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**Organisational innovations in the integration of learning and earning:
Professional development, curriculum, student outcomes and teacher education**

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Abstract

This paper reports on a preliminary investigation into organisational innovations in Senior Learning as these potentially relate to teachers' professional development, the curriculum and the outcomes for young adults. Specifically, this paper focuses on an investigation into organisational innovations in Senior Learning in Queensland through a study of the "hub and spoke" model for institutionalising in Vocational Education and Training in (Senior Secondary) Schools (VETiS). 'Organisational innovation' is conceptualised in terms of Bernstein's (1977) arguments regarding the isolation versus integration of education and production, that is the tension between dividing or combining school and work. The research process involves the collection and analysis of publicly available documents from the Queensland Mineral and Energy Academy (QMEA) and its schools. The analysis of evidence highlights teachers' professional learning, the positioning of vocational education and training in the curriculum and the key achievements for young adults from Senior Learning. This paper explores the implications of these organisational innovations in school-based, work-integrated education and training for teacher education.

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Key words: Bernstein, core and extra curriculum offerings; student outcomes; teacher qualifications, teacher professional development, Vocational Education and Training in Schools, VETiS.

Introduction

The ‘hub and spoke’ mode of organising collaboration between schools (and their communities) represents a potentially significant innovation in learning and earning at Years 10, 11 and 12 (Senior). Specifically, this paper explores whether this organisational innovation could provide any added advantage in terms of professional development, curriculum and student outcomes. Bernstein’s (1977) theorisation of the relationship between education and production has been chosen as the conceptual framework for this paper; while his theory has been widely used in educational research in Australian schools it does not appear to have been used as an analytic for researching the reform of Senior Learning through VETiS.

This paper reports on an aspect of an Australian Research Council study (Singh & Sawyer, 2008), which includes looking at leadership issues in terms of organisational innovations in Senior Learning in Queensland as a result of the introduction of Vocational Education and Training in Schools (VETiS). In particular, it focuses on the Queensland Mineral and Energy Academy’s (QMEA) “hub and spoke” model for organising provision of VETiS. It spotlights the QMEA’s constituent schools and their representation of their involvement in VETiS in order to begin exploring the potential of this organisational innovation in Senior Learning. Case study methods are being used for this study. The data collected for analysis comes from the 2007 Annual Reports by schools and the 2008 Next Steps survey into the post-school destinations of Year 12 completers. Using evidence from QMEA and its constituent schools, the data has been analysed for what it reveals about organisational innovation in linking earning and learning in Senior, thus the idea of Senior Learning. The implications of integrating Senior Learning for teacher education are canvassed.

Conceptualising the relationships between school and work

Our conceptual tools for theorising organisational innovation in Senior L/earning are drawn from Bernstein's (1977) seminal account of the relationship between education and production. Some of Bernstein's (1977) key ideas which we find helpful for enhancing our thinking about these issues are:

1. Dominant and dominated class and educational code
2. Different class's direct/ indirect relation to production/education
3. Exclusion/separation classification of agencies, agents and acquirers
4. Apparent autonomy from production
5. Integrated, interchangeable classification of agencies, agents and acquirers
6. Integrated agent
7. Systematic relationship with production
8. Division of labour between education and production
9. Change, conflict, contradiction and correspondence

The research reported here is concerned with the organisational changes in the relationships between education and production, specifically what the re-structuring of the relations between schools, and schools and work might mean for teacher education. Key to understanding the relationship between education and production is the power of the classifying these two categories. Bernstein (1977, p. 188) observes that where this classification is rigid, "then the principles, contexts and possibilities of education are not integrated with the context, processes and possibilities of production". If the classification between education and production is flexible, integration occurs. The linking of learning and earning in our concept 'Senior L/earning' speaks to this integrated classification.

