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A Big(ger) Picture of an Education System: Its Purposes, Form and Infrastructure Through the Family of Related Systemic Elements Matrix (FoRSE)

by

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Introduction

Discussion of the ability of schools to prepare children for an unknown future has been dramatically illustrated in Waiting for Superman (Guggenheim, 2010) or Finland's educational lead and in the literature (e.g. Canadian Council on Learning, 2010, 2009; Holmes, 1998; Knighton, Brochu, & Gluszynski, 2010; Lieberman, 1993; OWP/P Architects, VS Furniture & Bruce Mau Design, 2010). Part of the difficulty of the discussion of purposes is the range of beliefs and perceptions surrounding articulated educational purposes and values, including philosophical and social.

Purposes are theoretically the guide for schools to provide adequate outcomes for young people (see Harvard, 2011; Jacob, 2010; Kolderie, 2004; Labaree, 2005). Nevertheless educational purposes and values remain problematic as seen in calls for reform and international comparisons. To speak of educational problems–or symptoms (Després, 2011, 2010; Society for Quality Education, 2010)–concedes that education is not achieving the desired expectations of their purposes and suffers from conflicting values.

To call for reform[1] (which wave are we in now?) assumes that education or at least parts of it are in need of repair, alterations, improvements, or rebuilding. Essentially calls for reform imply that the current state is unacceptable and that the ideal state is known, achievable and realistic. Or another way of saying this is the purposes of education are attainable, realistic, known, accepted and alterable.

An equal underlying assumption about calls for reform is that someone knows what the problems are, that they are genuine problems, and that they can be tackled if not solved. I beg to differ and suggest that most of the educational problems associated with calls for reform need to be

[1] The Merriam-Webster online dictionary defines reform as "1 a: to put or change into an improved form or condition, b: to amend or improve by change of form or removal of faults or abuses, and 2: to put an end to (an evil) by enforcing or introducing a better method or course of action" (Merriam-Webster, 2011).

examined, or re-examined, in light of systemic thinking, which means as complete and whole a picture as possible.

Education's purposes—or more appropriately, those purposes *for* education constructed for political and public ends, redefined at the school level, perceived or expected by stakeholders, and interpreted or lived out through the actions of teachers, students and administrators, or utilitarian, practical, theoretical, academic, or a rhetorical exercise—are arguably the crux of a sustainable future for learning and preparation of young people for the communities in which they will become contributing members. While some of these interpolations of purposes lend themselves to a more academic discourse, others respond more to perceived needs of learners and communities. How could we deal ethically with competing visions of, and feelings and beliefs about, educational purposes? Whose "oughts" and "shoulds" deserve privileging and why? Yet how such purposes could be achieved through the same form and design, governance structure, resources, actions and timelines as have been in place since early establishments of schooling (Cuban, 1984; Taylor, 1838) remains problematic and systemic (Senge *et al.*, 2000). It is this telltale demonstration in the diversity of the literature that points to both possible misdiagnoses of educational problems and the need for a systemic study.

Nothing new there. Neither are the proposed remedies that cause some emotional stir and research brouhaha in many cases, be it additional funding, literacy and numeracy, accountability, 21st century skills, problem-based learning, and so on. Do we have enough of an understanding of what the issues are? How could we unless we assemble all the components to see their interconnectedness with the rest of the world—local and global? Actually the issue is not the assemblage of components but the proper lens through which we can see the whole picture.

This article presents a beginning discussion of such a lens that provides a means of better system understanding. As part of the description of this systems tool I capitalize briefly on documented educational purposes or goals and the means of achieving those purposes. The educational purposes were drawn from several school districts in British Columbia, Canada, and subjected to an analysis via the Family of Related Systemic Elements (FoRSE) Matrix[2] to determine the degree of congruence and sustainability of the declared purposes and the desired outcomes for the 21st century. In all cases it was found that the declared purposes did not align with the means of achieving them. I will explain below.

The significance of this problem, I believe, is in the realization that if the purpose—the fundamental driver for why something is attempted and done—does not align with what it looks like—or what I call the form or design, and the infrastructure, or the supporting means of achieving the purpose, the purpose will not be achieved. The undesirable but assured outcome is that problems and further issues arise from such misalignments and the too oft misdiagnoses of what the problems really are. Applied to education, it could be so much better.

An intended outcome of this paper will be to demonstrate the utility of systems thinking—in particular the FoRSE Matrix, what systemic thinking means, what to do about the incongruities or misalignments between purposes and means of achieving them, and why this is vitally important or useful to education stakeholders. Granted these are also familiar words. What hopefully makes this discussion different is the mechanism by which we can examine an event (defined below) that

[2]

will allow for a cohesive and comprehensive, big(ger) picture that in turn will provide us with the necessary map of realistic and achievable possibilities.

Assumptions

Two main working assumptions in this paper are that current designs of public education are perceived to be successfully achieving what they were established to do which is demonstrable through graduation rates, various reports and research findings (e.g. Shaienks & Gluszynski, 2007). I wonder if this is an accurate reality or simply constrained by the particular lens through which education is viewed, or as Midgley (2000) argues, the particular "intervention" conducted. Hence, the use of the FoRSE matrix is deemed essential to determine a clear understanding of what constitute real issues or symptoms, and the possible incongruities between what is assumed for education or schooling and what is desired for the future.

