

Leading by Narratives

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Abstract. A crucial perspective to academic leadership is that of sharing inspiring stories. Stories of successes and failures help an academic community to navigate itself by explicating and explicating tacit knowledge, in a bottom-up fashion. Unlike the hierarchical top-down management approach that focuses on strategic decision making within controllable environments, shared (or distributed) leadership copes with and even makes use of the uncertainties, common in fragile academic settings. When the shared leadership uses the stories of the whole (academic) community—faculty, staff and students—as its main source of information, we use the term leadership by narratives. Technologies for digital storytelling can significantly support leadership by narratives. Individuals upload their stories that an intelligent engine can relate to each other or sequence into more comprehensive understanding of the status of and trends within the organization. Modern big data techniques allow the community to reflect and therefore self-assess their processes, progress and results, based on the shared stories. In addition to the number-based facts, the leadership can make use of emotional expressions, to identify weak signals as early indicators of unexpected changes or threats identified at the grassroots level. Leading by narratives is a leadership approach for academic organizations that complements or even conflicts with the prevailing approach of a university as an efficient factory producing skilled labour force. Leadership by narratives aims at transforming the universities back to what they are supposed to be: communities known for their striving to the truth by sharing observations and experiences in the atmosphere of mutual trust. This is also a precondition for what the society expects from academic people and organizations: innovations, or fresh ideas that work in practice.

Keywords: university, shared leadership, narratives, organizational change, culture, transformation, innovation, community, research methods, knowledge management

1. Introduction

Modern technologies are rapidly changing the familiar landscape of higher education. While the students of the past generations could justify their learning struggles and all the rules and regulations dictated by the academic hierarchies with their

expected permanent occupations, a modern high school learner would be more critical. Instead of choosing a nearby university, they can choose between a range of online offerings, and what matters is the future options for what they will learn as an active member of a blended learning community.

The change of the landscape has significant implications towards the principles and practices of running a successful university. While several traditional universities are *reacting* to the situation by following leadership ideas adapted from business life, seeing their students as customers of higher education services and funders as investors that continuously scrutinize their strategies, goal setting, operations, results, and finances, universities could cope with the change also differently—with a *pro-action*, facilitated by modern information retrieval.

Rather than the papers that identify existing technologies or describe their uses for the given demands of university leadership, this paper introduces how storytelling and its digitization can enhance and renew current administrative principles and practices at a university setting, in order to rethink and reshape the university itself. Thus, the paper follows a *reformative* rather than *conservative* understanding of the role of technology in an organization. To differentiate between these approaches, when a technology has a conservative role, it means that technology automates the current processes to make them more efficient in terms of resources, like manpower, money, or time. When technology assumes a reformative role, it works as an agent of change for effectively transforming an organization in a way that digitization paves way for newly designed processes.

The crucial question that determines the digital solutions for management and leadership challenges of a university is the function of a university and the people that it serves. If a university identifies its primary task as a maker of a better future and as a servant of its citizens, it boldly accepts the uncertainties and risks of the road but equips itself with flexible technology: this leads to a reformative choice in the role of technology. If, however, it wants to safeguard its current assets, it prioritizes conservative technological choices that guarantee efficient management of status quo, but risks the innovative opportunities that are necessary for growth and reshaping.

Recent voices in digital humanities (Esptein, 2012) and information systems research (Walsham, 2012) have warned the academic community of conventional choices. If an academy serves itself or curves in to itself, it will die, however striking their internal organizations or methodological approaches are. The question is whether a university decides to be an inward looking community of learners, or relate to the rest of the world, by identifying its best assets from the ground.

2. Leading Academia – Concepts from the Literature

Organization and decision making processes of a university can be understood from the following three perspectives: management, administration, and leadership.

In this paper, *management* refers to processes and operations that turn decisions into concrete actions. Management is controlled by *administration*, i.e., staff that

makes sure that management follows commonly approved rules and regulations and implements decisions made by the *leadership*. To take an example from an academic environment, a head of a department (HOD) manages the faculty and staff of the department to reach the target results. The HOD's actions are controlled by the administration of the faculty which the department is part of. In that task, the administration follows the decisions made by the faculty and its dean. To use other words, management, again in this paper, refers to the arrangements of tasks at the grass roots, administration is equal to the checking, monitoring, and evaluation of the organization's processes, called also bureaucracy or paperwork, and leadership means the overall orchestration of the organization, including decision making at the strategic level.