Much of the policy agenda today calls for the integration of education and work, in schools as in universities (Bradley, 2008; Harreveld & Singh, 2008). Where the classification remains rigid, production (work) and education (knowledge) are cut-off from one another. Or at least there may seem to be a separation between production (dominating power) and education (dominating control). The following are the key analytical tools we are using to conceptualise the inter-relationships between Queensland minerals and energy sector and the QMEA and its schools, that is, between production and education, as much as between schools in the QMEA.

Dominant and dominated class and educational code

Bernstein (1977) considers class as a dominant cultural category, produced and maintained by the mode of production. It is the basic classification which creates the social relationships of production. *Codes* are the basic message structures of schools expressed in the relationships between classification and framing. Bernstein (1977, p. 180) defines code as “a regulative principle, tacitly acquired, which integrates relevant meanings, the form of their realisation and their evoking contexts”. When a code changes definitions of operating ideas, taken for granted expressions of these ideas, and the context which legitimises them also change. Thus, we might expect with the a ‘hub and spoke’ model for organising the integration of Senior L/earning to see changes in the curriculum, teacher qualifications, professional development and student outcomes. Likewise when the classification and framing change, similar variations occur. Bernstein (1977, p. 181) observes that “inherent in the classification is the distribution of power; inherent in the framing is the principle of control”. Therefore, classification (or power) and framing (or control) can be used to interpret the education and production codes in changes the organisational modes for Senior L/earning. Variations in the codes are different historical realisations of the dominant cultural category and symbolise different means of its reproduction.

Framing refers to “the principle which regulates the process of transmission and acquisition” (Bernstein, 1977, p. 176). This principle varies, as the form and content of the relationship between education and production changes. Different principles of framing control the experience of students which are realised in pedagogic relationships. Bernstein (1977, p. 176) notes that “different principles of framing [means] different forms of experience”. Framing tells us about the form of the content in the process of its transmission. Framing involves the control of selection, sequencing and pacing or rate of expected acquisition of the knowledge transmitted for acquisition. Bernstein (1977, p. 179) argues that where framing is rigid, “then the acquirer [student] has little control over the selection, organization and pacing of the transmission”. The same can be said for the teacher as a transmitter. The more divisive the act is, the more rigid the framing.

Different classes have direct/ indirect relation to production/education

Different classes approach education and/or production directly, indirectly or both. The ruling class, who “dominate production by deciding its means, contexts and possibilities” (Bernstein, 1977, p. 191) have a direct relation to production but an indirect relation to education, and cultural reproduction in general. This relationship shapes rather than decisively determines the educational code they experience. They are concerned with “the systemic relation between education and production; maintaining the class basis of the social relations of production” (Bernstein, 1977, p. 191). The middle class tend to appropriate “access to, and control over, specialized forms of communication ... [and have] a direct relation to cultural reproduction [including education] but an indirect relation to production” (Bernstein, 1977, p. 191). The middle classes function as agents of cultural reproduction. It is significant to note the relation between education and production is such that the middle class is conceived in terms of the formation and reproduction of the consciousness (Bernstein, 1977, p. 192). The consciousness of the working class, especially the lower working class, is less dominated by the mode of education but is essentially constituted by the mode of production.

Bernstein (1977, p. 187) argues that education policies may well require schools to “*legitimize* values and attitudes relevant to the mode of production”. However, schools in their various forms are not necessarily very productive in “creating a docile, deferential and subservient work force ... [that is in] disciplining its pupils” (Bernstein, 1977, p. 188). Education is not directly in rapport with a material base, although it is affected by such a base. The principle or form of transmission of education is related only indirectly to a material base.

Classification and the exclusion/separation of agencies, agents and acquirers

Classification refers to “the relationships between categories whether these categories are agencies [schools, industry, business], agents [teachers, trade people, other professionals] or acquirers [students, apprentices, trainees]” (Bernstein, 1977, p. 176). Various forms of power help to reproduce the particular relationships between these various categories. For instance, teachers and pupils are involved in “a

relationship of transmission and acquisition, whether this is unilateral or reciprocal” (Bernstein, 1977, p. 176). Classification tells us about the relationships between the categories which produce or change the organisation of schooling. The positional structure tells us the form of the relationship among teachers. The stronger the rules of exclusion, the stronger the classification of teachers, and thus their separation from other workers.