The second assumption is that it is possible to expose and examine the attendant elements or variables so that a truer understanding of public perceptions regarding the purposes of education can be determined, especially in the context of globalization, postmodern challenges to the curriculum and identity (see, for example, Chambers, 1999; Sumara, Davis & Laidlaw, 2001), and especially calls for educational reform and lifelong learning (see, for example, Anderson, 2000; Canadian Council on Learning, 2010, 2009; Human Resources and Skills Development Canada, OECD 2003).

Background

Schools were designed and built in and for a bygone era: the industrial/agrarian age (Cuban, 1984; Marshall & Tucker, 1992) greatly influenced by the "cult of efficiency" (Callahan, 1962). Because formal education is expected to follow the pedagogical mandates of the dominant culture, it is important to know that contemporary educational mandates and structures were and continue to be developed in the context of this past industrial/agrarian age. As Reigeluth and Garfinkle (1994) state in their collection of essays on systemic change in education, "[t]o provide these basic skills [necessary for the information-age of this new millennium], we rely on an education system that many feel is woefully out of date, designed to meet the needs of a society long gone" (p. v). Society in the 21st century knows massive technological, demographic, economic, and political shifts, which herald an era of borderless economic globalization, exponentially expanding knowledge, and new jobs demanding skill sets beyond what used to be acceptable levels for success in life after school. The purposes for schooling are still familiar, but…

School improvement efforts have been ongoing for several decades, and have literally spawned an industry devoted to researching the problems in schooling and developing solutions for improvement. Hargreaves and Shirley (2008) document three waves of improvement cycles that have failed to reform schools for the current societal needs. In fact, calls for improvement and reform tend to mirror the political and economic environment of the time (Hargreaves & Shirley, 2008; Miles, 2008; Broom, 2008). With each wave of reform, proposed solutions are implemented for perceived problems, resulting in an endless stream of educational change initiatives that have in the end changed very little in our education system.

The research on school improvement and reform is broad and it is evident that there are many indicators describing diverse failures or calls for education reforms that have seen unsustained changes over the past twenty years (see Adler, 1988; Contenta, 1993; Cuban, 1984; Curry & Temple, 1992; Darling-Hammond, Hightower, Husbands, LaFors, Young, & Christopher, 2005; Harris & Chrispeels, 2006; Holmes, 1998; Malloy, Malloy & Noblit, 2008; Marshall & Tucker, 1992;

Osborne, 1999; Reigeluth & Garfinkle, 1994). However, the foci of reform efforts tend to be on numeracy, literacy, behavior, accountability or test scores for international and local comparisons, as though these are clear problems with specific solutions and as though these are germane to general purposes of education. Although some initiatives provide positive results, they typically have a limited local impact, fail to achieve system-wide reform (Malloy, Malloy & Noblit), or lack sustainable success. For example, the Canadian Council on Learning (2010) states:

> We [Society] remain in a holding pattern that contradicts what we profess to know is true – that securing a sustainable future and quality of life depends on the development of our people.
>
> If left unchecked, lack of progress in learning at every stage of life could soon translate into increased pressures on many sectors of Canada's economy including social assistance programs, the health care system and the criminal justice system. Importantly, these pressures also diminish Canada's economic competitiveness.
>
> Economics is but one part of the equation that defines the success of Canada. As CCL has often stated, *the very future of Canadian society depends on our willingness to invest in lifelong learning in all its dimensions, to build on our solid foundation of formal education, while also addressing systemic weaknesses that undermine our current and future success.* (p. 6, italics added for emphasis)

The pendulum of school improvement has been swinging back and forth for several decades as perceived ineffectiveness of reform efforts leave researchers, policy-makers and community members wondering how to best educate children or how to tackle perceived educational issues. Tyack and Cuban (1995), in their study of educational reforms in America, suggest that these reforms are often initiated by diverse and competitive factors. They report "while some lament that educational reform is an institutional Bermuda Triangle into which intrepid change agents sail, never to appear again, others argue that public education is too trendy, that entirely too many foolish notions circulate through the system at high velocity" (p. 4). Are the reforms necessary or warranted? Without a systemic analysis, we risk repeating trends, and possibly misdiagnosing or misrepresenting the real issues, especially determining what realizable and acceptable purposes could be.

The latest cycle of reform, dubbed the Fourth Way (Hargreaves & Shirley, 2008), recognizes the limitations and failures of successive reform efforts and suggests that we begin to look beyond our North American models of schooling to emulate successful systems elsewhere, with Finland heralded as the brightest star to follow. We suggest that the Fourth Way is merely another variation of the pendulum, and that we need to recognize that the failures or impediments to achieving greater, systemic success for the future of public education are not necessarily rooted in education but may, in fact, be symptoms of socio-cultural factors and incongruent perceptions of the purposes of education.

The Wordle image shown below,[3] comprising purpose and mission statements from several school district sites demonstrates both the variety and divergent foci of purposes of education.

[3] Purposes Wordle http://kelhanson.edublogs.org/2011/11/24/pre-21st-century-wordle/ Retrieved January 27, 2012

Some purposes and values are seen as personal, others community-linked, others environmental, and so on. Whether or not these purposes are achievable or relevant (e.g. to a need or reference point) remains to be explored. Without a systemic study, purposes of education will continue to be fragmented and to spawn calls for reform (e.g. the "Fourth Way," Hargreaves & Shirley, 2008; Tyack & Cuban, 1995) or never-ending research into the parts of the system. Bearing in mind the education theory-practice tension, without such a whole picture understanding, formal education continues to risk

- being a patchwork of discordant elements and irrelevant goals;
- being misdiagnosed;
- maintaining *status quo* curriculum;
- constantly rewording purposes without a systemic understanding of the relationship to the whole of life, and thereby leaving it to wallow ineffectively to the detriment of the young people for whom education was established.

