Transitions – From Deterministic to Probabilistic Learning Conditions - Managing Simulations in Complex Conditions

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Abstract. When human beings congregate – whether in meetings, public places, urban environments or learning contexts – there is a need for management of the emotional content of the milieu. In many situations this is a personal and private task and its enactment does not intrude on others. In simulations this task is – to varying degrees – deferred to the facilitator. When simulations and game-based activities are used for social change purposes a specific set of (usually) unspoken assumptions must be identified and controlled for. This paper explores the role of the facilitator in regard to the knowledge and capabilities required to successfully engage the diversity of interests and embedded assumptions which shape and inform the actions of all those present (including themselves).

Keywords: Innovation diffusion barriers · Environmental conditions
Power relationships · Skill and attitude development

1 Introduction

Why do people resist change? What causes perfectly acceptable and achievable change to be stalled, even undone? How do individuals justify their opposition to new concepts? Why do 'good ideas' become mired in delay and denial? What would cause sensible adults to flee from beneficial new concepts? Understanding how to identify and address factors behind such resistance to 'good ideas' is an essential first step for anyone hoping to see their ideas embedded in future developments. We are concerned here with the role and requirements of individuals given the task of managing public events intended to achieve 'buy-in' from those affected by change in regard to community engagement projects. The merits of such changes are acknowledged as having an ongoing impact on all activity, and are usually subject to intense scrutiny. We want to highlight expectations about the person/s tasked with managing those public events, and how hidden assumptions may affect their capacity to operate effectively.

We suggest that 'resistance' is logical, practical and familiar and that even great ideas are opposed when they first emerge as alternatives to current practices and beliefs, especially when they seem likely to alter social and power relationships.

Apart from the emotions raised by the nature of proposed physical and community-based changes responses to ideas promulgated in public meetings are often

based on challengeable - but widely accepted – assumptions. Such assumptions also shape beliefs about what is appropriate when constructing and managing meeting formats, as well as concern for who is 'in control' of the process. Facilitators championing use of simulations and games for such engagements, can quickly become mired in diverse – and often diffuse – forms of resistance to, and denial of, their efficacy. Such opposition may come from employers as well as those present and involved, and can severely limit the options available for achieving positive engagement with urban change projects. When the process is not well managed this may ensure ongoing opposition as long as emotionally charged issues remain unresolved.

2   Assumptions and Beliefs

We all have embedded, hidden, assumptions about 'how things work' which shape and inform our responses to events and conditions. One way of thinking about where and how they are embedded in human thinking is to consider the formation and basic tenets of educational curricula and how these influence our responses. In her work on the formation and sources of educational curricula, Wilson [9] lists eleven different ways of thinking about them, and describes assumptions and beliefs underlying each one. Community engagement activities, insofar as they are educationally oriented, encounter similar assumptions and beliefs, making her work a useful tool for exploring the 'world views' or mental models held by individuals likely to engage in community engagement projects.

Each of the perspectives informing these curricula have their own stakeholders and driving forces. A wise facilitator facing the task of managing public communication events will give close attention to addressing as many of these assumptions and sets of beliefs as possible, well before engaging with their audience.

They remain constantly aware that not everything can be anticipated, so that reserves of energy must be withheld for unexpected emergences. This paper (i) explores barriers to implementing innovation, (ii) suggests how Wilson's list of explanatory frameworks can inform planning and management of public communication events, (iii) offers a knowledge management approach with which to address emerging conflicts, and (iv) proposes use of knowledge management tools as a way to prepare for unknown uncertainties and emergent opposition. Change champions must navigate these perspectives, while they help resistors to sustain the status quo. Thus a problem for those hoping to create and sustain change may be too many forces are arrayed against them. Their own enthusiasm may be their own worst enemy (Table 1).

Overstepping, even unintentionally, the mark of advocacy for change frequently generates stakeholder opposition, influencing and shaping one or more of Wilson's curricula. This is seldom clearly defined and can be passed by, easily and quickly.

Motivated by curiosity, pleasure in working with what is 'new', and enjoyment of the challenge of being at the leading edge, early enthusiasts may not even realise that they have moved beyond the 'known' into unknown territory. In a major educational change strategy, Jerome Bruner and his supporters discovered this in the 1970's as they strove to implement a celebrated – and reviled – educational program called "Man: A Course Of Study" (MACOS). The initially enthusiastic uptake was worn away by a

