KIV06144

A NEW DYNAMICS PARADIGM
FOR ANALYSING STRUCTURAL AND CULTURAL DYNAMICS
IN AN EDUCATIONAL ORGANISATION

Charles Kivunja and Anne Power

University of Western Sydney, Australia

Abstract

A plethora of organisational behaviour literature leads to the deduction that structure as the under girding framework of the definition and arrangement of roles and responsibilities in any organisation is important in designing a school, but it is not the only consideration. For school reform to be effective it is essential, not simply to re-structure, but to consciously re-culture the values, beliefs, norms and practices of participants in the school community.

Unfortunately, whereas restructuring of schools became a buzz-word in the 1980s, the development of collateral theoretical constructs to help analyse the nature of the structural-cultural dynamics in the organisational life of an educational institution undergoing change appears to have lagged behind.

This paper presents a new Dynamics Paradigm designed in a doctoral thesis (Kivunja, 2006) to specifically provide a cognitive lens for examining deeply into the structural and cultural dynamics in an educational institution undergoing major reforms. Starting from a well documented corporate organisational dynamics model (Pace, 2002) the paper details how 16 dynamics core variables derived from 14 secondary schools newly restructured into multi-campus colleges in New South Wales were incorporated in the new Paradigm to provide a versatile mental map which was then used to extend an understanding of the structural-cultural dynamics in the schools.

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Introduction: The need for a new Dynamics Paradigm

A plethora of chronological literature on the dynamics of organisational, structural and cultural change by historical organisational theorists (e.g. Smith,1776, Wilson, 1887, Weber, 1914, Fayol, 1916, Follett, 1929, Mayo, 1933, Gulick and Urwick, 1937, Barnard, 1938, Roethlisberger and Dickson, 1939, Moreno, 1947, Bales, 1950, McGregor, 1960, Likert 1961, Lawrence and Lorsch, 1967) and by more contemporary researchers such as Galbraith, 1973, Dewar and Duncan, 1977, Khandhwalla, 1977, Mintzberg, 1979, Fligstein and Freeland, 1995, Evans, 1996, Schein, 1997, Stoll and Fink, 2001, Louis and Miles, 1990, Fullan, 1991, 2000, 2001a-c, 2003; 2004, Dinham et al.,1995, Hargreaves and Fullan, 1998, Scott ,1999, Senge, 1999, Marks et al., 2000, Pace, 2002, Mulford, Silins and Leithwood, 2004, Young and Hester, 2004, Poole and Van de Ven, 2004, Grandori, 2005, Schein, 2005; as well as Stanford, 2005, leads to the deduction that structure, as the undergirding framework of the definition and arrangement of roles and responsibilities in any organisation is important in designing an educational institution, but it is not the only consideration.

The evidence suggests that changing the structure is important, but for educational reform to be effective it is essential, not simply to re-structure, but to consciously re-culture the values, beliefs, norms and practices of participants in the educational community. The conclusion from the literature is that reculturing of an educational institution should not only consider the desired new structure. Rather, a clear understanding of the interplay of the forces within the 'force-field' (Schein, 2005, p.352) among the subsystems of the organisation involved, both internal and external to the organisation, is needed to match the expected cultural outcomes to the proposed structures that can offer opportunities which help in the delivery of those outcomes to students, teachers, principals, parents, tutors, academics and the community at large.

Unfortunately, whereas restructuring became a buzz-word in the 1980s across the boardrooms of corporations large and small and crossed the boundaries into school situations and universities, the development of collateral theoretical constructs to help analyse the changes associated with such restructuring appears to have lagged behind. In particular there appears to be a lacuna of models tailored to relationships between structural and cultural dynamics in a given school setting or any other educational organisation capable of serving as a foundation on which to analyse the nature of the human interactions which occur in an educational institution undergoing major change. This is regrettable because, as Scott (1999, p.xi) warns, "there is much talk about

what must change in education, but when people get to work to put these desired developments into practice (the cultural dynamics), they often find themselves quite unsure how to proceed". Hampden-Turner (1992, p. 167) also counsels that:

> The world simply can't be made sense of, facts can't be organised,
> unless you have a mental model to begin with. (And that) You can't
> begin to learn without some concept that gives you expectations.

The present article presents a new Dynamics Paradigm designed in a doctoral thesis to specifically provide a cognitive lens for examining deeply into the structural and cultural dynamics in an educational institution undergoing reform. The development of the Paradigm commenced with an examination of a well documented corporate organisational dynamics model developed by Pace (2002) to evaluate whether the model or parts of it could be adopted to help extend an understanding of the structural-cultural dynamics in an educational setting. The examination showed that while Pace's model offers insights into the critical elements for change and performance improvement in a business organisation which maximises "productivity, quality and profit", Pace (2002, p.5), it needed to be redesigned to provide an effective theoretical construct for the advancement of understanding change in any educational institution. The new Dynamics Paradigm was developed using empirical contextual data obtained from the history of restructuring 34 comprehensive high schools in New South Wales DET schools to establish 11 multi-campus colleges. The data used relates to the critical, historical background factors as well as the following 16 human interactions variables identified from DET literature (DET, 1998-2004), as the core variables which need to be investigated to extend an understanding of the meaning of change in an educational setting.

