Title

Assessing the effect of process sociology *(figurations)* in an organisational *(healthcare)* environment

[This study interprets evidence from organisational and personal perspectives and identify if the relationship analysis can be used to increase organisational (Process) efficiency]

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Introduction

This study, will seek to interpret evidence from an organisational and personal perspective and examine the relationships that may ultimately impact on resource efficacy. It will examine how figurational or *'process'* sociology *(Elias, 1978)* and the concept of knowledge transfer *(Argote & Ingram 2000),* can be used to support organisational efficiency or inadequacy in a healthcare environment. In doing so will introduce the notion of a knowledge transfer figuration scenario (KTFS). In undertaking this approach, the research will derive a process orientated discursive methodology *(Puutio, 2009)* which emanates from informed literature and theoretical understanding. In its broadest sense, this encompasses organisational and healthcare management literatures which postulate an exogenous link between developmental strategies and departmental efficiency. A previous study from this researcher included a methodology to capture the significance between knowledge transfer practitioners and competitive advantage. Informed by this equivalence, this study seeks to build on this by adding the facet of *(figurational)* sociology to the analysis. Thus, how personal interpretation of knowledge *(Polanyi, 1966)* may influence cognition and information processing amongst other knowledge transfer practitioners and how this interpretation is enacted through a figuration *(Elias, 1978)* to affect organisational efficiency *('critical mass', Howick, 2011).*

Contents

Background information / literature review

The debate amongst prominent authors is extensive and there are proponents who believe that knowledge creation and acquisition can be managed *(Inkpen & Dinur, 1998),* and those who argue that the complex, social and embedded nature of knowledge means knowledge cannot be managed *(Tsoukas, 2002).* In this regard, *Sackett, (1996)* stated that *"evidence-based medicine is the conscientious, explicit and judicious use of current best evidence in making decisions about the care of individual patients."* This definition and view have been adopted by many organizations and institutions, including the Cochrane Collaboration and the Centre for Evidence Based Medicine. Thus, it can be acknowledged within any healthcare environment, adoption of best practices may result in a complex interweaving of figurations which maintain, promote and advance objectives, and will inevitably generate unplanned outcomes *(Elias, 1978*). *Polanyi, (1975)* suggests that this could be because, if knowledge is both understood, shared and received inside a figuration, then it is conjoint by the barriers of interpersonal communication, irrespective of origin, meaning and context. Association between interpersonal communication and knowledge transfer is debated by *Dweck, (1983)* who explains that participants in an organisation using knowledge, in this circumstance, will attempt to form an entity theory, conceiving their personal intelligence in relation to interpreted knowledge as fixed, uncontrollable and constrictive. *Pintrich & Schunk, (1996)* note that an individuals belief in his/her capabilities will significantly impact; feelings, thoughts, motivation, and ultimately behaviour. Similarly, *(Mennell, 1992)* states that interpretative explanations surrounding processes are based on knowledge exchanges in terms of varying degrees of reality-congruence. In this context, *Dunning, (1992)* notes that the development of knowledge is a continuous process which is learned by people, bonded together in complex webs of interdependence. Given the complexity of the procedures and processes associated healthcare, a view from (Foucault, 1980) confirms that individual knowledge and power is not essentially something that institutions possess and as such, is more concerned with the resistance of those the power is exerted upon. Related to the work environment, *Murphy et al, (2000)* enforce this concept by explaining the balance of power is never permanent, because power balances are multi-dimensional, dynamic and constantly in flux. Nevertheless, Elias argues that authority relations will inevitably form a central dimension *(figuration)* of interdependency ties amongst departmental staff, as *'structural characteristic of all human relationships' (Elias, 1978, p. 74)*. Associating this view to the development of knowledge transfer and figurational interaction points within a healthcare environment, allows the researcher to understand the social nature of staff interactions, without the need to reinforce the view that all knowledge at this interaction juncture must be considered as either true or false *(See Mennell 1998*). Additionally, *Thompson and Walsham, (2004)* examine the link between individual's experiences and knowledge transfer difficulties, suggesting poor knowledge transfer can be related more to the context of the knowledge than the individual.