Table 1. Forms of curricula compared across domains of activity

Forms of educational curricula	Community engagement concepts
Overt, explicit, or written curriculum	
That written as part of formal instruction of schooling experiences.	Documents and guides for community development/urban renewal projects.
Societal curriculum	
Informal curriculum of socializing forces "educating" all of us throughout our lives.	Informal forces at work shaping social perspectives on planned actions.
Hidden or covert curriculum	
Derived from the nature and organizational design of school, as well as the behaviors and attitudes of teachers and administrators.	Factors so familiar, in a context, as to be hidden - e.g. side of the road on which we drive; shape and operation of traffic lights
Null curriculum	
What we **do not teach**, giving a message that it is not important in education or in society.	Things we **do not talk about**: inequities in access to housing; accessible public transport, etc.
Phantom curriculum	
Messages given in/through exposure to media.	What/how media sources speak about our context.
Concomitant curriculum	
Taught/emphasized at home; experiences *as* a family, or sanctioned *by* the family.	Messages from family through use/non-use of relevant public spaces and facilities.
Rhetorical curriculum	
Ideas from policymakers, school officials, administrators, or professionals involved in concept formation and content changes	What we hear politicians and public figures tell us about our environment.
Curriculum-in-use	
As delivered and presented by each teacher.	Evident in facilitators' work and actions.
Received curriculum	
Concepts and content that are truly learned and remembered.	What we take from all we hear/encounter about environmental needs/purposes/values.
Internal curriculum	
Educators have little control over an internal curriculum - it is unique to each student.	We individually make sense of what we hear, receive and remember
Electronic curriculum	
Lessons from searching the Internet for information, and e-forms of communication.	The same for community engagement and urban development as for schooling.

campaign of opposition from conservative Christians who perceived it to be a means of indoctrinating young students into a kind of 'secular humanism' or 'cultural relativism' [4] thus challenging beliefs embedded in powerful societal thinking frameworks. Proposed curricula-in-use changes, championed by MACOS supporters, was seen to have such beneficial potential, that its advocates found it hard to conceive of anyone denying the validity of their work. One key difference between proponents of change, and those who resist, may be that the former sees obstacles as barriers to be overcome

on the way to new understanding, while the latter simply regard change as defeat, desolation and loss. For enthusiasts, 'societal' resistance comes as an unpleasant surprise. And unless they prepare and develop sustainable arguments, it will continue to do so for modern evangelists of change – including, in this context – the use of simulations and games as learning strategies.

Given this perspective two key questions emerge –

1. How can those who prefer the safe and familiar learn to appreciate the benefits of loosening their grip on the 'known' and step into new challenges with hope?
2. How can enthusiasts learn to walk alongside those who cannot yet see the benefits and provide insight and guidance appropriate to their concerns, rather than relying on insistent claims of 'value' and 'rightness'?

Addressing these questions requires analysis of both perspectives, and a clear and dispassionate understanding of *why* there is resistance to change. This helps in preparation and accurate application of advocacy strategies. Understanding both the espoused and in-action [1] positions of resisters assist achievement of outcomes that contribute to sustainably improved practices and environments which are also acceptable to all stakeholders who claim an interest in the matter. The causes for opposition and resistance must be addressed - not denied or denigrated.

3   Who 'Consumes' Innovation?

So who are the 'consumers' in settings where the use of 'play' (simulations and games) in change management contexts? Analysis shows there are four identifiable 'consumer groups' in all social change settings. The first, most obvious, consumer-group is participants involved in the process of 'playing to learn' about change. The other three groups may not be obvious 'consumers' but addressing their needs and concerns is vital, because the use of games and simulations for community engagement must pass through their 'gateways' before reaching the players.

- The first 'gateway' is defended by those who are unfamiliar with such communication strategies and yet are asked to use them to achieve pre-determined goals. They are conscious of demands for consistency and conformity, and concerned about their own insecurities in regard to using such strategies. They believe they know what has worked with relevant target groups before, and are hesitant to stray from the 'tried and true'.
- The second 'gateway' is watched over by administrators who believe they must control what happens in public meetings within their context. They want outcomes and progress, yet are reluctant to try anything that may not guarantee desired outcomes. They are conscious of other measures of performance, especially ones used by those controlling the final gateway.
- This final 'gateway' is safeguarded by external groups – parents, social groups, professional and government bodies who are certain of their right to intervene. Members of this group may be unaware of the paradoxical nature of their demands

on all the other consumers. These external groups, may – at any time – emerge to drive opposition to many proposed changes.

While we respect the power of this final group and are concerned by the frequently paradoxical nature of their opposition, this chapter offers facilitators and administrators resources for addressing such opposition to good ideas.

Observed from enough distance, all these groups can be seen as engaged in a formal 'dance' with pre-determined steps timeframes and rules. As long as everyone performs the steps in an agreed manner the dance continues. Disturbing the steps of the dance challenges everything. Introducing change strategies that may unsettle the 'rhythm of the dance', can be disturbing and will generate opposition.

4   Deterministic and Probabilistic Environments

Reducing the impact of such opposition needs focused attention on identifying and resolving the causes for both overt and covert (unexpressed) reservations. This section introduces two ways of thinking about how to manage and set up the environments for public engagement. These are described as deterministic and probabilistic environments which each has characteristics, benefits and drawbacks.