Apparent autonomy from production

The “apparent autonomy” of education can be defined in terms of the rigidity “of the classification between the category education and the category production” (Bernstein, 1977, p. 188). Where there is a rigid classification between education and production, this creates the conditions for the *apparent* autonomy of education, and thus “a division of labour between those who are located in production and those who are located in cultural reproduction (education): that is, between power and control” (Bernstein, 1977, p. 175). The *apparent* autonomy of education gives it “the appearance of objectivity, of neutrality, and at the same time, of altruistic purpose and dedication” (Bernstein, 1977, p. 190). These values are the characteristics of the middle class for whom education plays a role in creating, distributing and legitimating their cultural ethic.

Contradictions between the regulation of education and production are an indication of the apparent autonomy of education, or its apparent independence from production. If this apparent autonomy can be fortified, then it reduces the direct penetration of production, and this is significant, as it enables the power of the middle-class control to be realised in the education code (Bernstein, 1977, p. 192). This suggests that there is a correspondence “between the dominant educational code collection and the dominant code of production” (Bernstein, 1977, p. 185). Thus, a distinction can be made between and within “societies where education no longer possesses apparent autonomy and societies where education does possess apparent autonomy” (Bernstein, 1977, p. 189).

The principles of the power relationships are made evident through the principle of classification, that is the relationships between the categories, *and* the form of control realised in the principles which create framing of pedagogical practice. When

a student acquires these principles, he/she acquires the underlying code. So it is that classification and framing regulate meanings, and the principle creating and maintaining legitimate meanings. From this perspective, power and control are made “substantive in the classification and framing procedures which, in turn, create particular contexts and forms of educational practice which constitute the particular acts of social relationships of the school” (Bernstein, 1977, p. 177). In its social relationships, activities and practices, the school represents both power and control.

In the dominant cultural category, there is a reduction in the apparent autonomy of education, but no correspondence between the code of production and the code of education. This raises the question of “whether the integration of education with production (reducing the autonomy of education) is for the purpose of increasing the efficiency of production and so raising the material level of the society, or it is intended to change the *social* relations of production” (Bernstein, 1977, p. 189). Current policies promoting work-integrated learning point to the former.

Integrated, interchangeable classification of agencies, agents and acquirers

In twenty first century schools there are a range of codes. Any department of a school with a dominant collection code may well find itself transmitting forms of collection and forms of integrated codes, depending upon the age and the curriculum of the school. The more ‘able’ the student is considered, the more likely he/she would be to acquire a collection code. That is variations within and between codes entail both variations in content and variation in forms of control (Bernstein, 1977, p. 180). For instance, VETiS is regarded by policy makers and schools as

an important way to both retain students in school, provide pathways between education and employment through the provision of employment related skills and to increase the skills base of the economy (Stokes & Wyn, 2007, p. 503).

However, part-time work is regarded by schools as “an incidental and marginal activity, in which a student participates, with school remaining the main priority in a student’s life” (Stokes & Wyn, 2007, p. 503). Therefore, in these instances, and in States that sanction this, school and work remain separate worlds that young people move between. The rigid maintenance of this separation is increasingly in conflict with young people’s lives, as “greater proportions of young people are both workers

and students, occupying casual service industry jobs at a growing rate” (Stokes & Wyn, 2007, p. 503). Approximately, “50% of students in the final three years of secondary school have part-time work” (Stokes & Wyn, 2007, p. 503), but in some State and schools this is not integrated into their credentialed schooling. Balancing school and work becomes an issue for young people put into this situation who are both workers and students. Under such a rigid classificatory structure, school and work constitute domains that require very different and often contradictory identity performances.