The core structural-cultural dynamics variables built into the Dynamics Paradigm

* Critical, historical background factors, vision and mission	
1. Enrolments and retention rates	9. Linkages and joint resource use with TAFE and University
2. Curriculum breadth and subject choice	10. Extra-curricular activities
3. Learning environment	11. Principals' roles and leadership dynamics
4. Teaching environment	12. Students' outcomes
5. Shared vision and decision-making	13. Teachers' outcomes
6. One sex or co-education in a campus	14. Community perceptions, assumptions and beliefs
7. Resource availability and utilisation	15. Community involvement/reaction/response to the new model
8. Access to information technology	16. Comparison of new structure with old structure

Methodology

The research from which this paper is drawn was designed as a case study. This had several advantages consistent with Denzin and Lincoln (2000) and Merriam (2001). Multiple-case sampling methodology was used and both qualitative and quantitative research instruments (Miles and Huberman, 1994) were applied to gather data. N*Vivo* qualitative software was used to help in the analysis of the data. This section discusses how the data from the 14 schools included in the case study was incorporated into the Dynamics Paradigm.

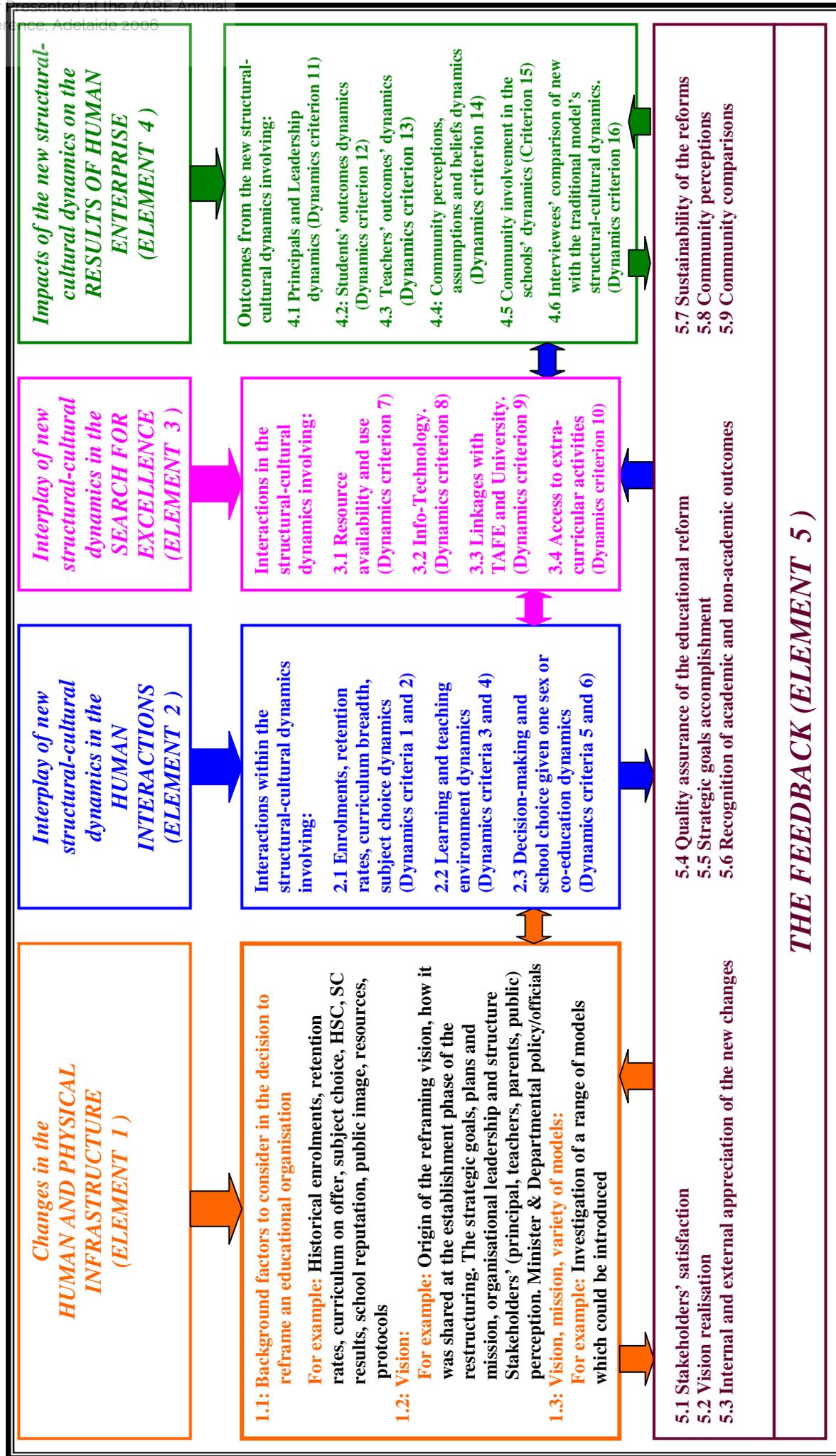**Incorporation of empirical data into the Dynamics Paradigm**

As shown in Figure 1, the critical background factors and the 16 core variables were incorporated into five major elements which constitute the building blocks of the new Dynamics Paradigm. These are identified as the Human and Physical Infrastructure (element 1), the Human Interactions (element 2), the Search for Excellence (element number 3), the Results of Human Enterprise (element 4) and Feedback (element 5).