Deterministic environments
Deterministic environments are familiar to everyone. Human beings have been establishing and using them for centuries. While they enable us to impart vast quantities of information they do not always accurately address the immediate needs of those being 'informed'. A 'deterministic environment' is one where conditions are completely predictable [10] which is exactly what many are led to believe is the best setting for achieving information transfer. In the world of artificial intelligence – where this term is frequently found – this may be true. However, it can seldom be applied to effective information sharing among human beings in the 21st century where the goal is achieving satisfactory transitions to new and different conditions. Deterministic environments are comfortable but unchallenging.

While human organisations are not 'completely' predictable environments, working to achieve predictability is often considered desirable. In this context, challenges to its validity are considered traitorous denials of the validity of the 'ideal'.

4.1   Probabilistic Environments

Probabilistic environments are the common state of most simulations and games. As Klayman [6] notes -

A great deal of what people know about the world is handed to us from learners of the past, through books, schools, and social interaction. But if knowledge is to be advanced, or new problems mastered, we must of necessity learn from experience in probabilistic environments.

Using simulation or game-based activities affect all the factors which support stable relationships in deterministic educational settings. They do so in ways that individuals, who like certainty and order, will inevitably find hard to accept. Games introduce

uncertainty and alter relationships, shift perceptions of power and authority and redefine disruption. Outcomes will 'probably' be as predicted – but are never certain to be so. The uncertainty of 'probabilistic' environments is unlikely to be attractive to individuals who prefer stability and order and keeping control. Sensibly enough, they do not welcome efforts to destabilize things, especially when a tenuous goal of 'advancing knowledge/living conditions/etc.' in some unknown future context, is not equivalent to maintaining control now.

4.2   Resisting the Transition

Failure to address real and immediate concerns about loss of control is a sure fire way to generate resistance to change. Relying on enthusiasm for 'new' ideas while not providing adequate support or rationale for thoughtful transitions from order to uncertainty is not an effective way to generate enthusiasm for change. As Machiavelli (quoted in Watford, 2006) noted succinctly

> *there is nothing more difficult to take in hand, more perilous to conduct, or more uncertain of success, than to take the lead in the introduction of a new order of things. Because the innovator has for enemies all those who have done well under the old conditions, and lukewarm defenders in those who may do well under the new.*

And in this regard Dewey [3] noted that

> *Man is not logical and his intellectual history is a record of mental reserves and compromises. He hangs on to what he can in his old beliefs even when he is compelled to surrender their logical basis.*

So we should not be surprised if over-enthusiastic promotion of new ideas, that seem to come with attendant denial of the value of current efforts, generates a hardening of resistance, and not unalloyed joy. Committed enthusiasts do not have a clear view of the problems anticipated by resistors, considering them simply to be 'challenges to be overcome' bypassing deeper implications. Those who are not fearful of challenges are prepared for occasional failures relishing the delights of new, original and engaging learning. However, they are regularly surprised by the vehemence of resistance, asking in surprise "*can't you see the delights to be enjoyed?*" and are unable to accept the legitimacy of the response "*No! No I can't*".

5   Encouraging Uptake

If enthusiasm and clear sighted awareness of the value of games and simulations for learning is not sufficient to help resistors consider adopting them – what will be enough to make new ideas acceptable? We propose nine key actions to help 'early adopters of games for learning' assist colleagues in making a shift in their thinking and practices. Four of these are "always do", three are "never do's" while the last three are "backup options" to keep in mind.

5.1   Strategies to Encourage Uptake

Listen
The first logical, but often difficult, action involves simply listening to objections and seeking out the 'question behind the question' [8] that is shaping a speaker's concerns and objections.

Understand the constraints in the wider context
The second strategy requires allowing time to understand a speaker's wider context. It will often be that they are – or believe themselves to be - in a place that is not supportive of innovation. Give them credit for understanding the limitations imposed on them, and seek ways to help them expand their horizons by walking alongside them instead of rushing at them front on.

Acknowledge all efforts
Thirdly, acknowledge and admire all efforts to be good at what they do and how they do it. Remember, no one deliberately set out to be a 'poor performer', and educators, more than most, value quality performance.

Listening, understanding and acknowledging the present situation, will also generate resources and insights to assist in addressing resistance to change. This helps create an atmosphere of mutual admiration rather than shared dislike.

At all times - Exercise restraint
The first – and most constant – action to take when working to achieve uptake of new ideas is the exercise of restraint in regard to displays of enthusiasm and engagement. Enthusiasts too easily forget their own first tentative steps, the failures and setbacks that contributed to their present engagement with new ideas. The rush of excitement when something works – and then continues to deliver on its promise - obscures early doubts and deletes memories of those initial hesitations.

