption as it increased financial risk and threatened his investment. Finally, the Production

Table 2. The elements of the literary analysis metaphor as related to the story of Beta

	Definition	Summary from the story of Beta
Plot	"A purposeful progression of logically connected events leading to the resolution of a climax" (Rand, 1971: 82).	Production technology at Beta changed in a wave-like pattern, influenced by either conflict or consensus among the managers who acted according to their beliefs. There was no final "resolution" of conflicts but each technology adoption represented a mini-"climax".
Characterization	"The portrayal of those essential traits which form the unique distinctive personality of an individual human being" (Rand, 1971: 87). ("Motivation is a man's basic *premises* and *values* that form his character and move him into action", Rand, 1971: 88) [emphasis added].	The values and premises of Beta's managers, expressed in their actions and statements, were conceptualized as their "beliefs" that revealed their motivations either for or against technology adoption. For example: Technical Director: "superiority of craft" Marketing Manager: "priority of customer needs" President: "complete service to advertising agencies" Production Manager: "primacy of new tools"
Theme	"The summation of a novel's abstract meaning" (Rand, 1971: 81).	The managers of Beta influenced technology adoption according to their beliefs (shaped by their previous experiences and conclusions), and the degree of their influence depended on their relative power.

Manager's beliefs regarding technology can be summarized as "primacy of new tools". He thought that the best means of achieving competitive advantage was to invest in the latest technology, and launched an expensive technology acquisition program.

While the managerial beliefs explained the managers' approach to technology adoption, the question still remained: Why did they adopt and held such beliefs? Even though this was not a central aspect of the story, I assumed that the managers must have induced their beliefs from some relevant experiences they had had during their careers. That indeed seemed plausible. For example, the Technical Director who believed in the superiority of craft, was a skilled tradesman by training who had spent most of his career in production-related tasks, buffered from customers and market demand. Thus he was not exposed to many outside pressures to change his beliefs. On the other hand, the Marketing Manager who advocated giving priority to customer needs was constantly interacting with customers and assessing demand trends. A similar pattern was evident for the other three managers as well: Their background and experiences seemed to have affected their beliefs.

The discovery of the plot and the main actors' motivations (i.e. beliefs) advanced the "literary analysis" to the point at which the theme of the story could be identified.

3. *Theme*

In literary analysis there is an intermediate element between the plot and the theme that connects the two. This is what Ayn Rand calls a plot-theme, and it will be discussed before the theme itself. "The theme is the core of a novel's abstract meaning — the plot-theme is the core of a novel's events" (Rand: 85). Ayn Rand defines the plot-theme as "the central conflict or 'situation' of a story — a conflict in terms of action, corresponding to the theme and complex enough to create a purposeful progression of events" (Rand: 85). For example, the plot-theme of Victor Hugo's Les Misérables is "the life-long flight of an ex-convict from the pursuit of a ruthless representative of the law" (Rand: 86), and the plot-theme of Fyodor Dostoevsky's The

Brothers Karamazov is: "The actions of the brothers in varying ways lead to the murder of their father" (Bernstein, 1995).

Parallelling a plot-theme in processual research is the particular pattern(s) that researchers often identify in their data (cf. Miles and Huberman, 1983: 216; Eisenhardt, 1989) that help them move closer to an explanation. The patterns could be repeated interactions among actors, explanations that the actors offer, or reoccurring sequences of events such as cycles or spirals (cf. Masuch, 1985; Ropo and Hunt, 1996; Woiceshyn, 1991). Particularly the last kind of patterns, i.e. reoccurring sequences of events, help condense the "plot" of a story and also point to a tentative although not yet very abstract explanation. In the case of Beta, having identified the managers' beliefs and attendant actions made it possible to seek connections between them and the outcomes of the story, i.e. changes in technology. The plot had already been identified as the peak-and-through pattern of technological change, influenced by conflicts between managers and managerial beliefs. But what exactly was the connection between managerial beliefs, conflict and changes in technology? The pattern that seemed to emerge was that the "peaks" of technology adoption coincided with the beliefs of a "pro-adoption" manager being dominant, while the "throughs" of technology adoption occurred when the beliefs of a manager opposing technology investments dominated. The "plot-theme" of Beta's story of technology adoption can be summarized as "the actions of the different managers to influence technology adoption according to their beliefs and the outcomes of those."

A final piece of the puzzle remained after discovering the connection between the beliefs and actions of managers and the pattern of technology adoption: What enabled some managers to affect technology adoption according to their beliefs while others did not have that kind of influence? An answer to this question would provide the explanation for processes of technology adoption at Beta over time. This "theme" of the story is discussed next.