The Human and Physical Infrastructure (Element 1)

As shown in Figure 1, the Human and Physical Infrastructure (element 1) was used to investigate interviewees' understanding of the background issues that were critical in the restructuring of the comprehensive high schools in their area into a multi-campus college. As illustrated in block 1 of the Paradigm, to clarify the investigation, this element was subdivided into the variables represented in subdivision 1.1 to 1.3 in the Paradigm. The general wording of the variables investigated in subdivisions 1.1 – 1.3, makes them applicable to the study of the historical factors critical in the restructuring of any educational institution.

In this element the Dynamics Paradigm puts students' outcomes as the key focus of reform in an educational setting, such as the multi-campus colleges studied. The design of the Paradigm to "put students' academic and non-academic outcomes first" was arrived at as a result of literature which makes it clear that improving students' academic and non-academic outcomes is the priority consideration in school reform. Dinham (1995, p. 70) for instance, referred to whether "any proposed change will facilitate or hinder pupil achievement and well being (as) the acid test" for effective school change. The literature that agreed with students' outcomes' priority in school reform asserted that making a difference in students' lives was the moral purpose of educational change (Fullan, 2000, p.4 and 2003, p.11) and it "is the basic rationale for teaching in post-modern society" (Fullan, 2000, p.8). Silins and Mulford (2002, p. 431) also say that "the primary goal of educational reform is improved student learning". Stoll and Fink (2001, p. 124) advise that the variable in any meaningful school reform ought to be "the paradigm shift in education, from

Figure 1: New Dynamics Paradigm for analysing structural-cultural dynamics in reframing an educational organisation

Changes in the HUMAN AND PHYSICAL INFRASTRUCTURE (ELEMENT 1)

1.1: **Background factors to consider in the decision to reframe an educational organisation**
For example: Historical enrolments, retention rates, curriculum on offer, subject choice, HSC, SC results, school reputation, public image, resources, protocols
1.2: **Vision:**
For example: Origin of the reframing vision, how it was shared at the establishment phase of the restructuring. The strategic goals, plans and mission, organisational leadership and structure Stakeholders' (principal, teachers, parents, public) perception. Minister & Departmental policy/officials
1.3: **Vision, mission, variety of models:**
For example: Investigation of a range of models which could be introduced

Interplay of new structural-cultural dynamics in the HUMAN INTERACTIONS (ELEMENT 2)

Interactions within the structural-cultural dynamics involving:

2.1 **Enrolments, retention rates, curriculum breadth, subject choice dynamics (Dynamics criteria 1 and 2)**
2.2 **Learning and teaching environment dynamics (Dynamics criteria 3 and 4)**
2.3 **Decision-making and school choice given one sex or co-education dynamics (Dynamics criteria 5 and 6)**

Interplay of new structural-cultural dynamics in the SEARCH FOR EXCELLENCE (ELEMENT 3)

Interactions in the structural-cultural dynamics involving:

3.1 **Resource availability and use (Dynamics criterion 7)**
3.2 **Info-Technology. (Dynamics criterion 8)**
3.3 **Linkages with TAFE and University. (Dynamics criterion 9)**
3.4 **Access to extra-curricular activities (Dynamics criterion 10)**

Impacts of the new structural-cultural dynamics on the RESULTS OF HUMAN ENTERPRISE (ELEMENT 4)

Outcomes from the new structural-cultural dynamics involving:

4.1 **Principals and Leadership dynamics (Dynamics criterion 11)**
4.2: **Students' outcomes dynamics (Dynamics criterion 12)**
4.3 **Teachers' outcomes' dynamics (Dynamics criterion 13)**
4.4: **Community perceptions, assumptions and beliefs dynamics (Dynamics criterion 14)**
4.5 **Community involvement in the schools' dynamics (Criterion 15)**
4.6 **Interviewees' comparison of new with the traditional model's structural-cultural dynamics. (Dynamics criterion 16)**

THE FEEDBACK (ELEMENT 5)

5.1 Stakeholders' satisfaction
5.2 Vision realisation
5.3 Internal and external appreciation of the new changes

5.4 Quality assurance of the educational reform
5.5 Strategic goals accomplishment
5.6 Recognition of academic and non-academic outcomes

5.7 Sustainability of the reforms
5.8 Community perceptions
5.9 Community comparisons

planning based on teacher intentions to planning directed towards pupil outcomes". This prioritisation in the design of the Dynamics Paradigm is therefore significant because it attributes to the student the primacy of focus he/she rightly deserves in any planned change as suggested by leaders in this field. Also analysed within this element, are views of students, teachers, principals, leadership team members, parents, the Minister of Education and those of Departmental officials whose background data informs the analysis in this element.

