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THE CHALLENGE OF GENDER BIAS IN THE IT INDUSTRY

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Abstract. Contextual Analysis through inquiries into Contextual Dependency is a way to specify and discuss more general issues of unequal distribution of power overall and the importance of gender issues as a specific example. This gives an Information Systems analyst an opportunity to ask some important questions. The sense making activities involved includes efforts to 'visualise' and communicate individual understandings of their unique individual mental constructs. Such potentially enriched dialogues surrounding 'visualised' mental constructs might be used to illustrate experienced relevance and a contextuality of (temporary) 'points' rather than focusing primarily on 'truths' and statistics and just adding to existing organisational dogmas with another equal opportunity 'plan'.

1 Introduction

In the contemporary Western society we are all (supposedly) moving into a new form of society and we are all surrounded by a fast track development of a new economy [Giddens, 2000]. There might not seem to be any obvious reason why a gender imbalance should exist, yet this phenomenon is evident to all who work in and around the Information Technology field; as an earlier study focused on examples of higher education and industry in the UK and Sweden has shown [Bednar & Bissett, 2000]. From training and education through to practitioners, managers, and academia, women are in a significant minority, and tend to receive lower remuneration on average than their male colleagues [Panteli et al, 1998]. But we, as well as researchers like Giddens [1984; 1991], still do propose that it is meaningful to support creation and design of a future life space with the aim to resolve some of the social and cultural problems. In our efforts to develop organisational systems we also consider the idea of the 'learning organisation' as a viable organisational option to pursue.

In the case of a 'learning organization', the organization is supposed to take into consideration all of its members and their specific contexts [Argyris & Schon, 1996]. Why is organizational analysis of interest for system developers? If a consultant or systems analyst is supposed to create a decision base upon which to build a model and design of a future system, then there should be a need to consider what kind of organization is intended to be supported by a specific information system. There is also a distinction between organizational members. e.g. specialization is to be seen as relative to professionalism. Each organizational member

could thus be seen as an expert and specialist within a certain field. Differences in changes of individual contexts are suggested to be heavily influenced, not only by particular technology, but also by how a particular technology is introduced into these contexts [Rogers, 1995]. Now if development (and implementation) of information systems is to be focused not (only) on technology but on planning, designing of purposeful use of a information and communication system, unique organizational issues and practices are bound to have a serious impact. An analysis of contextual dependencies could thus be seen as of vital importance. After all, a technical system is supposed to support a specific kind of business in a specific kind of context which is mirrored in unique organizational activities. Development of use includes here a focus on very unique individuals and their practical relations with other (specific) individuals and a technical system (their specific use of a particular technology for a particular purpose).

In this paper we start out (in the second section) with an introduction of contextually dependent professionalism and power distribution. Then (in the third section) we move on to connect gender issues with specific manifestations within unique organisations. Next (in the fourth section) we develop examples of a possible inquiry into contextual dependency (as it might be relevant to gender issues). This type of analysis can be seen as multidimensional examples of a) where we (as unique organisational actors) are, b) where we would have liked to be today and c) where we would like to be in a future. Finally we present some conclusions.

2 Unequal distribution of power

Gotterbarn [1996] suggests that a newer form of professionalism is emerging which is highly suitable for software engineering, although it has appeared in other professions too. He identifies this as the 'fiduciary' model. One aspect of this model is that it shifts power towards the 'customer' for whom a piece of software is being built. Unlike earlier 'paternalistic' models, a professional is encouraged to lay before a customer a series of options and choices, and to make consequences of these choices clear in an accurate and responsible way so that a customer may make an informed choice. For a particular customer, being a member of a particular organization, this kind of informed choice could be seen as imply a relation to contextual dependencies. There is further a hidden and inherently unequal distribution of power when an individual is posed against an organization. Such phenomena have also been

discussed within the field of IS research by for example Walsham [1993]. This is possible to relate to problems with generalisations in (among others) IS methodologies - a case recognizable when an individual is reduced to an exchangeable and invisible abstraction. If an organizational metaphor is blanking out individuals automatically, it also ignores context dependent questions like a specificity of power and gender issues etc.