The theme of a novel parallels the explanatory idea in research, the summation that provides meaning to the story or phenomenon at hand. To paraphrase Griffin (1993: 1098): "Through the cumulative succession, connectedness, and holistic configuration of the event's actions, moreover, the narrative's coherence and unity are achieved and its central theme defined, refined and exhibited. This allows the reader to follow the reasoning and story emplotted in the narrative and, more generally, imbues narrative with a unique form of intelligibility."

Rand (1971: 81) defines a theme as "the summation of a novel's abstract meaning". For example, the theme of Les Misérables is "the injustice of society toward its lower classes" (Rand, 1971: 81). The theme of The Brothers Karamazov is "the desperate condition of human existence in a world without God" (Bernstein, 1995). The theme of a novel or a play provides an explanation for its story. For example, the events of the "Les Misérables" or "The Brothers Karamazov" can be understood through their themes. Hugo or Dostoevsky did not just indiscriminately describe typical life in a given era; their description of events express the themes of their novels — and the themes explain the events of the novels.

The metaphorical nature of a theme in processual analysis is clear. Unlike the author, the researcher does not create a story to reflect an abstract meaning he has chosen. He has to discover, like a reader does, a "theme", or an explanation that makes sense of the story or the process(es) under study.

Van de Ven and Poole (1995) have identified four basic "themes", or what they call ideal type theories of change processes. After an extensive literature search of various disciplines, they uncovered only four basic explanations or theories of change processes. These ideal type theories are: a life-cycle theory, a teleological theory, a dialectical theory, and an evolutionary theory. Life cycle theories are theories of development of entities (e.g., individuals, organizations). They hold

that change is imminent within an entity and its development is governed by some underlying logic, rule, or program (pp. 514–515). As examples of the life cycle theories the authors give stage theories of child development (Piaget, 1975), moral development (Kohlberg, 1969) and organizational development (Kimberly and Miles, 1980).

Teleological theories explain development on the basis of the idea that "purpose or goal is the final cause for guiding movement of an entity" (pp. 515–516). While teleology stresses volition and purposiveness of actors as change motors, it also recognizes that the environment and resources can constrain action (p. 516). Examples of a teleological theory are theories of decision making (March and Simon, 1958) and strategic planning (Chakravarthy and Lorange, 1991).

Dialectical theories explain stability and change through the balance of power of opposing entities with conflicting goals and values (e.g. individuals, groups within organizations, organizations) (p. 517). A classic example of a dialectic theory is Marx's theory of social evolution. "...evolution explains change as recurrent, cumulative, and probabilistic progression of variation, selection, and retention of organizational entities" (p. 518). Evolutionary theories are exemplified by population ecology models (Hannan and Freeman, 1977) and other evolutionary biology models.

Van de Ven and Poole (1995) refer to these ideal type theories as the motors of change. They argue that most change processes are complex and driven by more than a one motor (pp. 526-527). Therefore, "single-motor theories" (p. 527) are often not sufficient to explain change but the researcher is required to develop composite theories from the ideal types. According to Van de Ven and Poole (p. 529), an example of such a composite theory of teleological and life cycle motors is Clark's (1985) theory of gradual evolution of technologies. The teleological element are the choices of designers and customers, that then become constraints for further choices and guide the life cycle development from product to process innovations.

In literature, there are no such ideal type themes (although one can identify many classic themes, such as an individual's struggle to pursue his values against the prejudices of society) and no restrictions on the theme an author might choose (cf. Rand, 1971: 81). The literary analyst, therefore, has no such tools as the ideal types to help identify the theme of a given work. However, the goal of a processual researcher and a literary analyst is the same: to find an explanation, or a meaning for the events of a process or a story. While the existence of ideal type change theories makes the discovery of an explanation seem relatively easy for a process researcher, the fact that most changes are explained through complex composite theories (cf. Van de Ven and Poole, 1995), demands the same kind of detective work from a processual researcher as from a literary analyst. Adding to the complexity of themes in process research is the fact of human agency; i.e. volition. A teleological change theory is required to account for human actions — which in turn are based on chosen values and can vary significantly from one person to the next, as we saw in Beta's case.

In the story of Beta we can see some of the change motors, contributing to its theme. Since technological development in the pre-press industry takes place outside the firms (by the equipment manufacturers), there is a life cycle motor operating. The stage of development of technology determines what is available for the pre-press firms to adopt and thus sets a clear constraint for managers' actions. However, the most powerful change theory in the story of Beta is teleological: the different managers' conflicting beliefs contributing to the technological outcomes.