Integrated agent

The realisation of an agent – a teacher – can be analysed in terms of the degree of discontinuity involved in the relationship between the act and the final product. The more integrated the act of teaching, the more likely the desired student learning will be realised (Bernstein, 1977, pp. 182, 183). If the classification of the act of teaching is flexible, it is integrated across agentic categories. As Hobbs and others (2007, p. 133) observe, “it is possible to draw attention to the limitation of children’s jobs and to question their usefulness as a learning experience”. However, it is important to acknowledge that “there is some evidence to support a more positive interpretation of this experience” (Hobbs and others, 2007, p. 133). Many young people had a positive view of their job, claiming that “there is potential to gain skills that may be of value in later life” (Hobbs and others, 2007, p. 133). Flexible framing of teaching is

relatively co-operative, group-based, where there is opportunity to vary the conditions and perhaps sequencing and pacing, where the outcome is less a fraction of the total object of production but bears a more direct relation to it (Bernstein, 1977, p. 182).

When framing, the strategies of transmission of the content, is flexible, alternatives (options) are made available so that the students have greater control over the selection, organisation and pacing of their learning (Bernstein, 1977, p. 179). According to Hobbs and others’ (2007, p. 132) investigation,

the majority opinion of the young workers ... was that their jobs did help to prepare them for their adult lives, despite the fact that much of what

they were required to do was of a routine nature and even sometimes boring .

This study indicates that pay particular attention might be paid to the views and perceptions of young people themselves. This approach is central to policies and campaigns about child labour worldwide which stress the need to “listen to the voices of children” (Hobbs and others, 2007, p. 133).

Education’s systematic relationship with production

The systemic relationships between education and production make up both their class and the material or economic basis, suggesting “the dependency of education upon the mode of production” (Bernstein, 1977, p. 186-87). In this case, the mode of production emerges before the mode of education. The strong classification between the producers and reproducers of knowledge ensures that “the recontextualising of knowledge; that is, the creation of textbooks ... for schools, is carried out by reproducers, not producers” (Bernstein, 1977, p. 186). Therefore, there are contradictions in the differences in the relationship between the classificatory and systemic relationships of education in different historical periods and in the social structure within different dominating categories (Bernstein, 1977). The school-to-work transition (STWT) is the first major work adjustment young adults have to make in their careers. Ng and Feldman (2007, pp. 114-115) argue that

the success of the STWT influences young adults’ sense of self-efficacy about their decision-making abilities and their coping skills, the stability of their initial vocational choices, the speed with which they learn new job responsibilities, and their level of comfort with new colleagues and workplace norms.

Therefore, how successful STWTs are has important implications for organisations. Whether or not the STWT goes smoothly for young adults has important implications for society as well. The rigidity or flexibility in the connections between part-time work during high school is linked with patterns of schooling and working that persist during the succeeding years and are more or less conducive to the receipt of a BA/BS degree. Staff and Mortimer (2007, p. 1) note that

social scientists recognise adolescents' capacity to formulate goals and anticipate future lines of action, much empirical research and commentary stresses the lack of direction among contemporary teenagers, their uncertainty with respect to vocational goals, and their difficulties in navigating the school to work transition.

Most adolescents attempt to obtain as much schooling as they can to position themselves favourably in the increasingly diverged labour market; that work-integrated learning is seen as promising. Stable, high-paying jobs go to those who have been successful in obtaining college degrees, so university entrance procedures which rigidly exclude those who have undertake VETiS operate in an exclusionary manner.

Division of labour between education and production

The relationship between the code regulating the form of education and the code regulating the form of production for any student in the social division of labour of education has to also consider any workers in the social division of labour of production (Bernstein, 1977, p. 181). Because teachers and researchers are now also producers, it seems that the traditional opposition between the categories "intellectual" and "worker" might be dissolved; albeit not always favourably. With the rigid classification of the relation between education and production, the categories, "worker" and "intellectual", are "sharply distinguishable and so is the social basis of their consciousness" (Bernstein, 1977, p. 193). However, education cannot play a role in socio-economic change, the consciousness required to produce and keep the transformation of the social relations of production can not be generated.