While Gotterbarn [1996] focuses on professionalism and ethical considerations in the field of software engineering, power distribution in organizations generally, managerial incompetence and lack of responsibility taking are targeted by Galbraith [1984]. A point made by Galbraith [1984] is that each organisation require (some kind of) submission of those individuals that they contain (are made up of); these individuals subsume their interests and desires in deference to the needs and goals of the specific organisation. Yet also there is a tension, as in any situation where power exists. Individuals may expect rewards for their submission (Galbraith's 'compensatory power'), but more subtly may identify their interests seamlessly and apparently painlessly with those of the organisation ('conditioned power').

"Never in the consideration of power can we assume that there is only one source or one instrument of power at work." [Galbraith, 1984, p.35]. In organization, individuals assume the right to interpret the organizational aims and goals. Using a metaphor of organization can be seen as a way (for some individuals) to gain personal benefits on behalf of other individuals (at their cost).

3 Importance of gender issues

Contextualism can be seen as focused on a suggestion regarding behavior and experiences of specific individuals (and specific organisations). It is not necessarily about organizational actors and their, for example, ability to be considerate in general. Are questions of personal activities and assumptions of power ('managerialism' ?) so uncomfortable that they by default are ignored in our closest everyday surroundings? We do acknowledge here that individuals' personal emotional lives or their capability to empathy can (and should not) be looked upon as being a banality. Emotions do seem to have a lot to do with organizational phenomena in the sense that people do give the impression of being vulnerable in their relation to personalization of organizational behavioral issues.

If there is a discussion within an organization related to individual 'freedom' and autonomy, people can get themselves into trouble. One example is a re-evaluation of a relationship between 'professional' responsibilities and 'managerial' responsibilities. Ackoff [1999] does, for example, suggest that there is an inherent conflict between 'managerialism' and 'professionalism'. It is not an easy task to develop or even to discuss implications of power distribution within organizations without a deeper understanding of some of the related complexities. Professionalism can in this sense (of complexity) hardly be reduced into any singular definition. Professional and ethical behavior for one individual can result in encroachment of possibilities for other individuals to behave in a professional and ethically responsible way. Issues can easily degenerate if there on one hand is a focus on a general definition and 'program' related to professional and organizational behavior which is supposed to (literally) be valid for all and every one, and on the other hand unique individuals which are living in their changing unique cultural, social and technological contexts.

As an example an assumption of gender-equality can be used. It is here supposed to be a case that individuals are to be treated equally as professionals, among others, unrelated to their gender. A built in problem is of course that professional individuals are not living in an isolated world of static organizational dogma. There is a (changing) cultural, social and technological environment, experiences of context which mounts up to a more than significant amount of personality luggage. A major problem is an impression of simplicity that is hidden behind proposed principles of 'equality'. Principles of equal value and rights, are treacherous while they do not by default clarify that there are very few actions and behavioral patterns in an individual life that do not have consequences for other individuals. What consequences then are to be viewed as positive or negative is a subjective experience that a unique individual who is experiencing a consequence is making some kind of evaluation of. There is no generally viable alternative to define what kind of personal and contextually dependent framework a specific individual is going to use in their personal evaluation and judgmental activity. An individual can very well experience a consequence (of a specific action) as an unfairly enforced devaluation of hers or his own personal 'freedom' or 'autonomy'. This is an example of contextual dependency which makes a principle of 'equality' quite complex. Within philosophy and semantics there have been many efforts to define the inner qualities of 'freedom', unfortunately the success rate seems to be rather limited. We (as professional analysts) should therefore be restrictive and careful in our

use of labels like 'equality' and stay rather more suspicious towards efforts where some-one tries to take over the 'ownership' of the definition (of equality) and its meaning and try to create a dogmatic general 'truth'.