Systems Thinking Overview

Theoretically all systems have a "critical mass" of interrelated characteristics or components that give it a distinct and identifiable essence. For human activity and environments–physical or constructed–these components or elements appear to group around one of three "System Clusters": Purposes, Form or Design, and Infrastructure. If any of these clusters is missing, I argue it is not a system but an incomplete event*. I will speak more on these Clusters further below.

**An event here is defined as any activity or practice, nested system, situation, issue or problem, idea, policy or statement whether by an organization or by an individual.*

Systems thinking remains a fringe concept in education, including faculties of education. A few people "get it" while the rest continue to pursue inquiries into the components or elements. In one conversation with a senior researcher and dean of education I was informed that systemic thinking was a phase and that although some people were still pursuing it, systems thinking, like chaos and complexity theories, was not a viable research agenda any longer; a challenging climate still.

One of the challenges that lingers is in defining systemic thinking. That it consists of the interrelated components or elements as mentioned above is an acceptable if general understanding. But there are also layers within the definition and without appreciating these layers, some of what is labeled systems thinking is really a nested, or part of a, system. At the highest level of systems thinking there is the whole system as a collection of interrelated elements, as already defined. There is no whole systemic change initiative and although theoretically possible, it is highly improbable. Whole system change requires all stakeholders (participants, community, decision and policy makers) to engage all of the interrelated elements: A monumental task.

Most system change initiatives have been system-wide or within a nested-system. That is the change is focused on or affects a particular strand across or within a system. Examples include literacy and numeracy projects or leadership and communities of practice projects and the 21st Century skills drive within a school, a district or across the state. These projects may take into account numerous elements but not all of them related to that strand and not all of the components in the system. For example, the 21st Century skills push fails to consider the Form and Design that continues to restrict learning in meaningful contexts and typically rationalized by cost. Likewise the Infrastructure–the governance, resources, time and action–remain only slightly altered, controlled still largely by top down. And community is only peripherally considered.

System deep appears more of an academic endeavor and then only a partial connection. For example re-problematizing the philosophy of education along ideological lines or determining the effects of funding on the individual (many of the presentations at the American Educational Research Association Annual Meeting approach system deep if only superficially). This fine-tuning of what is meant by systemic or system-wide change hopefully helps the systems cause.

The FoRSE Matrix

The special lens I mentioned earlier refers to the Family of Related Systemic Elements (FoRSE) Matrix. This is a systematic, self-guided tool that will enable the user to analyze a system via key

clusters and the diverse elements that compose it (further below see *Steps to implement the FoRSE Matrix)*. The FoRSE Matrix is set up as a 3x3 matrix in which the vertical strands serve as the overarching Systemic Clusters, and three horizontal strands–the Elements Categories (personal, social and philosophical elements). The intersection of these Elements with each of the Systemic Clusters contains further guiding questions aimed at uncovering constituent elements or parts of an event or problem. These elements are recorded as either "Communicated" (policy, official declaration) or "Perceived" (people's interpretation of the communicated). If there is no response to a question, that "blank" space depicts a potential problem area. In this way we begin to see the immediate and long-term problem areas as well as draw attention to those issues in need of discussion, alterations, other connections and solutions. For example, if the Elements Category of "Community-Global" intersecting with Purposes were to be blank for a study, it would indicate that no consideration had been given–at least communicated–for the needs, goals or aspirations of community members. The perceptions of the community members on the other hand might well indicate heightened anxiety, animosity, disdain, or perhaps comfort and ease. Such a potential disconnect between the communicated and perceived would indicate a problem.

Theoretical Framework and Why Use the FoRSE

Four principles about human-based systems underpin the FoRSE Matrix:

1. Systems have at least a main or principal purpose. The Purposes system cluster includes mission or goals, participants and stakeholders, or the people who perform and/or benefit from them. This cluster concerns those components that are essentially conceptual or ideal and responds to these key questions: What is the mission or what is to be achieved? Who are the participants and stakeholders or for whom and to what end or ends do the purposes serve?
2. Systems exhibit form or design in their setting. The Form or Design system cluster concerns the arrangement, site or setting, or configuration. This cluster serves as the vision, depiction or image of the Purposes and Infrastructure clusters and responds to these key questions: What does it look like? Where is it situated? How is it structured?
3. Systems are supported to achieve implementation and success via the Infrastructure system cluster. This system cluster comprises four sub-headings or function-practical characteristics: a governance or control format, resources, timelines and actions including communication. This cluster responds to these key questions: What is the power arrangement or structure? What resources are needed? What are the actions and timelines for implementation and sustainability? What is the communication structure?
4. Systems are infused with and influenced by personal, social and philosophical factors or elements. These "Elements Categories" elicit further details about the System Clusters through a series of pertinent questions and, in the complete Matrix, are recorded as either "Communicated" (policy, official declaration) or "Perceived" (people's interpretation of the communicated).