Change, conflict, contradiction and correspondence

As a social phenomenon a school creates "a particular structure of meanings" (Bernstein, 1977, p. 175). Rules underlie the varied sets of specialised meanings and control the interactions and practices. The mode of education under conditions of advanced, global capitalism has become more complex, and thus difficult to explain in detail. However, one can still find "at different levels a broad correspondence, but also apparent contradictions" (Bernstein, 1977, p. 184). In this way, the concept of,

and production of, knowledge (say in science) in schools may be different from the concept of, and production of, knowledge in other workplaces (such as scientific activity shared by researchers). While education is dependent upon production, it also possesses a degree of independence or apparent autonomy in constituting its codes. For instance, there is correspondence between a rigid, hierarchically based classification of education and a rigid, hierarchically based classification of the mode of production (Bernstein, 1977, p. 185).

Research method

This research project uses well-known procedures of case study methods for data collection and analysis (Harreveld & Singh, 2007). For the purpose of this paper, the *Next Step Report* (2008) and thirteen School Annual Reports (2007) provide the data set which has been analysed to identify trajectories for organisational innovations in Senior Learning involving VETiS. This study is investigating the QMEA's involvement in VETiS through its member schools, and the schools' involvement in VETiS. The analysis identifies the relationship between school and work, and its key role in this organisational innovation. This analysis suggests the possibilities for organisational innovations through the "hub and spoke" model provided by the QMEA for integrating school and work. Four points relating to this case study are highlighted here, namely the delimitations of the case in terms of organisational innovation for creating "hub and spoke" academies; data collection procedures using School Annual Reports for 2007 and Next Step Reports (2007-08); analysis of data with respect to the curriculum offerings; teachers' qualifications and professional development; and key learning outcomes, and the limitations of this study.

"Hub and spoke" academies as a case of organisational innovation

The Queensland Minerals and Energy Academy (QMEA) is a partnership between the Queensland Government, with Department of Education, Training and the Arts (DETA) as lead agency, and the Queensland Resources Council (QRC). It was established to encourage students to enter careers in the minerals and energy sectors. The QRC is a not-for-profit peak industry association representing companies and individuals engaged in Queensland's minerals and energy sector, including

miners, mineral processors, contractors, oil and gas producers, and electricity generators. The QMEA works with eighteen State and private schools across northern, central and southern Queensland to enable students to access learning and career opportunities as skilled-operators, trades persons and professions related to the minerals and energy sector. The QMEA provides students and teachers with close contact with minerals and energy companies via work experience, training, school-based apprenticeships, professional development and, on-site and off-site activities.

Data collection

The Queensland Department of Education has used the “hub and spoke” organisational model to establish a range of academies including Queensland College of Wine Tourism, and The Queensland Minerals and Energy Academy (QMEA). These are different from the Queensland Academies for Creative Industries; Health and Science, and Science, Mathematics and Technology. The QMEA was selected for this study because of the importance of this sector to the national economy. Arguably, these industries are the mainstay of Australia’s economy and significant contributors to the socio-economic well-being of Australians. Beginning in 2007, the QMEA was

developed in response to [the then] skills shortages in the minerals and energy sector, which [was then] experiencing significant growth, particularly in the face of increasing demand for resources from countries such as India and China.

However, the globalisation of the U.S. American financial crisis in 2008 has since led to the shedding of thousands of workers in this sector as this industry retracts with the decline in demand for resources. The QMEA represents an instance of the ‘hub and spoke’ model for organising earning and learning. Its head office is in Brisbane. There are six school in southeast Queensland; nine schools in central Queensland, and three schools in northern Queensland. From the QMEA’s website and those of its member schools, we examined the Annual Reports of twelve schools for 2007, the Next Step Report (2008) and the Newsletters of twelve schools. This data were selected to enable the identification of what they have to say about the place of VETiS in the development of this organisational innovation.