Especially where the definition and its many facets make it are concerned there is no (at least there should not be one) end to a discussion, while even the basis of what is being discussed is unresolved. A valid question to ask is though: - equality for whom, regarding what and under what specific conditions etc.? From a pragmatic perspective it might be valuable to deepen an understanding and analysis of specific intentionality. The reason being to make a clarifying effort regarding a dialogue and learning process about what conditions are seen as valid for 'equality' to be contextually acceptable. What does equality mean in specific and unique contexts and who is defining it? There is no predetermined set of boundaries which would specify what equality might or might not be. There is however a great (maybe infinite?) number of diversified interpretations of 'equality'. This is related to individual evaluations and individually made interpretations of ethical values. These diversified interpretations are not necessarily complementary, on the contrary they can be suspected to be in conflict with each other. Some individuals might relate their individual rights to 'equal' behavior with character and personality - if we are all unique individuals are we then not always expecting to be treated 'un-equally'. In fact would it not be experienced as extremely unfair to be treated as 'any-one'? Is it not in the Western society that an ultimate right to 'equality' has a dependency with having a right to be (un-equally) treated as a unique and special individual?

4 Where Angels fear to tread

In Contextual Analysis 'spirality' can be seen as a major and fundamental principle in the inquiry into Contextual Dependency. There are three main activities which transforms an inquiry into contextual dependency to a learning activity. Bednar [2000] presents these three activities as intra-individual analysis, inter-individual analysis and evaluation. All three are inextricably interrelated. A way to explain some of the impact of 'spirality' on contextual analysis, is to see it as a (changing) 'circularity'. It is then possible to draw from Bateson [1972] in elaborating further a notion of circularity (even though within Contextual Analysis it is not intended as a circularity but rather a 'spirality' instead). In some respects, spirality represents an 'executive' aspect of each of the three classes of activities. For instance, intra-individual analysis is

described as a 'micro-level' analysis focused at unique individual interpretations of contexts and sensemaking activities in relation to other individuals within overall (unique) organizational contexts (see Bednar [2000] for a more indepth presentation of these aspects). It is a reflective effort to systematize individual sensemaking processes and to re-evaluate their validity. The inter-individual analysis (a 'macro-level' analysis) is more of a ('collective') mental effort to systematize an investigation into and re-evaluation of unique interpretations of contexts via enhanced dialogues (with other individuals). The efforts to communicate individually created mental constructs and to make sense of other individuals effort to communicate their mental constructs can be viewed as the ground for formulation of a multitude of hypothesis. These formulations can then be used to guide the involved individuals in their analytical activities to ask 'circular' questions. In a way the evaluative activities are defined by the participants with the purpose being judging and validating formulated hypotheses. It is not suggested that such a validations are 'neutral' or 'objective'. The perceived effect of the evaluative activity is as a pattern of responsive activities which reflects individually created (re-) interpretations of intra-individual and the inter-individual analysis.

While Bateson [1972] emphasized that mind is no 'thing' he did suggest that the notion of cybernetic feedback is a core aspect of mental processes. In his thinking about systems Bateson [1972] focuses on identifying systems of difference and pattern. The relevance of Bateson is clear in that he in his systems thinking opens up an opportunity to focus analysis on individuals in their unique individually interpreted contexts. Units of analysis are quite relevant because they relate to interaction between components in specific systems. An example from the terrain of 'equality' can be used to illustrate this. A situation between two people may be perceived as one of harassment in the workplace. It is the subjective evaluation of those involved that determines the different perceptions of a situation.