Defined from an empirical perspective, *(Pieper, 2005)* adopts a myopic stance when discussing dashboards and scorecards to identify and measure organisational efficiency. This view opines derivations of systemic knowledge accusation, supported by discursion and universally accepted knowledge constituents. As such, this view, and many others like it, including management decision making *(Thompson, 2007)* and service line management *(Boblitz & Thompson, 2005),* exclude the recursive process of interaction between entities, either as variables or agency. Typically, analysis

of theoretical links focus on structured data, while excluding scrutiny of knowledge transfer value or streams *(Inkpen and Dinar 1998).* Similarly, *Pedersen et. al, (2014),* discuss in detail the statistical implications of poor data collection, but exclude narrative material relative to figurational or knowledge transfer failures or inadequacies. Although studies by *Cook & Brown (1999),* examine the useful collaboration of knowledge and social interaction, to date there exists little evidence to draw upon which tests the effect of figurational sociology (figurations) *(Elias, 1978)* on complex knowledge transfer relationships typically at work in a healthcare environment.

Rationale/justification for the research project:

Currently, there is no research to draw upon which combines figurational *(Process)* sociology and qualitative methodology incorporating both personal and organisational perspectives related to efficiency defined by quantitative data. Previous examination by this researcher indicates coalescing these concepts may produce a new form of analytical tool which, if successful, would result in better, but importantly, more efficient evidence based working practices.

Objectives of the study

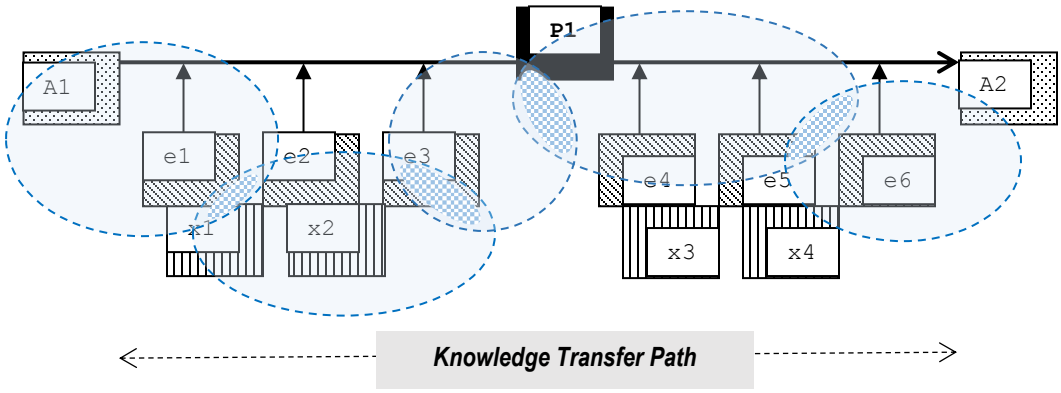
Broad

A broad objective is to assess if data from evaluation and analysis of figurational groups (Fig 1.0) can be used to determine/have influence on departmental efficiency and/or *(the overall process) in this case of this research could be Patient outcoming.* For practicality, this research could take place within the NHS Lothian Chronic Pain Service (LCPS).

Specific

Historically, the concept of figurational sociology *(Elias, 1978)* attempts to overcome some of the theoretical problems linked with traditional sociological terms of misleading dichotomies, such as those between the individual and society, or, agent and structure. The position of this research is not to consider the 'individual' and 'society' as two separate entities within LCPS. A main objective of this research is to combine these concepts from the perspective of a figuration and introduce a new lens of analysis, specifically, a *Multi-Dimensional Figurational Group* ***(MDFG).*** This view *(MDFG)* will ensure that any organisational development, underpinned by a knowledge transfer figuration scenario (KTFS), within the context of LCPS, is specifically related to the interaction of healthcare professionals, patient experience and outcomes. A second objective will be to ensure that the data collection is underpinned by a philosophy of the *Whole Service Process (Fig 1.0)*, since this will be driven by achievement of *Desired Outcomes* and by *Procedures* underpinned by *specific* processes, all of which are supported from a defined *knowledge transfer* path.

- Figure 1.0: LCPS Whole Service Process Model (EXAMPLE)



(KEY)

P1	=	Overall Process
A1	=	Start
A2	=	Desired outcome
e1~e6	=	Procedure Points, subset *r1*
x1~x4	=	Subset *r2* (Interlinking sub processes)
⟶	=	Sub Process procedure point
- - - - -	=	Possible Figurational Group
	=	Multi-dimensional Figurational Group (MDFG)

Methodology

Due to the fact that this phenomena has not been previously investigated, an exploratory study supported by qualitative methods aims to further the understanding of integral practice or situation within LCPS. This author (MF), has no clinical qualifications and therefore will be able to address the topic from a native non biased perspective.

Associated questions will drive the direction of the data gathering methodology.

Q1 - Are shifts in figurational behaviour measurable ?
Q2 - What involvement or detachment relationships do staff working in the LCPS department form when delivering structured evidence related to patient incredulities?