This data enabled the Dynamics Paradigm to target (in subdivision 1.1), historical aspects on students' enrolments and their retention rates. It also targeted curriculum breadth and depth on offer in the senior cohorts in each high school. Additionally, it incorporated data on subject choices available to students as contained in the operational timetable line/blocks in the old, years 7 – 12 comprehensive high school structures before they were restructured and amalgamated. Also discussed in this element were issues of HSC and School Certificate results of students in a historical perspective, as well as the importance attached to whether the high school was a single sex or co-educational environment.

This inclusion of historical data in the Dynamics Paradigm is important because it incorporates in the analysis of educational change the recognition that each of the educational institutions implementing change, like any other organisation, has a past – a history – of which it is part and from which certain values, beliefs and norms had been cultured. These need to be understood and addressed in the strategies for educational reform to ensure that such valued attributes are recultured in the new changes.

In applying the Dynamics Paradigm to multi-campus college data, the questions investigated in this element enabled the research to gain first hand information from interviewees in the multi-campus colleges about their understanding of the reasons for the reforms that the DET had introduced, resulting into the change to the structure of their years 7 – 12 comprehensive high schools into different cohort configurations and to integration of the schools so as to establish the multi-campus college in their area. Furthermore, the data generated by the questions directly put to interviewees, enabled the research to compare and to triangulate interviewees' arguments with the reasons found in the historic, secondary data from the DET and Ministerial sources

A second change in element 1 was the inclusion of organisational vision in the education change Paradigm, (See subdivision 1.2 of the Paradigm). When this change was applied in the case study of each multi-campus college site, this element targeted not only issues of leadership and organisational structure but also made it possible for the analysis to investigate interviewees' understanding of the vision for the new structures, its origin and how it was shared.

Thirdly, and more importantly from the model development perspective, the goals that were set in the integration and reconfiguration of the new structures were examined in this element. This change was made because it is quite common for schools to integrate their desired goals within their

vision and strategic plan. A well developed strategic plan articulates not only the vision of the proposed school change but also how the desired goals will be achieved so as to lead to the realisation of the vision in the long run. Thus, it is common for goals to be linked to vision statements of educational institutions.

In this regard, the Dynamics Paradigm was made quite representative of the human interactions within a school situation. Besides, the treatment of goals in this element enabled the Dynamics Paradigm to reduce the number of elements to five elements rather than the six that comprise Pace's model. This also added clarification to the analysis of data on educational change within the Dynamics Paradigm.

Additionally, this element (in subdivision 1.1), was also used to analyse observations made during the visits to each of the 14 college sites regarding the organisational, physical and human resource endowment in each of the colleges. Also using this element, data on the changes in organisational structures such as guidelines including intercampus protocols, resource sharing and timetables was analysed. Subdivision 1.2 of this element was used to investigate interviewees' understanding of how the worker (the principals and teachers) in the comprehensive high schools had been involved in the decision to restructure their high schools. Questions were also asked about leadership and management practices in the old structure.

Furthermore, parents' views on the historical aspects of their schools were also investigated in this element (subdivision 1.2). The role that was played by the Minister of Education and by DET officials and principals in the different areas where the schools were restructured was also investigated in this element using data from interviews with the Minister, a District Superintendent and principals in each site.

Also, as part of studying the background factors and mission, questions were asked regarding interviewees' understanding of why a variety of models had been introduced in the different locations rather than one model for all locales. As shown in the Dynamics Paradigm, that data was analysed in subdivision 1.3.

The Human Interactions (Element 2)

As illustrated in the Dynamics Paradigm, the variables investigated in the Human Interactions element (2) place emphasis on organisational members' understanding of how their Work System is performing, on their perception of opportunities offered to them by the Work System, how fulfilled members feel and their expectations of their working environment. These variables needed to be broadened so that they would target interviewees' understanding of human interactions involving 6 structural-cultural dynamics variables derived from the data on restructuring of comprehensive high schools given earlier.

The effect of this modification was to custom-design the Dynamics Paradigm to the question, "What are interviewees' understandings of how the structural and cultural dynamics of their multi-campus college interplay with selected human interactions in their college?" As can be seen in Figure 1, subdivisions 2.1 – 2.3, the dynamics variables for the 6 selected human interactions raised from the research data were, as shown in subdivision 2.1, enrolments and retention rates (1), curriculum breadth and subject choice (2); in subdivision 2.2, learning environment (3) and teaching environment (4), and in subdivision 2.3, participation in decision-making (5), and significance of whether the high school site was a single sex or a co-educational campus in students' choice of campus at which to study (6).

The Search for Excellence (Element 3)

Two new changes were performed on this element to enhance the analytical capacity of the Dynamics Paradigm when applied to change in an educational setting. Firstly, Pace's Dynamism element was re-named the "Search for Excellence" (element number 3) of the Dynamics Paradigm. Secondly, as shown in subdivisions 3.1 – 3.4 in the Paradigm four multi-campus college structural-cultural dynamics variables were introduced into the Paradigm. These two innovations were undertaken to serve two purposes. The first, served to champion the 'Search for Excellence' as the driving force for dynamism in educational change seeking to excel in making a positive difference to the lives of students regardless of their background (Fullan, 2000, p.4). The second one was used to further fit the Dynamics Paradigm to the dynamics (variables 7 – 10) found in the data from the 14 schools as the prime variables in this element of the Dynamics Paradigm.