The conflicting managerial beliefs, however, did not provide a complete explanation of technological changes at Beta, and the theme had to be explored further. I first tried to assess the degree of conflict or consensus among the managers so as to explain why or why not did

technology adoption occur. However, this was not very helpful until I asked what enables a manager to be influential in technology adoption. I started to focus on the concept of influence and power (cf. Hosking and Morley, 1991). The analysis of the different sources of power of the managers revealed that the distinguishing factor between managers who could influence technology adoption according to their beliefs and those who could not was the extent of power they held.

The sources of power varied from a formal position (e.g. being the president), to expertise, to ownership of critical resources (e.g. capital, collateral), and specific contracts granting power to certain managers. The manager with the most power (e.g. majority ownership) at any given time became dominant and could have his way. If others with lesser power agreed with him, technology adoptions were either rejected at the outset, or were carried out smoothly and rapidly. If, on the other hand, the others with less power disagreed with the dominant manager, some technology might still be adopted, or the adoption process was a struggle and took longer.

For example, when the Marketing Manager who believed in the "primacy of customer needs" started to champion new typesetting equipment, the investments were made rapidly and smoothly. His source of power was his expertise in typesetting and knowledge of the markets, which both had become critical with the new demand for typesetting. This manager also had the support of the President who was also the majority shareholder and held a belief in "complete service to advertising agencies". On the other hand, when the President later proposed new technology investments, they were either rejected or significantly delayed by the Chairman who believed in secure or low-risk investment.

The "theme", or the explanatory idea of the story of technology adoption at Beta can be summarized as: "Managers influenced technology adoption according to their beliefs (shaped by their previous experiences and conclusions), and the degree of their influence depended on their relative power". Once the theme had crystallized, one final challenge remained: how to report the story of technology adoption at Beta so that the theme, the plot, and the characterization would be adequately reflected.

5. *Style*

Style is the last element of the literary analysis metaphor, and unlike the three others that primarily provide guidance in data analysis, it applies to the report writing stage as it is "the means by which the other three are presented" (Rand, 1971: 94). Of the two fundamental elements of style, the choice of content (the other is the choice of words) (Rand: 94) applies to processual research. The author must choose what to communicate (whether description, narrative or dialogue): what to include and what to omit (Rand: 94). The researcher faces the same choice when writing a report of processual research: What to communicate to make the "plot" intelligible and to substantiate what he has discovered to be the "theme". This is an issue of discovering what the essential elements of the plot, the theme and the characterization are, as all the data can rarely be reported.

There are different ways of reporting a processual study, often depending on the length of the publication, e.g. a paper versus a monograph. However, since in essence a story of a change process needs to be told, a some kind of chronological narrative is called for. One option is to write what Strauss (1987: 218) calls a case history, which is a story over time about one social unit (an individual, a group, an organization). Miles (1982), for example, used the case history approach in his book about strategic change and adaptation in the U.S. tobacco industry, supplemented by theoretical analysis and interpretation. Pettigrew's (1973) study of the politics of decision-making at a British retailer follow the format of a case history as well.

An alternative way to report process research would be a case study, which would be more focused on presenting a theory than merely a story or a flow of events per se (Strauss, 1987: 218). Rather than a rich chronology, a case study would show several examples illustrating the "theme" (or a theory), possibly utilizing tables and other data reduction vehicles. Examples of this style of reporting are Eisenhardt's (1989) study of rapidity of decision making in high-tech firms in Silicon Valley, and Gephardt's (1993) study of sensemaking after an industrial accident.

Equipped with these tools of literary analysis and using them metaphorically, the researcher can tackle processual data and provide analysis that is complete and compelling. In the case of Beta, the natural framework for telling the story was the wave-like pattern of technology adoption. The "waves" in the pattern were phases of technological change, each lasting for a few years and divided by some major technology investment. The fact that the period studied stretched 20 years and that a clear pattern of technological change over time existed called for a more complete and chronological approach than that of a case study to explain that pattern.

A critical issue was determining what to include and what to omit in the story of each phase of technology adoption so that it would be possible for the reader to see the theme, i.e. the explanation, and yet remain within the page limits of even a lengthy journal article — there were 20 years and seven phases of technological change to cover, after all. With several reiterations back and forth between the plot, the characterization, and the theme (and with helpful comments from colleagues and reviewers), I determined the following to be the essentials: a description of technology decisions in their context, the role of management (including their beliefs and power) and samples of decision scenarios.