While the example above, taken from a typical university setting, portrays a highly *hierarchical* picture of the organization, consisting of a set of layers reporting to the upper ones, leadership itself does not presume that the organization to be led can only be structured as a hierarchy and led in a *top-down* way. In addition to leaders exercising their leadership to their subordinates at the lower levels, leadership—as well as administration and management—can also be performed in highly networked, non-hierarchical structures. In a modern society that requires fluidity and speed in pro-action, action, and reaction, a hierarchical structure is not often apt to make use of the whole contact interface and related information that its staff and other forms of interaction has to the surrounding world, whereas the a *network* is more agile to make relevant and creative decisions. The leadership of a networked organization can be considered a *shared* (or *distributed*) leadership, as opposed to the top-down leadership of hierarchical organizations.

While both hierarchical and networked organizations can use technology in a conservative as well as reformative way, in general a networked structure can reform more easily based on technological affordances. In addition, a reformative use of technology might re-structure a hierarchical organization into a flat network.

Our concept of leading by narrative resembles the idea of shared or distributed leadership (Carson et al. 2007). According to Carson et al. (2007) the shared leadership concept refers to spreading leadership influence among multiple team members. This form of leadership improves team performance (Carson et al. 2007) and could also contribute to greater adaptability and effectiveness (Day et al. 2004). However, despite its tangible benefits, Avolio et al. (2009) point out that relatively few studies have explored the idea of shared leadership fully in academic environments.

The concept of shared leadership is not new in itself. The idea of leadership as a group activity (rather than a binary function of leader – non-leader relationship) was put forward by Gibb (1954) who defined leadership as “a set of functions which must be carried out by the group” (Gibb (1954) as cited in Day et al. (2004)). Under this umbrella, our concept of leading by narratives provides a space for facilitating the leadership distribution process of the group as all members have access to everyone else's experiences of failures and thriving.

The need for a change in the traditional models of leadership in academic environment has been highlighted to some extent in the work of Scott et al. (2008). In their work Scott et al. identified of the characteristics of effective academic leaders

that can cope with the increasing pressures of their work. Their report emphasizes the crucial role at personal and interpersonal levels that *emotional intelligence* plays in fostering effective leadership in academic environments. Their results also put forward a prototype online tool for future leaders to complete a survey and compare their responses with that of ‘fellow travellers’. In this way the leaders around the world could share their experiences and get validation and encouragement from peers (as it was reported happened during workshops). These ideas resonate with our views of leading by narratives, but with one fundamental difference: in our view the digital space is available for sharing narratives of successful and failed experiences.

What is of a particular interest for our paper is the fact that normally a hierarchy exercises leadership, administration, and management by the support of conventional databases that collect various data from the diverse levels of the organization and feed that onto the upper levels. Finally, the leadership will get an interpretation of the numeric data and react by a line of commands back to the lower levels, ultimately ending up onto the grass roots for required actions.

The paradigm change from top-down leadership to distributed/shared leadership is welcomed particularly for building the human capital resources of the organization in question, which is a cost consuming activity if outsourced completely. Hence, from the management and administrative point of view the strategic encouragement of shared leadership practices through leading by narratives could lead to substantial economic benefits.

3. Leading by narratives

Technically, top-down university management is based on the quantitative data that is retrieved from key university processes, like giving courses, graduating students, and publishing research papers. These data are analysed and compared against strategic goals (“key performance indicators”), which can also change based on the analysis. Complementary to this, shared leadership is an approach that needs to listen to and identify weak signals from the narratives that reflect upon the changes, challenges, opportunities, and other important topics that the leadership needs to be aware of in order to support the processes that will make the organization more powerful in the future.

In a way, the technical solutions used for making top-down university management more efficient are *technology-driven* or *focus-driven*: they are based on existing, mainstreamed tools that have been derived for analysing the organization from the viewpoint of the given foci or indicators of successful performance. Traditionally, these solutions use a rigid, hierarchical database structure reflecting the conservative approach of its adopters. Shared university leadership is enhanced by technologies that need possibly yet to be designed for making full use of the existing data; these solutions are *driven by (all available) data* that are required to illustrate the whole organization in a holistic way, to release its full potential, i.e., to make it

as effective as possible. Table 1 shows how the applied leadership approach determines the preference between tools and data.