Aims of the FoRSE Matrix

The overall aims of the FoRSE Matrix are to:

1. model systems critical thinking for human activity, whether research endeavors or policy or practice, to organizational improvement and successful attainment of goals;

2. provide a means of diagnosing systems, subsystems and/or their elements or an event; and
3. provide a means of prognosticating the outcomes and conflicts for a system or subsystem.
4. enable in-house collaborations that can easily be used to work with clients and partners for further data to assist in growth and change. The Matrix uncovers assumptions and views through pertinent, refining questions geared to understanding individual, community and philosophical (rationale) perspectives of an event;
5. expose the interconnected, critical elements of an event which reduces the complexity. The Matrix pictorially as well as functionally presents areas (leverage points) of strength and needing change;
6. consider multiple perspectives–both communicated and perceived– in an organized manner which thus enables the organization to act more strategically even or especially in conjunction with our networks.

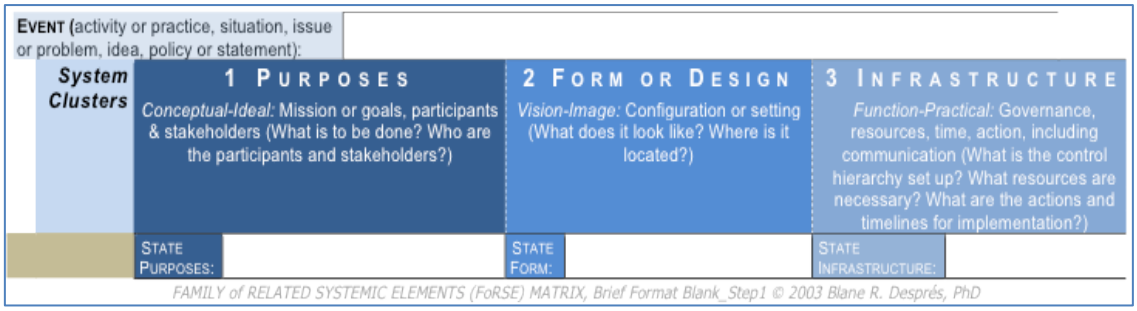
Steps to Implement the FoRSE Matrix

Event Choice. As defined at the beginning, any activity or practice, nested system, situation, issue or problem, idea, policy or statement whether by an organization or by an individual can serve as the event. The term "event" is used in the FoRSE to signify what is being examined or discussed. Other questions are likely to arise in the process and can serve as further events to explore. This is not to suggest that it is a never-ending cycle, but it is an engaging process, the benefit of which will depict the most complete picture and point out the areas in need of work.

Step 1: Think of an event (as defined above). Write the event in the space provided at the top of the FoRSE Matrix Brief page (see Figure 1 below). Examine the System Clusters of the FoRSE Matrix Brief (the top row of three categories, or clusters) and write out below the Clusters how you understand the chosen event in light of the Clusters.

For example, regarding purposes of education, the event would be, "Purposes of education." Under the Purposes Cluster, consider some statements of purpose or mission and goals along with the people for whom the purposes are meant or whom they will affect. Then for the Form or Design Cluster, the question is, "What does that look like or where is it situated?" In our current state of education, this typically looks like factory-styled buildings following a set pattern, timetables, academic year, testing, teacher-driven instruction. Do these align with the desired purposes? Will they help achieve those purposes? If the answer is not "yes," there is a problem that needs to be addressed. Either alter the purposes to align with the Form or Design or vice versa or find a compromise. Then move to the Infrastructure, which is meant to help achieve the Purposes and the Form or Design, and determine the decision making process (governance), the resources available and necessary, the time necessary, and the actions or steps (including communication). Again, discuss these three clusters to make sure they align. That is, the clusters must help each other to be successful. If there is an issue with any of these, there will be problems and the purposes will be thwarted (The good news is that it will make for more research projects!).

Figure 1 Step 1: The Event Declaration



1.1 If possible, discuss the event as well as your "findings" (what comes up as a result of questions or if the other persons seek clarification) and listen–without justifying or clarifying–to feedback.

1.2 Then discuss and clarify where needed. This shows the first step in the application of the Matrix and leads into deeper thinking about an event in light of the organization's desired goals or research topic. The feedback exercise helps to demonstrate that oftentimes our "events" are not quite as clearly represented or comprehensive as we might like to believe.

Step 2: Fill in the Matrix Brief Blank (see Figure 2 below) for the event followed by further discussion and clarifications. Note that along the left side are three "Elements Categories." These three, refining categories help to bond the system clusters along the lines of personal well-being (Individual), community or socio-cultural well-being (Community-Global), and Philosophical grounding or rationale.