Thus designed, this element was well suited to an examination of new ways of doing things in a school as well as teamwork within an educational organisation. Thus, as illustrated in subdivisions 3.1 – 3.4 of element 3 in the Dynamics Paradigm, this element was used to investigate, in subdivision 3.1, interviewees' understanding of the impact of new structural-cultural dynamics on resource availability and utilisation (i.e. dynamics variable 7) in their educational organisation, access to information technology and modern equipment in subdivision 3.2, (dynamics variable 8), linkages within each schools' cluster and couplings with TAFE, University and vocational education and training (dynamics variable 9) in subdivision 3.3, as well as interviewees' participation in extra-curricular activities (dynamics variable 10) in subdivision 3.4 in Figure 1.

The Results of Human Enterprise (Element 4)

As pointed out earlier, Pace's Outcomes elements are defined in terms of organisational productivity and improvements in the quality of goods and services resulting from innovations which lead to profit maximisation (Pace, 2002, p.5). This emphasis by Pace, of maximisation of

physical productivity of organisational resources for profit maximisation, clearly demarcates the primary focus of the cognitive lens provided by this paper' new Paradigm from that of Pace's model. Whereas the old model seeks to excel in maximising outcomes in dollar terms, the new Paradigm seeks for excellence in an educational human enterprise by making non-monetary, positive differences measured in academic and non-academic outcomes for the members of the educational institution.

This focal point of the new cognitive lens (the Dynamics Paradigm), is supported by strong evidence in the relevant literature (including Dinham, 1995; Fullan, 2000; Mulford, Silins and Leithwood, 2004), that educational change should be driven by the goal of improving students' outcomes. This innovation in the Dynamics Paradigm is therefore educationally significant and appropriately named the "Results of Human Enterprise" (element 4) in the Dynamics Paradigm.

In applying the Dynamics Paradigm to the analysis of data from the colleges studied, the Dynamics Paradigm incorporated outcomes' data on the variables from the multi-campus college scenarios studied into element 4. This enabled the research to really focus this layer of the new cognitive lens on both the academic and non-academic outcomes interviewees acknowledged and reported as realised in their educational Human Enterprise. Accordingly, as shown in subdivisions 4.1 – 4.6 of the Dynamics Paradigm data on interviewees' responses to the last 6 of the 16 dynamics variables (See variables 11 - 16 listed earlier) was analysed in the Results of Human Enterprise element of the Dynamics Paradigm.

As illustrated in the top section of element 4, that data related to the realised outcomes as understood by interviewees within the multi-campus colleges. In subdivision 4.1, the analysis targeted interviewees' understanding of the impact of the structural and cultural dynamics of their multi-campus college on principals' roles and leadership dynamics (dynamics variable 11). In subdivision 4.2, students' outcomes dynamics (12) were investigated. In subdivision 4.3, teachers' outcomes dynamics (13) were studied. Subdivision 4.4 examined community perceptions, assumptions and beliefs (14) about their new college. Interviewees' views about multi-campus college community's involvement (15) were studied in subdivision 4.5 and interviewees' comparisons of the new structural dynamics with the traditional, years 7 – 12 comprehensive high school structure (16) were analysed in subdivision 4.6. The number in the above parentheses refers to the identifying dynamics variable as obtained from the multi-campus college restructuring data listed earlier.

Using these variables the study applied the Results of Human Enterprise element to target interviewees' understanding of aspects of their school as a place of work, improved productivity and quality as well as sharing and cooperation from an educational perspective. Thus the educational change Dynamics Paradigm enabled the research to investigate principals' and teachers' interpretation of whether the structural-cultural dynamics in their college made it a better

place in which to work when compared to the old comprehensive high school, and students' views as to whether the reframed, integrated college was a better place for them to study in.

This element was also used to analyse data on improvements in students' non-academic outcomes in their structural-cultural dynamics as represented, for instance, by students' understanding of their empowerment and involvement in student governance. Data on students' understanding of self-concept and personal identity as well as their participation in decisions such as designing their school uniform was also analysed in the Results of Human Enterprise element. Data on changes in students' attitudes was also analysed in this part of the Dynamics Paradigm.

Additionally, this element was used to analyse data that was particular to teachers' outcomes. The data relating to their understanding of the impact of the new model on their career paths, professional development and opportunity for promotion was analysed in this element. Also analysed in this element was the data from interviewees about community perceptions about the structural-cultural dynamics of their new model and in particular how parents compared the new model with the old years 7 – 12 comprehensive high school model.

The Feedback (Element 5)

The Feedback element of the Dynamics Paradigm was designed to be used to investigate whether the activities in the structural and cultural dynamics within an educational organisation in which change has occurred are on target in terms of meeting the outcomes for which the educational institution was reframed, established and recultured.