Table 1. Leadership approach determines the selection of data or tools

Leadership approach	Top-down leadership	Shared leadership
Function	Available tools & indicators → Selection of data	Available data → Selection of tools
Main goal	Analysis for indicators	Synthesis for a holistic view
Technical requirements of the tool	Ability to continually change parameters to re-define and refine indicators; integration capabilities to pre-defined data sources.	Human-aided machine learning capabilities (including e.g., data correlation and predictive information analysis); and flexibility for data input and analysis from a variety of (changing) data sources.
Tool deployment methodology	Waterfall deployment methodology is used where requirements are collected from the leadership to reflect management and administration needs; the solution that meets these needs is then deployed in a single, lengthy project.	Agile process and tools deployment methodologies are used where requirements are collected from a wide user-base; the requirements are analysed, challenged, and prioritised in parallel with the solution deployment and testing, on an on-going basis.

The interdependence between the leadership model and the precedence of data or tools can also be elaborated from the perspective of the dual role of technology in an organization, especially in the way that the technology is expected to support the organization, in our case a given university. In its conservative role, technology is used for making existing processes more efficient. This is typically advanced by traditional technologies, like the use of structured databases in expert systems. These solutions support faster analyses of selected event flows (cash, graduation or similar) but do not help to rethink the processes themselves. However, when technology is applied in a reformative way, processes are redesigned for improving effectiveness. The advanced use of (all available) narratives—that possibly requires derivation of new tools—contributes to the reformative use of technology for a more effective university. In other words, a conservative system designer, keeping in mind the primary goal of efficiency, starts from the given indicators and the analysis tools the indicators require, and then selects the data needed. A reformist prioritizes all the available data—much of which is narratives and other unstructured data—to

comprehend the organization from its own starting points, not those of standardized indicators.

Whilst both approaches, conservative top-down and reformative shared leadership, require their tools to be continually refined (and thus configurable) to reflect any changes in leadership activities, the difference in the approach to data and tools imposes differences in the technical requirements of the solutions. For example, a top-down leadership may need to track a set of highly specified indicators, and thus the tools are configured and tested to include, sometimes complex, calculations with integrations from a number of pre-defined, assumingly related data sources. On the other hand, a transformational shared leadership accepts that all relationships are not known, or explicit, or that the data relationships they can be temporary. Addressing these known and unknown unknowns is not possible through traditional technologies.

Similarly, the deployment methodology for tools will vary depending on the leadership model. A step-by-step waterfall methodology that would serve the needs of a traditional tool implementation will no longer work in a data-led environment where data sources and relationships continually develop.

The analysis above indicates an inherent dependency between the chosen leadership model, role of technology, and precedence between data or tools. For example, we can see that emerging technology trends—similar to those that prioritize the rich, possibly inaccurate or even corrupted unstructured text sources in social media at the cost of accurate but poor databases certified and confirmed by the organization—naturally support and in a reformative way enhance the shared leadership approach by using narratives. At the same time, the top-down leadership style in its straightforwardness calls for conservative technologies that use a set of standardized tools that determine the required data, correspondingly.

Summarizing our analysis, we define the concept of *leading by narratives* as a leadership approach that uses digital narratives as the main source of data to support the shared (or distributed) leadership approach. Digital narratives are any form of humanly understandable stories, stored on any media type, textual, aural, visual, or haptic, linear or non-linear, compiled individually or by a team. However, in the current paper, we focus on digital textual narratives.

Leading by narratives is a subcategory of shared leadership. Generally speaking, shared leadership can use any available data, digital or non-digital, for its function. Leading by narratives makes reformative use of digital narratives, and thus applies and develops tools, often based on human language technologies, which enrich the holistic understanding of the organization, for radically redesigning its operations.

Table 2 lists a selection of a university's assets and shows how leading by narratives can enhance and revitalize the assets. Table 2 juxtaposes a traditional university, called somewhat provocatively a *zero-university*, with a radically renewing university, nicknamed a *for-University*, to highlight its impact to its surrounding context, whether local or global. Proposing the idea of for-university makes reformative use of technology for its qualitative renewal, at the cost of stagnated, but well managed zero-university.