In line with Bateson [1972] it is possible to acknowledge that mental processes require a base for 'physical' energy (e.g. a harassed person might be using some of their own energy in the above mentioned activities to support them or to suppress them). It is also relevant to emphasize that sense making activities are responses to interpretations of 'differences' which do not by default consist of externally noticable activities. Mind as a system of sense making activities is thus in a way possible to be seen as (disembodied) patterns of information flows and differences. So circular questions can be viewed as examples of efforts

which intend to inquire into contextually dependent differences. For instance the question, 'Who is more equal, person X or person Y?' explores a difference between persons. 'Who is manager Z valuing as more professional?' explores a difference between relationships. 'Are they more equal now than they were one year ago?' explores a temporal difference. All these questions seek to uncover differences that are contextually dependent. They are about evaluating specificity in interactions between components in systems of sense making activities [Bednar, 2000]. In Contextual Analysis a 'difference' is not only interpretations and reflections over possible causalities (of circular interaction according to Bateson, [1972]) it is also 'circular' in itself (e.g. 'spiral').

Relationships between phenomena or components are what is targeted with contextually unique definitions of specific differences. These relationships are always reciprocal (and changing) and contextually defined and thus always 'spiral'. The transforming and spiral reasoning shows itself in that if 'he' is being favored compared to 'her', 'she' is being unfavored compared to 'him'. If she is being treated more 'equally' today than she was last year, she was being treated less 'equally' last year than today. The importance of this kind of spirality is significant if it is remembered that definitions of equality exists in relation to specific (changing) contexts (of sensemaking). So equality exists by virtue of a (contextually dependent) distinction drawn between 'equal' and 'unequal'. To think of someone as being treated 'un-equally' is to identify a difference between that individual and some other individual whose treatment has been defined as 'equal'.

It is easy to forget that it is some-one (we as observers) who are drawing these distinctions and then these distinctions might be confused with inherent characteristics of specific behavior or activities. Now this underlying basis for analyzing differences can be related to a second level (combination of evaluation, intra- and inter-individual analysis) which is characterized as combinations of multiple differences. Such an effort can be used to analyze 'what difference makes a difference?'. 'If he was not so equally treated would her treatment be less un-equal?' Now the 'difference' is at a different level than the 'difference' mentioned earlier. The second difference is targeting the contextually dependent boundaries of the validity claim of the first difference. This means that while the first difference targets the exploration of contextually dependent boundaries (that something is evaluated as equal) the second difference targets the exploration of contextually dependent validity of the contextually dependent boundaries (when something is evaluated as

equal). As this is a complementary distinction with the aim to differentiate between specific contextual dependencies. Of course this also means that any system of sense making activities might have multiple levels of contextual dependencies which in turn can be seen as having relationships based on 'spirality'.

It should be remembered however, that all distinctions are made by a specific observer and that this in turn determines that context does not unilaterally determine the meaning of what is a specific context. An observers individual sense making process both expand and delimit whatever distinctions are being considered [Maturana & Varela, 1980]. This means that any idea of neutral observations and objectivity is always an illusion. It also means that no evaluation of any phenomena is possible to (un-problematically) separate from a specific individual who is considering it. This promotes an understanding that there is a significant need to include reflective re-evaluations of sense making processes themselves to enhance originally compromised systemic sense making processes.

5 Conclusions

Research about unequal distribution of power might start out with general power issues that apply to women and men alike (although any serious study of unequal power distribution would call for a look into possible gender issues). Several of the arguments put forward in this paper would also be valid for localised effects of unequal power distribution in general. This would include unequal power distribution in such a context as the development and use of IT artefacts in specific situations for socially distinct groups, e.g. between young versus older people, differently abled persons, and so forth.

Contextual analysis is mainly about recognizing an active participation within close relationships including specific unique individuals, in unique working environments, in a specific time. An intention is to make it possible to support a discovery (and development) of how a working information and organisational system may be improved in accordance with, and influencing changing contexts. Inquiry into Contextual Dependency leads us to focus on the specific and unique individuals in many of their aspects, including their gender. This might have been aimed at before, yet it can be argued that some existing theories and strategies in information systems development are unfortunately 'gender ignorant' (as long as unique individuals are viewed as exchangeable).

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