As illustrated in subdivisions 5.1 – 5.9 in the Dynamics Paradigm, this element enables evaluation of an educational organisation in terms of stakeholders' satisfaction (5.1 in Figure 1), educational vision realisation (5.2), internal and external appreciation of the new changes by internal and external stakeholders of the educational institution involved (5.3), quality assurance provided by the educational change (5.4), accomplishment of long-term educational goals by the educational institution (5.5), educational community recognition of academic and non-academic outcomes (5.6), sustainability of the reforms introduced by the educational change (5.7) community views of the perceived impact of the new educational changes on the image of public education in the locality and State in which the changes are introduced (5.8), and community perceptions of how the new model compares with the orthodox comprehensive high school model (5.9).

In the application of the Dynamics Paradigm to the analysis of data from the 14 schools studied, the Feedback element was used to shed light on the overall (big picture) dynamics discovered about the meaning of educational change from comprehensive high schools to an integrated multi-campus college as perceived by interviewees. The analysis highlighted interviewees' views regarding their satisfaction with the new structural-cultural dynamics of the colleges, the gains in students' outcomes, leadership dynamics, gains and losses in teachers'

outcomes and gains for the locality where the colleges are situated as well as the gains for public education in New South Wales.

Interviewees' understanding as to whether the restructuring of their comprehensive high schools had led to the realisation of the vision and strategic goals presented to them at the restructuring phase was analysed. Interviewees' appreciation of the critical factors that influenced the decision to restructure their comprehensive high schools was examined. Findings on interviewees' recognition of the achievements of the multi-campus college model and what was or was not working within the new structural-cultural dynamics regarding academic and non-academic outcomes was analysed in this element. The study's findings on interviewees' understandings on the sustainability of the educational reforms which established the multi-campus colleges and their consideration of the significance of the imposition of the moratorium on further establishment of the colleges was also analysed in the Feedback element.

As illustrated in its application to the data from the 14 schools studied, the Feedback element of the new Dynamics Paradigm creates an opportunity for research to evaluate the performance of an educational organisation following its reframing and reculturing to gain a deeper understanding of the meaning of that change. Such "feedback" is considered useful because, as Silins and Mulford (2002, p. 429) say, it "supports active inquiry".

This new Dynamics Paradigm represents the key factors relevant to the central questions that need to be raised regarding the structural-cultural dynamics in educational change in a reframing, reculturing organisation. The vertical and horizontal links among the blocks illustrate the contiguous interactions and multi-faceted interplay among the structural-cultural dynamics in a changing educational institution. The Paradigm presents a holistic representation of how the interactions and tensions among the different elements of an educational organisation take place. In the doctoral research, it was used to investigate the realised the structural-cultural dynamics of change as reconstructed by interviewees in 14 secondary schools. The rest of this paper summarises and discusses the empirical results from the application of the new Paradigm.

Empirical testing of the new Dynamics Paradigm and results

Figure 2 synthesises the findings in each of the five elements of the Dynamics Paradigm. As illustrated in element 1, the research found that the vision for the establishment of the multi-campus colleges was Ministerial in its origin. The nature of the decision was so powerful that in spite of overt opposition from the majority of parents in the relevant locality to its implementation, the Minister and the DET went ahead with the introduction of the new model for New South Wales. The reasons why the particular schools had been selected for the restructure were mainly contextual but 98% of all interviewees said that the old structural dynamics were no longer meeting the curriculum needs of all students. The new structural dynamics created opportunity for

Figure 2: Synthesis: Analysis of the key findings revealed by the Dynamics Paradigm