Table 2. A reformative university makes effective use of digital narratives by enhancing its critical assets

Asset	Conservative: zero-university (0U)	Reformative: for-university (4U)	Example textual narrative for reformation	Added value from digitizing narratives
Capital	Structures	Contents	Formal and informal notes for learning and research	Digital notes can automatically generate multi-layered contents
Guiding principle	Formal rules and regulations	Spirit	Success stories of inventions	Matching tools to find inspiring stories
Role in society	Follower: Passive to reactive	Leader: Active to proactive	Social media campaigns	Transparency and wide outreach
Curriculum	Closed	Open	Publicly available iterations, additions and discussions upon curricula	Improved quality and fast renewal
Relation to research	Repeating research	Doing research	Textual maker spaces for distributed research	Easier access for outside contributors
Autonomy	Dependent (economy, ethics)	Autonomous (economy, ethics)	Independent goal setting process and analysis thereof as an open dialogue	Widening and deepening ownership and pride within the organization
Risk tolerance	Risk avoidance	Risk taking and risk management	Continuous risk management from narratives at the grass roots	Faster identification of realized risks
Graduates' expectations	Qualification oriented	Competence oriented	Learning portfolios	Awareness of and learning from the learning process
Disciplinary orientation	Discipline-bound to multi-disciplinary	Inter- to trans-disciplinary	Trans-disciplinary online meetings	Enriched learning and research experience
Funding	Research funded by public and private institutions	Additional funding through creative campaigns	Crowdfunding	"Sustainable" investment opportunities available for wider public

Asset	Conservative: zero-university (ØU)	Reformative: for-university (4U)	Example textual narrative for reformation	Added value from digitizing narratives
Human resources	Restrictive – entrance tests and qualifications	Attractive - recruitment	Identifying people that match	Widening the recruitment base
Outreach	Structured and exclusive - events organised by university	Unstructured and inclusive	Volunteer-based community events	Sharing knowledge and experiences (bi-directional)
Organization	Hierarchy	Learning community	Visualizing community discussions	No-one left behind

4. Technologies for Leading by Narratives

Academic environments are a lustrous source of digital data that can form the digital footprint of the users. The data is available and collectable through multiple systems provided as digital services to all university staff and students. The data can be used as users' narrative sources, including:

- emails
- chat logs
- blogs
- discussion forums
- learning diaries
- project proposal and reports
- portfolios
- course evaluations, and so forth.

These data can be categorized into *formal* and *informal* data, according to the activity from where the data is collected. Table 3 shows the three pillars of University activities (i.e., teaching, research and community reach) documented in different digital formats through the digital footprints of users.

Table 3. University activities and tasks documented in different digital footprints

Activity	Formal	Informal
Teaching	<ul style="list-style-type: none"> • Learning diaries • Portfolios • Course evaluations & feedback surveys 	<ul style="list-style-type: none"> • Chats • Social media (e.g., blogs, tweets) • Study group emails, notes
Research	<ul style="list-style-type: none"> • Research papers • Project proposals, meeting documents, and reports 	<ul style="list-style-type: none"> • Chats, emails blogs, collaborative spaces, other professional institute events
Community reach (in and out)	<ul style="list-style-type: none"> • Meetings memos • Online press releases 	<ul style="list-style-type: none"> • Emails, social media (e.g. blogs), comments, news articles

Leadership enhanced by technology

Taking advantage of this well of digital data, technology can assist and enhance the current practices of leadership as to achieve the shared leadership type. Natural language processing algorithms and human language technologies applied for emotion and sentiment analyses, opinion mining and narratives summarization and visualization can assist the process of decision making.

Figure 1 shows the feasible processes involved in the technology-enhanced leading by narratives practice. The input sources could be the digital footprint textual data gathered from the digital services of the university and generated directly by the users. The data can then be processed by a human-language technology engine, an affective computing engine and visualization engine as described below.