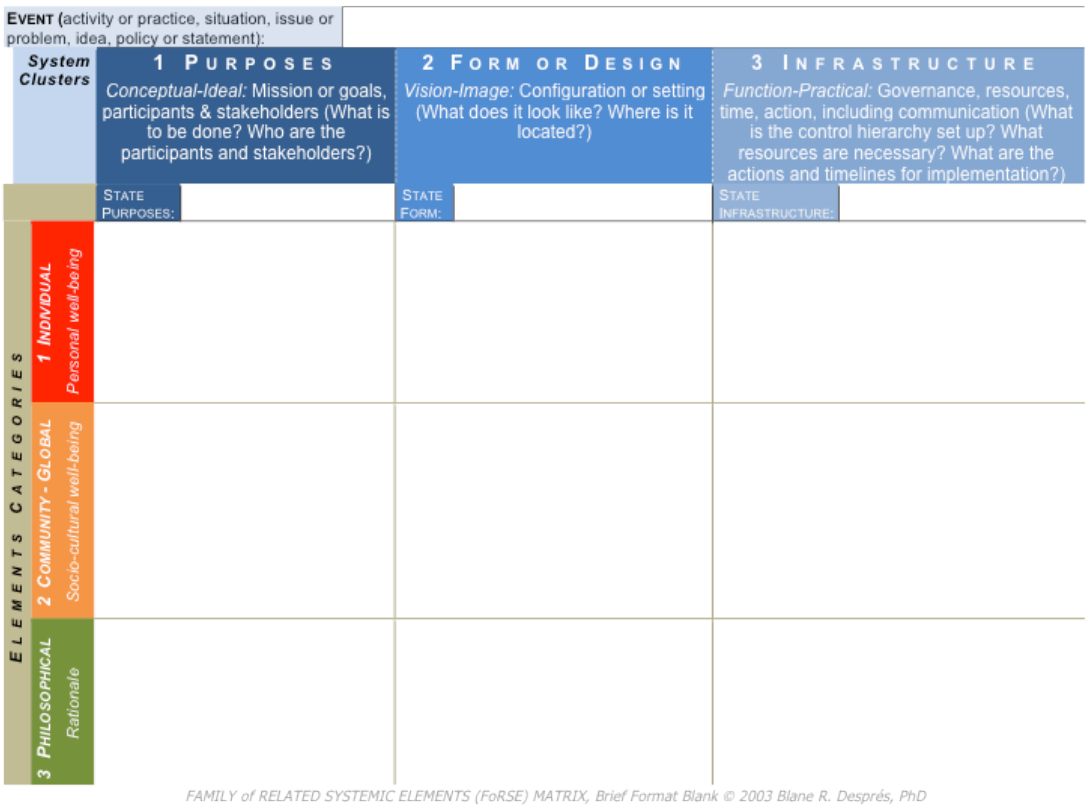
With the addition of the Elements Categories on the left side of the Matrix, now the discussion of purposes of education becomes even more complex. Beneath each of the System Clusters, consider how the purposes of education affect and are affected by individuals, both in the education system and outside. What will they say about those purposes, or about how they look or the Infrastructure? What about the community (local to global)? And finally, what is the rationale for the desired or chosen purpose of education for each of the clusters?

2.1 Ideally, discuss the event and tell how that event is meant to be implemented successfully or understood more deeply by your additions to the Matrix without defending what you say or what you have written.

Make note of any raised issues for further clarification.

2.2 This shows the complexity of the event and the necessity of giving deeper thought to the various, relevant elements. This activity also prepares for step 3.