Data Collection

The ontology of the study will be based on a constructivist paradigm with an interpretivist *(Smith, Jarman, Osborn, 1999)* method of qualitative data analysis. An exploratory qualitative approach will be utilised using participant observation, focus groups and in-depth interviews. Purposive sampling will be used to recruit participants with different experiences of participation or non-participation in the LCPS. The investigation will involve 20 participants *(Hollway 2003).* Individual interviews (20) will be used to identify ideas and themes as they emerge throughout the course of the study.

This inductive research process *(Gbrich 1999)* will be supported by focus groups where possible. The research will be carried out across 4 different geographical locations and different managerial hierarchal levels. Data collection will be conducted over 2 phases. Phase 1 will be ethnographically based participant observation, informed by *Croll (1986)* and *Angrosino (2005).* This starting point is necessary to understand the complexity of the participant's personal perspective and any researcher bias. Phase 2 will be additional observations followed up by in depth semi structured interviews (20) *(Charmaz, 2002).* Triangulation will be from the perspective of 'process (figurational) sociology' *(Elias 1978).*

Analysis

Informed by *Ritchie et al. (2003)* *Framework* analysis is appropriate for this qualitative research study since it supports specific health care questions and a priori objectives. *Framework* will be used as a means to summarise data into thematic charts. Additionally, ATLAS/ti will be used to assist with data coding and cross-referencing. Output will show the hierarchical relationships linking the participating service procedures and actors, overarched by the interactive relationship of experiential knowledge transfer relating to chronic pain (Figure 1.0). This allows for the identification of multiple qualia, or meanings attached to a particular figuration, underpinning efficiency of the service redesign related to patient outcomes.

Theoretical Underpinning

The inference of the D1 trend curve *(fig 2.0)* uses a Bayesian alternative to classical hypothesis. This is because the Bayesian model of comparison is a method of model selection which is based on Bayes factors. This allows for the interpretation of multiple qualia '*individual instances of subjective conscious experience'*, rather than restricted/prescriptive hypothesis testing. Once all of the relevant data (*evidence*) is assessed, the posterior probability of the random event on/within a procedure point, at uncertain proposition point, but within the whole process, can be based on a conditional probability assigned to a variable (Yx).

Used this way, the posterior probability distribution is of an unknown quantity, but can be treated as a random variable ((R)/fx). The variable is now conditional based on the evidence obtained from; (a) qualitative interviews, (b) placement of the thema on a polynomial curve overarched by a figurational lens *(Fig 2.0)* and (c) Use of the POPC methodology.

Therefore, the posterior probability distribution of the random variable (*fx*), given the value of another unknown variable (R) can be positioned using Bayes' theorem by multiplying the prior probability distribution (*what we think will be the probable outcome*) by the likelihood function (*I have an informed view of this phenomena*), and then dividing by the normalizing constant (*figurational analysis*).

Thus;

1. $f_X(x)$ is the prior knowledge of X,
2. $L_{X|Y=y}(x) = f_{Y|X=x}(y)$ is the likelihood function as a function of x,

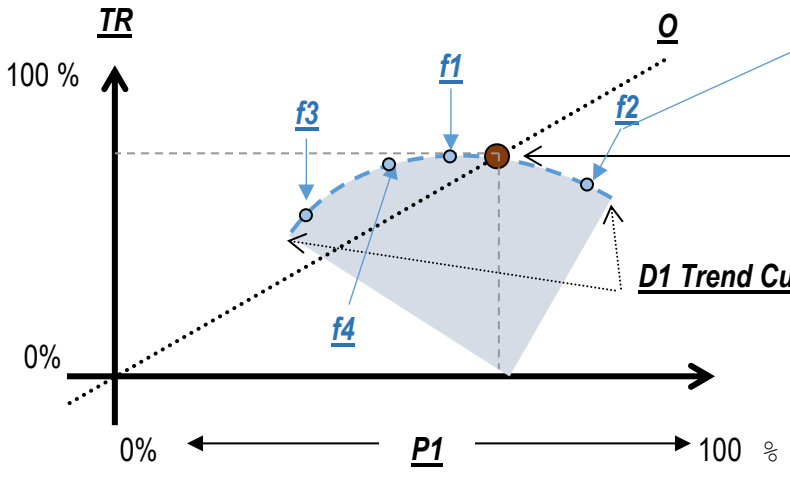
3. $\int_{-\infty}^{\infty} f_X(x) L_{X|Y=y}(x)\,dx$ is the normalizing constant, and
4. $f_{X|Y=y}(x)$ is the posterior prior knowledge of X given the data $Y = y$.