Data analysis

Six schools were chosen for analysis because not all the schools reported their offering of core and/or extra curricula. Two schools from each area, one offering core curriculum and, the other offering it as an extra-curricula activity were selected for the purpose of comparison. Of the eighteen QMEA schools, only twelve schools had annual reports on their websites. The others were either not available or were not analysable due to their format or content differing markedly from the other schools. For the purpose of this research only the annual reports of twelve schools were selected for analysis.

The qualifications of teachers in QMEA schools are analysed in terms of teachers' degree levels. Teachers' qualifications are among the factors likely to influence the retention rate of young adults and their participation in VETiS.

Each school's Annual Report was analysed to identify the amount of money invested in professional learning for teachers, and staff involvement in these programs. Teacher professional learning was selected for analysis for two reasons. First, what the QMEA schools provide for teacher development is an important issue for teachers themselves, school leaders, teacher educators and researchers and for constituting the QMEA. Second, the relationship between these offerings and students' outcomes and pathways has important implication for teacher educators.

Key outcomes in the senior phase of learning have been analysed to establish the retention rate, the achievements of the Year 12 cohort and their main post-school destinations. This analysis indicates how many students choose to go to universities, to do VET, work full time, including working as apprentices or trainees.

Limitations

This paper reports on an initial investigation into the organisational innovations in Senior Learning. To date we have investigated twelve of the eighteen schools using publicly available evidence. In the future interviews will be conducted with QMEA officials, including member schools. Further, due to the character of the schools' Annual Reports and the Next Step Report, there may be evidence about the 'hub and spoke' organisational model that has not been reported here, such as interviews with principals and teachers in QMEA schools. Moreover, in working with

Bernstein's (1977) theory to investigate organisational innovation in Senior Learning through VETiS is something that has not been widely studied. This has added some difficulty to the research.

A cross-case analysis of QMEA's "hub and spoke" schools

In this section, the analysis of evidence from QMEA schools, the public documents of which can be found on each school's website, are presented. The analysis focuses on *core and extra curriculum offerings in VETiS; the qualification of teachers; teacher's professional learning; and key outcomes for students from the senior phase of learning* (Harreveld & Singh, in press).

Core and extra curriculum offerings in VETiS

NQ School's core curriculum offerings include Certificate I, II and III courses, with these courses and some short courses offered through TAFE. Industry bodies also offer blocks of training for this school, as well as many school-based apprenticeships and traineeships. Ironically, the latter are listed under NQ School's extra curriculum offerings. It also offers structured industry placements, Xstrata Bursaries, Siemens Science and a Senior Engineering Camp.

Working in collaboration with a mining company, CQ School provides students with VET Certificates, school-based apprenticeships and traineeships, generic open-cut mining courses, blue card for construction and a Careers Camp as part of its core curriculum offerings. Among its extra curricula offerings, CQ school provides Certificates I in Resources and Infrastructure Operations (RIO) and in Automotive, and a Certificate II in Retail and Beauty. The school training centre offers *animal care, blue card construction and hospitality*. Billiton Mitsubishi Alliance conducts *Adopt-A Student* activities.

SQ School's core curriculum offers Vocational English Communication, Pre-Vocational Mathematics, horticulture, industrial skills and tourism. These nationally Recognised Certificate Courses are offered at SQ School, or through TAFE. SQ School's extra curricula offerings include career skills preparation, competencies in Work Education, development of close linkages with work and a Careers Expo. This school also has the strategies to monitor VETiS so as to increase the number of

VETiS opportunities for students; ensure all teachers are up-skilled to deliver VET competencies; to increase links with external partners, and to secure and monitor traineeships (see Table 1).