Dynamics Paradigm Element	Synthesis of the analysis of the key findings in the 14 schools studied
HUMAN AND PHYSICAL INFRA-STRUCTURE **Element 1**	• Ministerial origin of the restructuring vision and policy. • Strategic four policy aims: Reconfigure, integrate, collegiate and coordinate. • Ministry and DET were the positive impetus to unfreeze institutionalised structural-cultural dynamics and create motivation for change in a 'top-down' strategy. • Provision of a new human and physical infrastructure that creates opportunities for new pedagogy and culture to evolve. • Curriculum broadening; Locational opportunity creation; Contextual contingency; • Economic efficiency as critical factors. • Restructuring momentum curtailed by current moratorium. Sustainability questions.
Interplay of the new structural-cultural dynamics in the *HUMAN INTERACTIONS* **Element 2**	• Integration and coordination of human interactions creates opportunity for pedagogical reculturing and new learning relationships. • Excess capacity utilisation created, provides greater enrolment capacity. • Innovative approach to secondary schooling delivery – a new culture and mindset. • New and closer partnerships with TAFE, TVET and University are enabled. • Enrolments, retention rates, broader, deeper curriculum and greater subject choice. • Improved P6 to Year 7 transition • Drift to private schools stemmed or reversed by belief in new opportunity to excel. • Cultivation of a more dynamic and more mature learning environment. • Dynamism in responsibility for learning and reflection in teaching, leading, parenting. • 'Specialist' middle school and senior school pedagogies and teachers more effective. • Co-educational campus preference.
Interplay of the new structural-cultural dynamics in the *SEARCH FOR EXCELLENCE* **Element 3**	• Human, physical and technological economies of scale in the college. • Abundant supply of additional resources especially ICT and modern equipment. • DET achieves economies of scale. • Structured couplings with TAFE, TVET and University diversify curriculum. • Diversity in capacity to meet diverse students' interests, abilities and pathways. • Interface between high school and University promotes post-compulsory education. • Interface also gives access to new, superior information communication technology. • Win/win primary outcomes for colleges, DET, public education and parents. • Excess capacity utilisation replaced by intensive resource utilisation. • Delivery of gains in education and pluses in the financial budget-line. • Broader and more diversified access to extra-curricular activities.
Interplay of the new structural-cultural dynamics in the *RESULTS OF HUMAN ENTERPRISE* **Element 4**	• Centrality of principal leadership in designing, restructuring and reculturing success. • Increased coordination, interdependence and collegiality for improved students' results. • Values, norms and beliefs intertwined with different leadership styles. • Greater layers of leadership, principals and critical mass of people. • Improved academic and non-academic outcomes in a better model. • A more adult and better learning environment is created. • Augmented student engagement and governance by younger students occurs. • Self-belief, self-concept and appraisal increase positive identity. • Aboriginal students' engagement, participation, retention and success rise. • Structural dynamics change the cultural dynamics among Aborigines. • Opportunity for experimentation and creativity. • 'Specialist' middle school or senior school teachers. • Management strategies and protocols targeted to relevant students' group. • Parents converted and consider new model better. • Challenges to teachers' work and career opportunities resulting into insecurities.
FEEDBACK **Element 5**	• Cumulative, multiplied effects in interplay of human interactions. • Multiplier rounds amplify multiple realities in human effects. • Stakeholders' satisfaction with the new structural-cultural dynamics. • Public recognition, involvement and appreciation of new model. • Positive affirmations re- improved outcomes by all interviewees. • Ministerial, DET and other theoretical speculations validated, and vision realised. • Dynamics Paradigm tested and validated as an effective cognitive lens.

CUMULATIVE MULTIPLIER EFFECTS IN HUMAN INTERACTIONS

Multiplier

amalgamating students, reconfiguring cohorts, increasing the synergy of the critical mass of students and thereby be able to offer them a broader and deeper curriculum.

The contextual reasons for restructuring included seizing the opportunity created in the area by a site that was being vacated by a university, contingency in an area where the existing school needed to be rebuilt, efficiency to be derived from economies of scale, political reasons of the NSW government, policies by the DET and demonstration effects. Contextual contingency led to the design of different cohort configurations "to meet local needs".

The new vision was not a tinkering at the edges of educational change in the DET secondary school system. It represented a major policy initiative characterised by a departure from the orthodox delivery of secondary schooling in the State. This policy was driven by four aims to reconfigure, integrate, collegiate and coordinate the Human and Physical Infrastructure in the participating schools. This created a new human and physical infrastructure which offered opportunities for new structural-cultural dynamics to emerge.

As given in Figure 2, the data analysed in the Human Interactions element showed that integration and coordination of the schools participating in a multi-campus college or collegiate, had created opportunity for pedagogical reculturing and for the introduction of new learning and teaching relationships. Over 96% of all respondents "strongly agreed" with the statement that the multi-campus college structural dynamics give students a broader HSC curriculum and subject choice. More than 78% of the respondents "agreed" that the new model encourages higher enrolments, and retention rates. Interviewees were unanimous in their submission that "the multi-campus college structural-cultural dynamics were having a positive impact on their enrolments, retention rates and subject choice dynamics". A principal who characterised the Human Interactions made possible by the new model as "absolutely fantastic" was typical of the overwhelming appreciation of the model by the majority of interviewees. Students said, for instance, "we like it very much here because we get to choose whatever subject we want".

Over 61% of teachers said that students' attitude towards their school was more positive than it had been in the old comprehensive model. Some 84.69% of students said there was a friendly atmosphere at their school. The atmosphere at the schools was said to be stimulating to hard work by 72.50% of students. A large number of students (64.58%) said that students at their college were highly motivated.

Students, teachers and their parents said that the new model created a more mature learning environment for their students. A parent said that "I think they are maturing more than children in a 7 – 12 school because now when they are addressed by the principal say at an assembly, there are no 13 to 15 year olds. So here the children are spoken to as adults". Surprisingly, even in the middle school campuses, interviewees said that the new model had encouraged more mature student behaviour as year 9 and 10 students had now taken on the responsibilities as school captains and

other school leaders. Students both in the middle schools and the senior campuses had become more engaged in their school life and empowered with greater school governance.

As shown in Figure 2, the analysis in the Search for Excellence element of the Dynamics Paradigm found agreement among 71.88% of teachers that their school has better facilities since becoming a multi-campus college and 72.00% said that the school had better access to new technology. More than half of all teachers said that resources at their college were now being used in a better way than they were before the new model was introduced. Overall, all interviewees were of the consensus that the new structural dynamics had provided better facilities for learning and students were now more engaged and involved. For many students "school was now fun (because) surfing on the net is cool". Moreover, the data showed that the colleges had developed meaningful couplings with TAFE and university which gave students improved opportunities for participation in post-compulsory tertiary education.