So

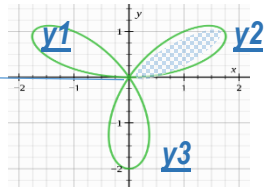
$$f_{X|Y=y}(x) = \frac{f_X(x) L_{X|Y=y}(x)}{\int_{-\infty}^{\infty} f_X(x) L_{X|Y=y}(x)\,dx}$$

Utilised in this context, the use of the Bayesian model for comparison in conjunction with qualitative evidence means there is no primary dependency on a single theme of variables or metrics *(Robert et al, 2011).* Output on the (D1) curve must integrate all functions to derive a variable point of efficiency (fx). Given the assumptions of prior knowledge of the process and procedure points, the the use of Bayes *factors (Denison et.al, 2002)* to conditionally set the curve caveat means that it will highlight very quickly if an estimate of resource is outwith *'normal'* boundaries and parameters of the phenomena under investigation *(Goodman, 1999).* Simplified further, the output of the analysis can be used to determine an outcome from a set of unknown variables, but with the added inference *(Mackay, 2003)* of common knowledge (quantitative metrics) and knowledge transfer effects of figurational networks. This way, testing and analysis occurs in the context of *inference* supporting the whole process, as opposed to relative decision making under uncertainty or divergence; THAT IS, *non-symmetric measure of the difference between two probability distributions (PBx).* (*Kullback and Leibler, 1951).* Therefore, the difference between (*PBx1)* and (*PBx2)* shows inefficiency, relative to *E1* (Maximum efficiency)

- Figure 2.0: Efficiency Trend Line (PB*x*1)



- Figure 3.0: MDFG, Variable (fx)definition (PB*x*2)



$$E1 = \frac{((\sum fx)\, OR^{2})}{P1/TR}$$

(KEY)

Time available (TR) = Availability of resources
Output **(O)** = Desired Output
Process resource. **(P1),** = sub processes related to Whole process

Figurational Interactions MDFG **(fx)** = Distinction of related interactions (P1)
Efficiency measurement Snapshot **(E1)** = Efficiency point in relation to whole process

Expected Results/Outcomes

As shown by (*Fig 2.0)*, the MDFG points *(fx)*, show each *f* variable as a polynomial function. Therefore *fx* will indicate complex relationships outcomes between knowledge transfer actors and procedures used on a daily basis within LCPS process (*y*x MDFG). The dynamic interactions captured from a (*MDFG*) analysis *(Fig 3.0),* indicated on the ***D1*** trend curve variable (fx) , reveal all staff and current working practices within LCPS whole process which are aligned to achieve a desired output (maximum efficiency) and those which are not. The results identify knowledge networks (R) supporting *MDFG*'s [related to efficiency ***(E1)***] and those which are/do not.
Accordingly, the curve will be non-singular or *regular* relative to the R origin, if at least one of the partial derivatives of (*fx)* is non-zero. Thus, the singular points plotted are those points (*y*x) on the cumulative R curves where both partial derivatives vanish *(Hassler 1957).* This could be thought of as the interaction of multiple parametric curves (figurations). Hence, in this instance, *R* related to the D1 trend curve, could be defined as the image of a function $\mathbf{R}\rightarrow\mathbf{R}^2$, where each point (fx) would be defined cumulative (yx) R

Benefits

From an academic perspective, would allow generalisation of sample to a population as the analysis is self-triangulating (i.e uses an alternative method within the same study). Thus, eliminate the contiguous objective versus subjective debate so, remove the concern of idiographic (*uniqueness of a particular situation/understanding/explanation*) versus nomothetic (*general laws/prediction/control*) *(Cone, 1986)* and at the same time simultaneously fulfill an outsider (*etic*) versus an insider (*emic*) interpretation of the same perspective. Output from this research would allow effective and easy snapshots of efficiency/resource status to be derived at any operational or intervention procedure point

Practical example would be: Empower LCPS medical and clinical staff to evaluate patient cohort health status in a semi-structured but real time way and apportion resource (intervention) accordingly. Output from this research would underpin the development of easy-to-use tools *(e.g apps, clinical algorithms)* to monitor patient outcomes (or any whole process) related to efficiency, without the need to apply resource to pilot studies or triangulate data gathering exercise, thus, would be relative to the whole process.

Very simple explanation

This output questions the standard 'richness is better' attribution, normally associated with qualitative data, by evaluating complex interactions using a figurational lens *(analytic induction)* via interviews, and aligns the outcome to metrics of analysis (quantitative data) used within the service. The combination of the two gives the efficiency curve based on Bayesian model of calculation.

Ethical Considerations

None

Constraints

A semi-structured approach to data collection will be adopted, meaning that the discussion may be shaped, to an extent, by the participants.

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