Table 1
*Core and extra curriculum offerings
across QMEA schools from three 'regions'*

Schools	Core curriculum offerings	Schools	Extra curriculum offerings
NQ3 VET total = 31.0%	<ul style="list-style-type: none"> - 14 Certificate I, II and III courses; - Barrier Reef TAFE (senior students); - Courses offered through TAFE; - TAFE offers a number of Short courses; - Industry bodies offer our blocks of training; - Work Experience program as well as an Industry Placement program; - over seventy current school based apprentices and trainees in a variety of industry areas; - approximately three hundred school based trainees and apprentices since 1998; - school based and full time apprentices and trainees. 	NQ1 VET total = 52.0%	<ul style="list-style-type: none"> - School-Based Apprenticeships/Traineeships - Structured Industry Placements - Xstrata Bursaries - Siemens Science - QMEA – Outback @ Isa excursions, Senior Engineering Camp
CQ4 VET total = 48.7%	<ul style="list-style-type: none"> - VET Certificates: Certificate 3 in Early Childhood Certificate 2 in Hospitality Practices; Certificate 2 in Work Practices; Certificate 1 in Furnishing; Certificate 1 in Engineering. - Open Cut Mining Generics Course, - Blue Card for Construction, - School Based Traineeships and Apprenticeships - have students completing school based traineeships with a mining company. - Certificate 2 in Work Education - Careers Camp 	CQ2 VET total = 41.7%	<ul style="list-style-type: none"> - Cert I RIO, - Cert I Automotive, - Cert II Retail, - Cert II Beauty - Animal Care, - Blue Card construction, - Hospitality - BMA <i>Adopt-A Student</i>
SQ3 VET total = 30.4%	<ul style="list-style-type: none"> - Vocational: English Communication, Pre-Vocational Mathematics, Horticulture, Industrial Skills, Tourism - Nationally Recognise Certificate Courses (offered at school - NRCC (offered through TAFE partnership) 	SQ2 VET total = 31.6%	<ul style="list-style-type: none"> Strategies to improve VET - Career Skills preparation -Development of close linkages with Work links -Careers Expo - monitoring of VET -Increase the number of VET opportunities -Utilise our BDP program as avenue for completing Certificate 1

			<ul style="list-style-type: none"> - competencies in Work Ed -Ensure all teachers are up skilled to deliver VET competencies -Increase links with external partners -Monitor VET students -securing/monitoring traineeships
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For the two schools in Northern Queensland, there is a major difference between the *Core curricula offerings* and *Extra curricula offerings*. The NQ School which offers a higher percentage of VETiS offerings as extra curricula activities than it does as part of the core curriculum. Nevertheless, in the two Central Queensland schools and two Southern Queensland schools, there is no noticeable difference between core curriculum and extra curriculum offerings in VETiS. However, it seems that it does not matter whether VETiS is provided as core or extra curricula offerings, the offering and participation in it is decided by some other factors. That some schools do not recognise and acknowledge VETiS as part of their core curriculum represents a challenge.

Qualification of teachers of QMEA schools

In the twelve schools for which we analysed data, none of the teachers had a doctoral degree. The majority of the teachers have bachelor degrees. Teachers from two schools, one from NQ, the other from CQ have bachelor and diploma qualifications. These schools have no teachers with master degrees; presumably indicating that many are beginning teachers.

Table 2
Qualification of teachers in QMEA schools

<i>Schools</i>	<i>Doctorate</i>	<i>Master</i>	<i>Bachelor</i>	<i>Diploma</i>	<i>certificate</i>
NQ1	N	2%	91%	6%	1%
NQ3	N	4%	92%	4%	N
CQ1	N	N	94%	6%	N
CQ2	N	9%	87%	4%	N
CQ3	N	4%	90%	6%	N
CQ4	N	3%	88%	3%	6%
CQ5	N	4%	84%	8%	4%
CQ6	N	1%	86%	11%	2%
SQ1	N	2%	90%	8%	N
SQ2	N	3%	79%	17%	1%
SQ3	N	4%	86%	10%	N
SQ4	N	8%	84%	7%	1%

The qualifications of teachers in QMEA schools are mainly Bachelors Degrees. Few teachers have Masters Degrees. Some teachers have a Diploma and while a few have Teaching Certificates. It is not clear whether any teachers have VET qualifications or have studied VETiS as part of their teacher education.