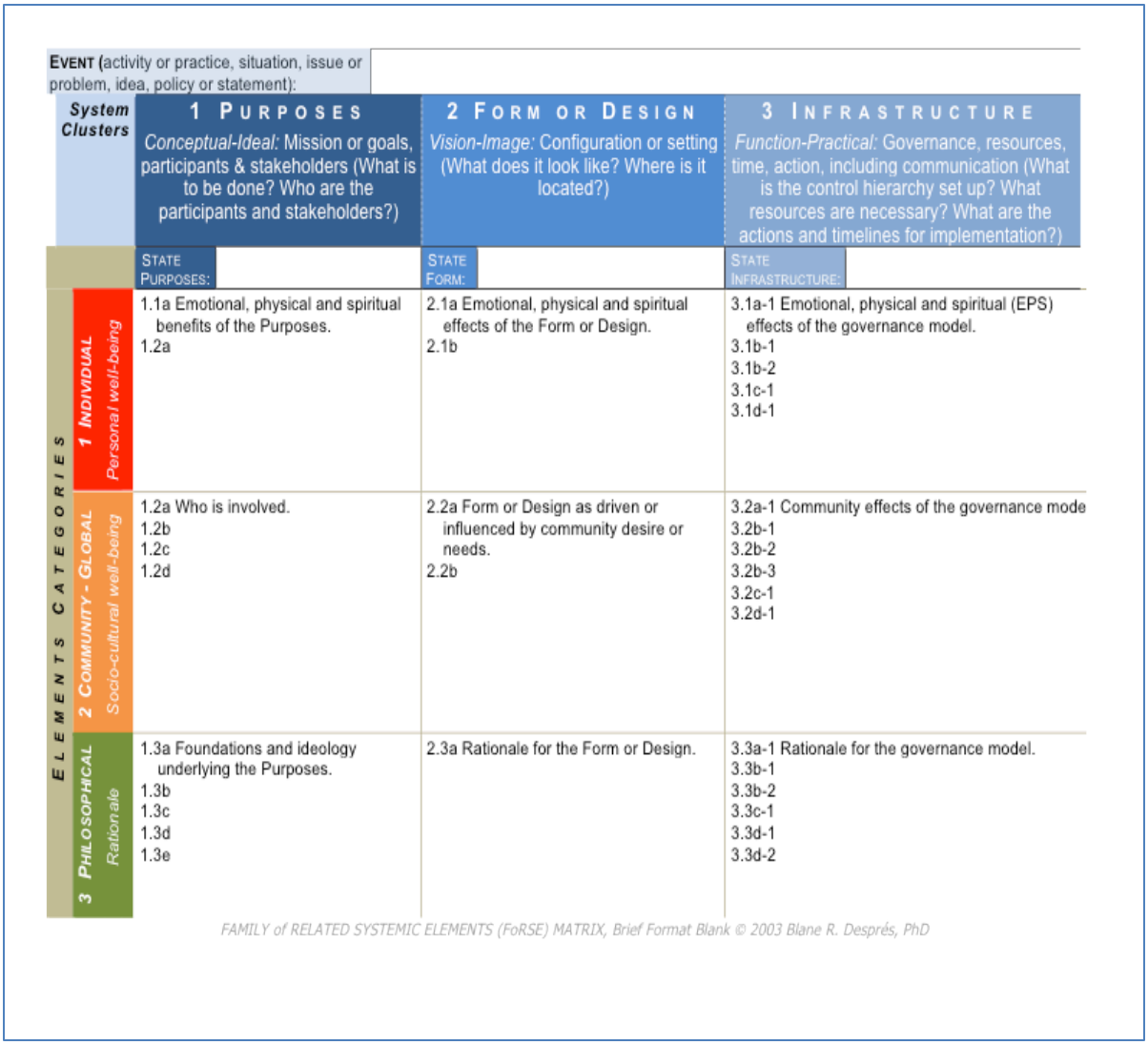
Figure 2 Step 2: FoRSE Matrix Blank



Step 3: Examine the event and the content from the previous stages via the FoRSE Matrix Brief (see Figure 3 below[4] that contains some initial statements), which contains guiding statements or imperatives (think "explore" or "examine"). Rework the initial event drawn out in the third stage according to these statements. This shows the next layer of complexity of an event and raises the level of attention to critical details that need to be aligned in the Matrix in order for the event to be more fully understood. It also begins to demonstrate how any incongruity of the elements works against success and creates problem areas, or "ripples" (i.e. the stuff of "further research").

[4] For the whole Brief visit http://www.rippledeep.com

Figure 3 Step 3: FoRSE Matrix Brief



EVENT (activity or practice, situation, issue or problem, idea, policy or statement):

System Clusters	1 PURPOSES *Conceptual-Ideal:* Mission or goals, participants & stakeholders (What is to be done? Who are the participants and stakeholders?)	2 FORM OR DESIGN *Vision-Image:* Configuration or setting (What does it look like? Where is it located?)	3 INFRASTRUCTURE *Function-Practical:* Governance, resources, time, action, including communication (What is the control hierarchy set up? What resources are necessary? What are the actions and timelines for implementation?)
	STATE PURPOSES:	STATE FORM:	STATE INFRASTRUCTURE:
ELEMENTS CATEGORIES 1 INDIVIDUAL *Personal well-being*	1.1a Emotional, physical and spiritual benefits of the Purposes. 1.2a	2.1a Emotional, physical and spiritual effects of the Form or Design. 2.1b	3.1a-1 Emotional, physical and spiritual (EPS) effects of the governance model. 3.1b-1 3.1b-2 3.1c-1 3.1d-1
2 COMMUNITY - GLOBAL *Socio-cultural well-being*	1.2a Who is involved. 1.2b 1.2c 1.2d	2.2a Form or Design as driven or influenced by community desire or needs. 2.2b	3.2a-1 Community effects of the governance mode 3.2b-1 3.2b-2 3.2b-3 3.2c-1 3.2d-1
3 PHILOSOPHICAL *Rationale*	1.3a Foundations and ideology underlying the Purposes. 1.3b 1.3c 1.3d 1.3e	2.3a Rationale for the Form or Design.	3.3a-1 Rationale for the governance model. 3.3b-1 3.3b-2 3.3c-1 3.3d-1 3.3d-2

FAMILY of RELATED SYSTEMIC ELEMENTS (FoRSE) MATRIX, Brief Format Blank © 2003 Blane R. Després, PhD

Applying the analysis of purposes of education, the particular statements help to determine even further attending considerations for additional elements that need to be taken into account. The Matrix Brief provides enough of a glimpse of the complexity of an event, and enough guidance to render a fairly thorough depiction of the event's elements, all of which must align. Any elements that are misaligned indicate problems to come, or the ripple effect.