Human-language technology engine (HLT)

The *document structure detection* process verifies the type of document to be analyzed (i.e., blog, learning diary, email), and homogenize its structure, making available the main text for further processing. A *sentence splitter process* follows in order to segment the texts into sentences to aid sentence-level analysis. The *tokenizer* then separates the sentences into their basic constituents or tokens, such as words, numbers, symbols and punctuation. A *morphological analyser* then extracts the root and affixes of the identified tokens. Finally, a *syntactic analyser* identifies the tokens as, for example, nouns, verbs, adjectives, adverbs and so on. The aim of the HLT processes is to determine the role and the meaning of each token in respect to other tokens within a sentence (Propov et al., 2003), in order to provide the needed input to the affective computing engine.

Affective computing engine

The affective computing process is carried out through lexicon-based approach using an ontology of emotion representations in order to identify emotion words in text. This emotion ontology consists of a series of *emotion categories* where each category contains a set of *emotion classes* and *emotion words* (Suero Montero et al., 2014). The ontological representation of emotions will allow the identification of relationships between classes of emotions. For example, emotion words such as *distress*, *edginess*, or *impatience* could belong to an emotion class *anxiety*; whereas words such as *admiration*, *approval* and *friendliness* could belong to an emotion class *liking*. These emotion classes could be defined in line with the system's requirements of leadership enhancement. The emotion ontology is used for tagging the emotional information of the input text.

The *sentiment and opinion analysis* processes implement a sentiment analysis (SA) algorithm to identify the polarity (positive/neutral/negative) of words and phrases and to determine the opinion holder, topic and claim within the sentence analysed (Munezero et al., 2014). The intensity of the sentiment is also ranked alongside its polarity, such as positive (+1 to +3), negative (-3 to -1), and neutral (0). This ranking is based on a sentiment database composed of sentiment-bearing words and phrases.

Narrative visualization engine

The visualization mechanism will then facilitate the understanding of the results produced by the affective computing processes by presenting information via intuitive visualization interfaces. In order to create intuitive interfaces, techniques from information visualization such as text summarization and topic identification and representation via word clouds could be implemented (Kakkonen and Galic Kakkonen, 2011; Munezero, Suero Montero et al., 2013). Information visualization focuses on the methods for presenting abstract information in a visual format, so that people become more easily aware of essential facts, to quickly see regularities and outliers in data, and therefore to develop a deeper understanding of data. Information visualization also allows users' interaction in order to explore and organize the presented data in a format that is suitable to the users' needs.

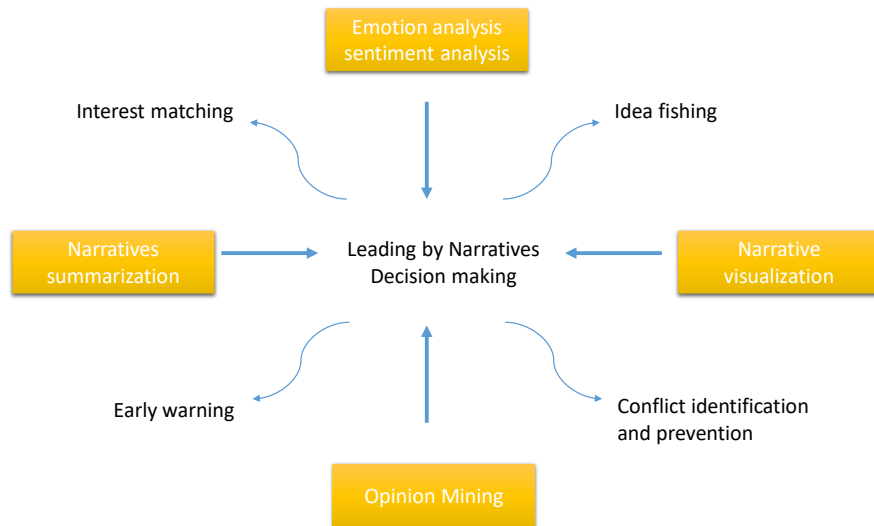
Enhanced leadership outputs

The use of technology as explained above also facilitates insightful leadership outputs due to the holistic perception of the organizational functioning and well-being that it provides, beyond what technology using traditional numerical data can offer. Among those outputs we can highlight:

- uncovering early warnings that identify latent threats that have the potential to make the organization stuck,
- detecting people interests in order to match people that could form a team with a joint goal,
- facilitating the identification and prevention of conflicts by learning groups' dynamics and providing timely interventions to disagreements within teams, leading to reorganizing the team structures whenever appropriate, and
- enabling idea fishing in order to identify new and exciting unheard of ideas that might be relevant for someone else within the organization.