The descriptions of the seven phases or waves of technological change at Beta each started with a description of technology decisions: what was their economic context such as the general demand conditions, as well as actions of equipment manufacturers and competitors (see Woiceshyn, 1997). The involvement of each manager was also outlined briefly. The role of management was then explained by describing the key actors' beliefs and the experiences they seemed to stem from, as well as the sources of power of the managers. Decision scenarios were described in a few of the seven phases of technology adoption in order to illustrate the processes of managers' influence, such as power struggles between managers.

This focus on the essentials in the report was made possible by the fact that the "plot", "characterization", and the "theme", or the explanatory idea, of the change process had already crystallized and could thus guide the reporting of the story. On the basis of the plot, the characterization and the theme I knew that I had to show what the actual technology decisions were, what beliefs the managers held regarding technology (and to a certain extent why), and how they were able to influence these decisions (their power).

DISCUSSION AND CONCLUSION

The purpose of this essay has not been to dismiss or undermine any established methods of processual analysis but rather to introduce another tool that can be used to supplement existing processual analysis methods well documented elsewhere (see e.g. Marshall and Rossman, 1989; Miles and Huberman, 1984; Pettigrew, 1985; Silverman, 1993; Strauss, 1987). It is clear that in order to conduct processual research, we need "a clear set of concepts about the objects being studied; systematic methods for observing change in the object over time; methods for representing raw data to identify processual patterns; and a motor of theory to make sense of the process pattern" (Van de Ven, 1988: 330). However, without a relatively comprehensive story —

with a plot — about the studied process it is difficult to induce the key concepts, particularly if there is not much existing theory to guide the process. The same is true about "a motor or theory" — at least a rudimentary story is needed before any explanations or theory can be discovered.

I would argue that even "systematic methods for observing change over time" and "methods for representing raw data to identify processual patterns" are not always clear at the outset of the study, depending on its level of inductiveness. We often need a description of the sequence of events — or a rudimentary plot — before we know on which particular variables or categories to focus and what to observe systematically.

The literary analysis metaphor can facilitate processual research in two ways: It can guide the actual analysis process and the writing stage (see Table 1). It can also help assess the "maturity" or completeness of a research report. These will be summarized in turn.

First, in the data analysis stage the principles of literary analysis guide the researcher to uncover the plot, but not merely by listing a chronology of events as the narrative approach and the event-structure analysis would instruct (cf. Abell, 1993; Heise, 1989) but by uncovering *conflicts* that advance the plot.

In order to detect the conflict(s) in the plot, literary analysis points to characterization, i.e. the discovery of the actors' motivation — their basic values and goals that drive them to action. This is an important emphasis as many researchers, particularly those in sociology, tend to downplay the role of human agency (Abbott, 1992: 432).

The principles of literary analysis also guide the researcher to identify and report an explicit theme, or an explanation for the story. This can be a problem with the narrative approach if the narrative account appears merely descriptive, without highlighting the explanation (Griffin, 1993: 1099). The literary analysis metaphor guides the researcher to the identification of a theme through the element of a plot-theme, i.e., the core of the story's events. The core of the events is the pattern of reoccurring events or actions, such as the wave-like pattern of technological change in the case of Beta.

Although this paper has discussed the elements of literary analysis separately, probably the greatest contribution of the literary analysis metaphor to process research is its emphasis on the integration of these elements. To quote Rand (1971: 93):"...it should be clear why the major elements of a novel are attributes, not separable parts, and in what manner they are interrelated. The theme of a novel can only be conveyed through the events of the plot, the events of the plot depend on the characterization of the men who enact them — and the characterization cannot be achieved except through the events of the plot, and the plot cannot be constructed without a theme." In other words, the narrative, the story, has to contain all three elements at the same time, in a clear relationship to each other. Without a theme or characterization the plot is merely a description; and neither characterization nor a theme can stand alone without the substantiation by the events of the plot.

Also the style of a report is integrated with the other elements because it is "the means by which the other three are presented" (Rand: 94). In other words, style gets its cue from the integrated whole of the plot, the theme, the characterization — the combination of these determines what is essential to report.

It is also this integration of the elements of literary analysis that helps the researcher assess the completeness of a research report. The researcher can check for completeness by asking several probing questions: "Do I have a 'plot'? If yes, what is it? Is there a 'theme' ? What is it? Is it reflected in the events of the plot? Am I reporting the motivation of the characters? How are the motivations related to the plot and the theme? Am I reporting the essentials of the story? Are the plot, characterization and theme integrated with each other and with style?" Satisfactory answers

to these questions indicate readiness of the report; inability to answer or negative answers imply that more work is still needed. Using literary analysis as a metaphor will never change the iterative nature of processual research. However, it can serve as a useful guiding device and accelerate the spiralling between the data and theory.

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