5.2   Actions and Beliefs to Avoid

These all involve conscious effort and require rigid avoidance of criticism.

Never claim to have the 'right' answer
Never insist that you possess 'the right answer' to a problem. Claims of 'rightness' are seldom a winning argument when working with resistors uncertain of their own fallibility and certainly unconvinced by your enthusiasm. Halfman et al. [5] noted -

> *Difficulties of Change. .... to suggest an alternative [to my well-practiced actions] is, by definition, to attack me.*

Avoid rushing in - "Angels" have a special wisdom
The saying that "fools rush in where angels fear to tread" is vital when promoting change. Never push pass resistance. Stop and consider its origins and causes; and accept that it has a validity which may initially escape you.

Promote slow change
Never demand swift replacement of existing practices with new ones. Invite engagement, seek adaptation, encourage small tests, support small steps, celebrate minor

changes and resist the impulse to rush to change. The hare and the tortoise show the problem of using speed to get to a difficult goal.

5.3   Backup Options – Strategies to Consider

Tackle projects collaboratively
Work with 'like minds' who have a capacity to influence resistors. Offer to do some of the work in tandem with the person/team you are engaged with. This help with handing on ideas and skills in a collaborative atmosphere and enacts the mantra of "teaching a man to fish gives him a lifetime of skills, rather than giving him a fish, which only feeds him today and leaves him to starve again tomorrow".

Publicise indicators of change
Ensure that achievements are widely advertised remembering that 'nothing succeeds so well as obvious success'. This takes longer – but then again everything that is worth doing does so.

Provide resources – do not impose their use
Make resources available but do not inflict them on others. Make them easy to read, and use. Help others find the fun in new activities – the WIIFM[1] factor is a powerful motivator. And make yourself available when someone is ready to ask about the new ideas you are proposing!

6   Why Games and Simulations Unsettle Stability

Regardless of the care with which a game or simulation is chosen to achieve specific communication goals, it is vital to remember that intended learning outcomes can be affected by circumstances – and may be unknown until they emerge during the action. Sometimes this may be simply a small shift sideways into topics not usually touched on in similar conditions; however, on some occasions the shift can be so dramatic that a planned lesson does not occur.

   For a facilitator, decisions about choosing – or not choosing – to use simulations and games for communication activities will determine much of what happens next. In effect, pre-conditions shape mindsets. A factor limiting acceptance of games and simulations for community engagement is the tendency to imagine things going wrong, this is often coupled with an emotional state of unease generated by such thoughts. To call experienced group facilitators 'novices' may seem discourteous. However being skilled at 'session management' is not the same as being skilled in managing environments where things will be un-ordered for much of the time. Such conditions require a particular set of skills, since effective actions for probabilistic working conditions involves abstaining from any move to impose 'order'.

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[1] WIIFM – what's in it for me?

A real and continuing problem facing those promoting change, is the question of how to demonstrate that richer, deeper, yet totally unplanned benefits may emerge during probabilistic conditions and that these may have a profound impact on participants' ultimate success. While such unplanned learning may disrupt a short term plan, the long term gains are well worth the deviation.

7   Perspectives, Theories, Frameworks

In summary, we know that the innovation/diffusion problem is not new. In fact, its impact affects every facet of change, yet enthusiasts committed to achieving social/political/economic change often overlook it as a factor requiring sustained attention. Personal security, emotional inhibitions (e.g. 'locus of control' personal preferences, group dynamics) and organizational/structural factors all influence the capacity of any individual to willingly adopt anything new.

Knowledge Management provides frameworks for deciphering some aspects of the situation, and the psychotherapeutic work of researchers including Wilfred Bion, Carl Rogers, Lev Vygotsky, Ivan Illich, and Karen Horney, provides insights and strategies to address actual and anticipated resistance.

The scope of that work is too broad to be explored here, however the general message from such work is that learning is a complex, multivariate process unique to each individual. While orderliness can impart facts and data and enable one person to maintain control of a situation, it cannot guarantee that the data will be understood, absorbed or made personal or enacted in any future time. In truth nothing can guarantee that.

8   Future Needs

In 1930s the author of the "Saber Tooth Curriculum" - J Abner Pettiwell [2] - pointed out that a particularly vital 'future need' is to eradicate the belief -

> *… that the essence of true education is timelessness. It is something that endures through changing conditions like a solid rock standing squarely and firmly in the middle of a raging torrent. You must know that there are some eternal verities, and the saber-tooth curriculum is one of them!"*

in the 21st century awareness of the fact that education must accept change is slowly being accepted - although accompanied by continuing resistance. Facilitators involved in community engagement contexts must accept that this is a dance of two partners – change and resistance - and that their key task is to manage the music so as to allow each partner to remain engaged while moving the whole in a direction most likely to achieve positive outcomes for all – whether these are recognised at once or over a longer period of time.

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