Figure 2 shows the technological inputs and plausible outputs of a schematic leading by narrative process.

Figure 2. Leading by narratives input and output decision making schema



5. Discussion

While the concept of leading by narratives can radically change the universities compared to as we see them now, and even the technology is, if not available in terms of commercial products or services, certainly doable, there are still a few challenges that need to be solved before all relevant digital narratives can fully enrich and contribute to universities' new identity. We list the challenges briefly below.

Access issues address questions like “How to get the narrative data, in the right form and language?” and “Who has access to the raw and/or correlated data?” The challenge might get easier to solve in the very near future when, especially

academic, social media savvy users grow more open in sharing their stories in a digitally open, global village.

Privacy issues are engaged with the task of “How to secure and anonymise confidential information?” Much of the narratives stored digitally within universities are confidential for various reasons, be it new ideas for research projects or outcomes, patents related intellectual property rights, student evaluations, or tenure track analyses. While narratives related to confidential information would be critical to decision making, they cannot always be used.

Security concerns include how to predict, prevent, identify, and react to security threats. Not all cyber security incidents can be prevented and thus having a plan how to identify and react to them is crucial. People training in security awareness is the most effective way to do this.

Power issues ask “Who is responsible of the decisions?” Bottom-up narratives might form a threat to the academic establishment.

Change management issues ponder “How do manage the transformation to new model?” and “How to cope with a distributed rather than hierarchical organization?” A distributed organization is more fragile and might be regarded as a threat by especially staff that values a stable and predictable organization.

Philosophical and moral questions ask “Is there such as thing as ownership of information, or of experiences?” and “What influence do professional networks have in a shared leadership model?” and “Is it ever right to withhold knowledge, be that success or failure?” Traditionally, knowledge would be available to only a select group of people who could choose not to publish important findings or “failed” experiments. If this would information could save lives for example, or advance the quality of life, it is considered a social responsibility to share the discoveries with the wider public.

Ethical issues search for the ethically solid and transparent leadership. At an extreme, leading by narratives paves way to robotizing leadership. Super AI is aware but also changes the behaviour of the whole organization by taking decisions based on the common knowledge obtained from the crowd itself, using the narratives of the crowd. This can be compared to traditional expert systems automatically sacking employees, mimicking the behaviour of modern leaders that look only at numbers to make strategic decisions on behalf of the whole organization and lose plenty of opportunities for growth through serendipity, or to semi-automatic leadership where the interplay between a human decision maker and a robot is transparent.

Besides challenges, leading by narratives has unexpected implications to the everyday activities of the university. Of those, we list a few. First, leading by narratives, when fully implemented with narrative engines, might lead to an automatic self-re-organization of research groups. This would drastically change the group dynamics and personnel chemistry within universities. Secondly, leading by narratives might question the recent importance of the size of university. The scale of economy does not necessarily defend larger but rather agile units that can collaborate with the surrounding society. Thirdly, from the sustainability point of view, conservative uses of technology is a short-term medication to a given problem, but a radical change, aimed at by leadership by narratives, is more sustainable.

6. Conclusion

The paper has introduced a complementary mode for academic leadership: leading by narratives. The addition to the family of diverse leadership models emphasizes the use of all existing, digital narrative data relevant to the organization in a way that renders a holistic view of the organization. Leading by narratives requires an open, reformative eye to the use of technology: the technology should radically rethink the operations of the application area, in this case, leadership. One of the implications of this approach is the new structure of the organization: it needs to transform from a possibly hierarchical structure into a flat network.

The paper has conceptualized leading by narratives to the university leadership. Universities are a particularly interesting application field for leading by narratives, because of mainly two drivers. The internal driver—as a push factor—is the profile of people that are affiliated to universities as students, teachers, researchers, or staff. At least in principle, one would expect people in academia have on average more openness to radical change than people in other organizations. The external driver—as a pull factor—is the surroundings of the university, the society that is hungry to see universities making use of all their potential for a world better than that of yesterday. The change, called for by both drivers, cannot be dictated from the top, but needs to emerge from the narratives at the grass roots.

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