The analysis in the Results of Human Enterprise element showed the centrality of the principals' leadership in the designing, restructuring and reculturing their colleges. Leadership and culture were found to be so pragmatically intertwined so as to be consistent with Schein's (2005) suggestion that they are two sides of the same coin. A new kind of leadership based on interdependence and Unity without Uniformity had replaced the old, autonomous way of leadership typical of the orthodox comprehensive high schools. Horizontal collaborative relationships were evident among principals in the middle schools of one college. So was vertical coordination obvious between middle school principals and senior campus principals. These relationships were highly prized as reflected in a principal's comment that "I find it absolutely fantastic. It has made my work immeasurably easier. From being on your own to make important decisions by yourself, to working as a team".

Both in the middle schools and in the senior campus, the study found that there was better focus on the respective pedagogy and appropriate intervention could more easily be given to help students improve their performance. In both these areas, teachers were developing their skills as "specialist teachers". This enabled them to adopt more productive pedagogies for their classes resulting into better teaching, learning and outcomes. Increased engagement of younger students in their governance had contributed to improved responsibility, aspirations, motivation and behaviour. Students, especially in the senior campus, were given more freedom as young adults and they valued this very much. Most of them tried to live to this expectation resulting in greater self and others respect and overall more mature behaviour. The larger cohorts in the senior campus had given students more realistic competition in examination situations and helped students to excel towards their personal best. Aboriginal students had found the Year 7 – 9 middle school, correlated to a years 10 – 12 senior campus a more conducive participation and learning environment, leading to improved retention rates, completion of high school and success in the HSC examinations.

A reflection on the structural-cultural dynamics analysed in the Feedback element of the Dynamics Paradigm revealed that the benefits accruing from the interplay of the human interactions in a multi-campus college model have multiplier effects. That is, that the gains realised in one round of interactions, lead to additional benefits in future time periods. Additionally, the benefits experienced at one level, e.g. in the senior campus, flow on to benefit students in the middle schools and in the primary feeder schools. Moreover, the gains at school level have positive impacts on the community where the college is located and at DET systems level.

Overall, stakeholders across the 14 schools in the multi-campus colleges studied said that they were very satisfied with the structural and cultural dynamics of their new model. The key factors in this satisfaction were the improved students' outcomes at both an academic and non-academic level. The success of Aboriginal students was repeatedly referred to as an outstanding success which had made a positive difference to the lives of these students in contexts in which they could have dropped out of school. There was an appreciation that Ministerial vision was being realised and that students, parents and the school community were the big winners.

Conclusion

The Dynamics Paradigm developed for this research and applied to data from the 14 schools studied was found to offer a powerful cognitive lens to investigate profoundly, into the meaning of the dynamics of change in an educational setting. The inclusion of both structural and cultural dynamics in the Dynamics Paradigm empowers this cognitive lens to investigate deeply into the interplay of the structural and cultural dynamics in an educational institution. The use of both qualitative and quantitative data enhances its versatility.

The historical, background factors and the 16 variables within its 5 elements encompass a wide array of layers of structural-cultural dynamics variables which need to be investigated in an attempt to extend an understanding of the meaning that people in an educational institution undergoing change make of the dynamics of their contextual phenomenon. Thus, the model has the potential to benefit research into the dynamics of change in a wide variety of educational organisations.

In the application of this Dynamics Paradigm to specific contextual settings in educational change involving the establishment of multi-campus colleges, the incorporation of the wide range of variables within the 5 elements of the Dynamics Paradigm enables the analysis to focus on the disintegration of the traditional, isolative, years 7 – 12 comprehensive high school structural dynamics and their replacement by reconfiguration of the cohorts in those schools and integration of different campuses into one college cluster of schools and augments the validity of the model.

The inclusion of both historical, background variables and the 16 dynamics variables operationalises the Dynamics Paradigm to investigate how the hierarchical autonomy of the old

comprehensive high school model had been replaced by laterally and vertically coordinated collegial coalitions of campuses that are loosely or tightly coupled for mutual interdependence in the delivery of secondary schooling in the new structural-cultural dynamics.

Thus designed, the Dynamics Paradigm creates the opportunity for educational researchers, not only to examine the relationships among the background, historic factors and the 16 structural-cultural dynamics variables of the 5 elements using real life data, obtained from the multi-campus colleges case studied for this paper, thereby shedding new light on an understanding of the human interactions in a multi-campus college as reconstructed by students, teachers, principals and parents in a multi-campus college learning community, but also offers a powerful cognitive lens for extending our understanding of the structural-cultural dynamics in any given educational change situation. The results of empirically testing the Dynamics Paradigm move this new Dynamics Paradigm for educational change from the realm of theory to one of customised, naturalistic empiricism and offer researchers an opportunity to apply the New Paradigm to their contextual peculiarities.

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