Suggested Uses of the Matrix Brief

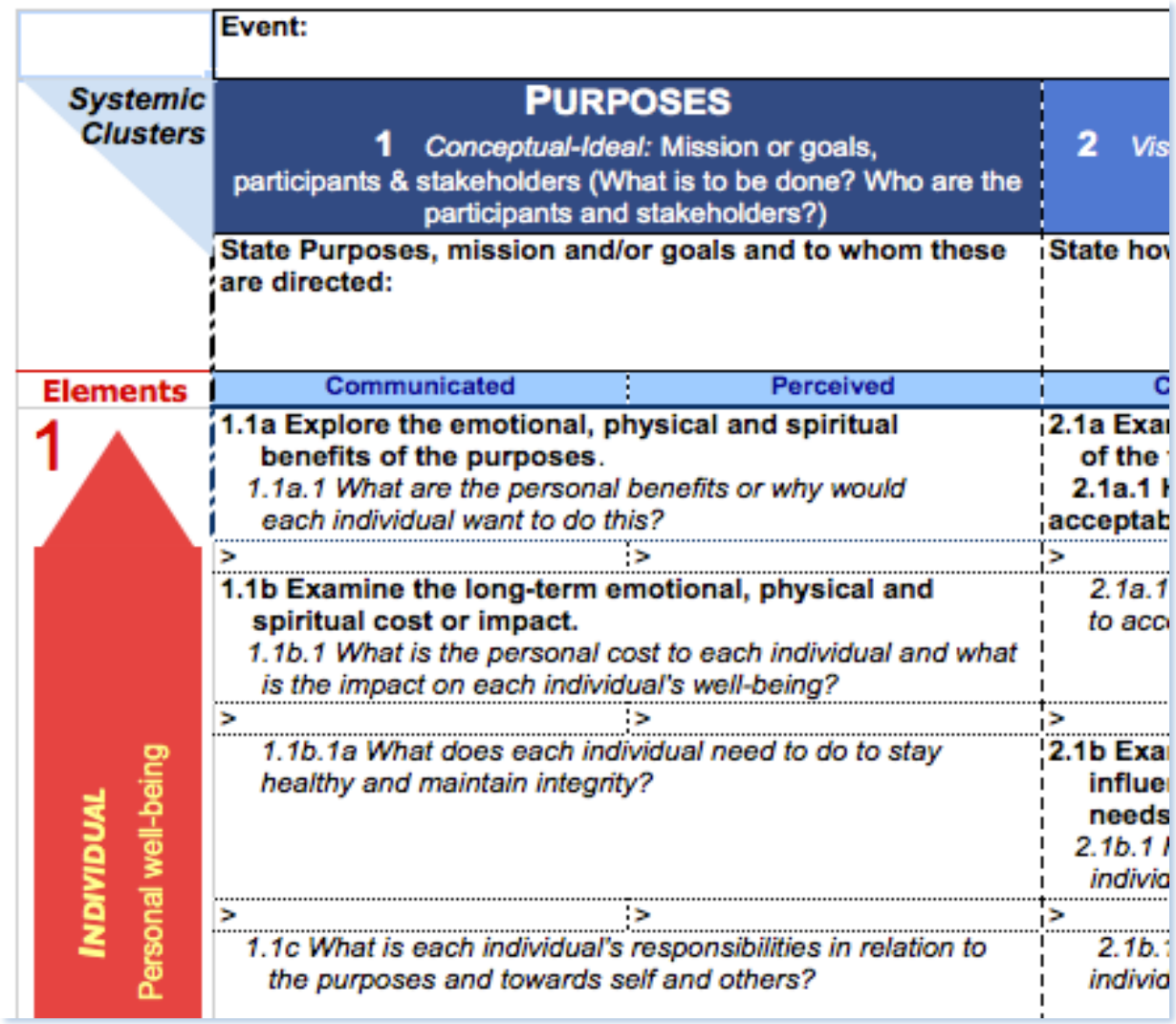
The Matrix Brief may be used to:

- ascertain what has already been covered in concept or discussion. This is the answer to the question, "Have we covered everything?" (For example, determine what has been considered and what is missing).
- pre-screen applicants for positions. Have them complete the FoRSE Brief as a response to a pertinent event.
- determine the locus of a search. For example, examine just the social cost of a set of actions (Infrastructure: Actions plus Community-Global).
- assist with a large-scale examination of an event by setting out just the Clusters (main categories or subheadings to be covered, perhaps by teams).
- provide a quick reference or guide for inputting data for an event or research data.
- act as a literature review repository (keywords or statements plus bibliographic data), which will provide a graphic depiction of how much of the event studied has been actually covered–as with the first bullet–and/or to what breadth and depth the event has been explored.

Step 4: With a completed Matrix Brief, it becomes evident that the event (not even the system yet) demands a great deal of effort to ensure congruence between the elements that also includes the clusters. To reap the benefits of a complete understanding of the event–the big(ger) picture–in order to achieve the desired success, a full analysis is recommended incorporating "communicated" (by the host organization, for example) and "perceived" responses (by clients, workers, stakeholders, public, etc.) for each of the Matrix cells (see Figure 4 below that depicts a glimpse of the whole Matrix). The full FoRSE Matrix presents refining questions for this final dimension of an event's elements. At this level the Matrix exposes what is aligned, what needs to be remedied, and presents areas of the event for dialogue on how to achieve sustainable success.

4.1 Apply the FoRSE Brief on a regular basis in order to enjoy more successes, save money on consulting, and to be more responsive to your organization's capacity, or in the case of researchers to be able to see what areas of research are being covered and what is missing. This shows the complexity of any event and the utility of the FoRSE Matrix as a means of prognosticating or diagnosing an event for any size organization.

Figure 4 Whole FoRSE Matrix (snapshot)



	Event:	
Systemic Clusters	**PURPOSES** **1** *Conceptual-Ideal:* Mission or goals, participants & stakeholders (What is to be done? Who are the participants and stakeholders?)	**2** *Vis*
	State Purposes, mission and/or goals and to whom these are directed:	**State hov**
Elements	**Communicated** | **Perceived**	**C**
1 **INDIVIDUAL** Personal well-being	**1.1a Explore the emotional, physical and spiritual benefits of the purposes.** *1.1a.1 What are the personal benefits or why would each individual want to do this?*	**2.1a Exa of the 2.1a.1 acceptab**
	> | >	>
	1.1b Examine the long-term emotional, physical and spiritual cost or impact. *1.1b.1 What is the personal cost to each individual and what is the impact on each individual's well-being?*	*2.1a.1 to acc*
	> | >	>
	1.1b.1a What does each individual need to do to stay healthy and maintain integrity?	**2.1b Exa influe needs** *2.1b.1 indivio*
	> | >	>
	1.1c What is each individual's responsibilities in relation to the purposes and towards self and others?	*2.1b.1 indivio*

The FoRSE Matrix helps to work in the complexity of an event and provides pertinent questions that expose areas of coverage as well as missing elements. It quickly helps to focus attention on the real problem areas. Revisiting the event and proposed solutions over the course of time, be it a few weeks or months, or in conjunction with annual reviews, will give the user a big(ger) picture understanding of the event and how well the desired goals are being achieved. The outcome of a FoRSE Matrix analysis will ensure a comprehensive or broadly-deep depiction of the event while showing key areas in need of action as well as success.

For the discussion on purposes of education, we can see how a systemic analysis is a large undertaking demanding time and attention to details. With individual input ("Perceived" column), stakeholders and participants can voice their thoughts on the event. This data along with revisiting the Matrix elements, will lead to a true achievement of purposes.

Interpreting and Reporting the Outcomes

To interpret the outcomes of the FoRSE Matrix analysis, each step will entail examining or comparing the communicated statements for the event:

1. For Step 1, the System Clusters must be congruent with one another. That is the Clusters must enable each other. For example, if the purposes of education for a school district focus on the well-being of students and their preparedness for life in the 21st century, but fail to either alter the architecture of learning (schools built as quasi factories, timetables, standardized testing, etc.) or ensure sufficient resources and actions to achieve those purposes, then either the purposes ought to be changed to accommodate the reality of the Form or Design (the architecture of learning) and the Infrastructure (governance, resources, time and actions), or conversely, the Form or Design and the Infrastructure will have to be changed to achieve the purposes.
2. For Step 2, now there is more data to compare as the input of Individual, Community-Global and Philosophical dimensions are considered. Do these dimensions also align? For example, as the event is re-examined in the context of the individual, what thought is given about the well-being of the person affected by the event for each of the Clusters? Where there are compromises or possible issues, there are problems in need of solutions. These solutions will become clearer in the next step.
3. For Step 3, guiding statements or imperatives help to focus the data even further. For example, to contemplate and discuss the ramifications of the event and its impact on the individual, notice the consideration of "emotional, physical and spiritual" elements. There is bound to be a reaction or response to the event in each of these three categories. Are they or have they been explored to accommodate and ready participants and to what extent? For each of the other Elements Categories there will also be a statement and expected participant response all of which demand consideration. Not to do so will invite problems that in the long run will thwart (systemic) change. Both Step 3 and 4 require greater depth of exploration.
4. Finally, for Step 4, which entails the whole Matrix in its deeper application of refining questions, the perceived statements about the event. Ideally the perceptions of participants will be similar to—or align with—the communicated statements.

An assumption about perceptions of participants (the "affected") is that regardless of what is communicated or not, they will have a perception or reaction about what they think about the imperatives or guiding statements from the Matrix. That is participants will have something to say about the event even if there is nothing communicated officially. The questions to ask, while

interpreting this "data" include, "What are people's reaction or response to this event? What is missing in the event or in the communications about the event? How well do the clusters and elements align?" The answers to these questions, whether to self or as a collaborative effort, will be evident from the data. Any area that exhibits a misalignment of either perception or coverage of the event by the initiators of the event signals an area in need of attention.

To generate a report from the FoRSE Brief, use the System Clusters as main headings followed by a summary of the responses to the guiding statements beneath the Cluster. The report will serve as an executive summary of the outcomes allowing for directed dialogue about action items. For the advanced, whole FoRSE Matrix, summarize the Perceived column statements for each of the System Clusters and Elements Categories junctions or Matrix cells (e.g. Purposes System Cluster intersecting with the Individual Categories cell) and compare these with the communicated statements for the same guiding questions in each of the cells. Do this for each of the Clusters and Elements Categories throughout the Matrix. Once that is complete, compare the summaries for each of the cells to determine the degree of congruity or alignment throughout the Matrix. Wherever there is a disconnect or irregularity between the communicated and the perceived elements, or between cells, there is a potential problem area, which a) could become a new event to examine, and b) needs to be rectified to ensure the system's optimal functioning and ultimately the organization's goals.

Future Developments

Further developments of the FoRSE Matrix in progress include complete, online database-driven software with the ability to store as well as generate reports for events or for comparative analyses over time as a form of feedback loop, for example (See http://www.rippledeep.com). Hopefully it is clearer about the use of the Matrix in dealing with the purposes of education.

About the Author

Dr. Després has taught most subjects at all levels of K-12 schooling, though primarily French as a Second Language including short stints in French Immersion, gifted education, drafting, automotive and woodworking, and at a storefront school for a couple of years (while writing his dissertation). He has been designing and building houses since 1982. His M.A. degree was a narrative study of an alternative learning program he initiated and his Ph.D. was on business and education partnerships (both in curriculum and instruction). It was during a hiatus from the dissertation to run a business that he came upon systemic thinking through Flood's (1999), *Rethinking the Fifth Discipline,* and became hooked. He returned to the dissertation and applied systemic thinking to the analysis of the data and thus began the development of his systems thinking matrix for modeling and analysis, which now gets applied just about everywhere he turns.

His interests include the obvious systemic thinking, advancing it as a primary model for and analytical tool of all events (policies, organizations, happenings), and networking with like-minded and to-be-eventually like-minded, active systems thinkers; educational reform; leadership; purposes of education; philosophy; architecture and alternative learning approaches (e.g. homeschooling). Blane may be reached at blane.despres@ubc.ca.

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Thank you for your interest in these Reports.

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