Teacher’s professional development in QMEA schools

The teacher professional development offered by each school is reported in its School Annual Report (2007). However, it should be noted that some schools reported on teacher professional development in 2007, while others indicated initiatives or priorities for 2008, and some did not indicate when the professional development was provided. The total funds expended and staff’s involvements are reported for the year 2007. The total funds expended on teacher professional development in 2007 are presented in Figure 1.

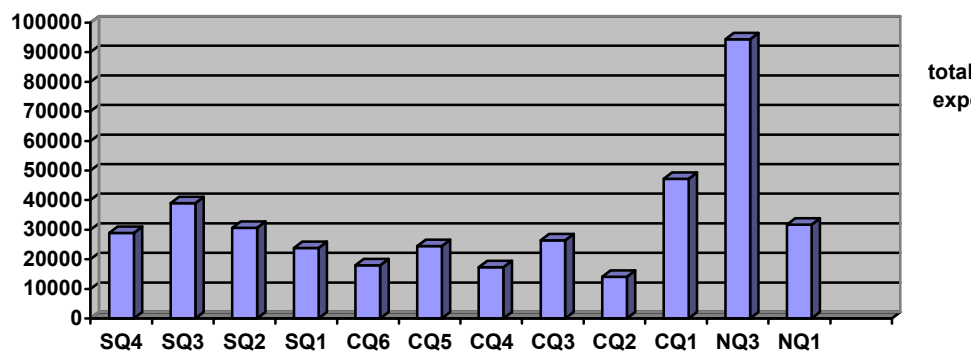


Figure 1: Total funds expended on teacher professional development

Among the twelve schools, NQ3 invested the most (\$94335) and CQ2 the least (\$14026), in part due to differences in their student and staff numbers. Most schools provided between \$20,000 and \$40,000 in 2007 on teacher professional development. Most schools provided ICT professional development for teachers, and some schools offered leadership development. Some schools supplied professional learning with regard to curriculum, VET qualifications, policy and learning and teaching strategies. The forms of professional developing included training, workshops and seminars. Teachers’ professional development during 2007 saw one

third of the school staff involved in these activities. While 74% of staff in participated in professional development in one school, another did not publicly report do any.

Table 3
Teacher's professional development in QMEA schools

<i>Schools</i>	<i>Major professional development initiatives</i>	<i>Involvement of teachers (2007)</i>
NQ 1	<ol style="list-style-type: none"> 1. Leadership Development including Curriculum Leaders Program 2. Curriculum Development including QSA courses 3. Literacy – District Literacy Team, Building Blocks to Literacy, THRASS 4. Staff Welfare, Conflict Resolution, Probationary Teacher Programs 	100%
NQ 3	In 2007 major staff development was in the areas of Habits of Minds, Dimensions of Learning, School Wide Positive Behaviour Support Program and Essential Skills for Classroom Management	90%.
CQ 1	<ol style="list-style-type: none"> 1. Information and Communications Technology 2. Student Welfare - Strategies for teachers to ensure effective management of the classroom environment 3. Curriculum Development - Includes the successful embedding of new senior syllabi and ensuring Moranbah SHS was actively engaged in the Queensland Curriculum Assessment and Reporting (QCAR) framework. 4. Leadership - In-kind programs run in the school 	94.9%
CQ 2	<ol style="list-style-type: none"> 1. Provide training opportunities for staff to ensure continuous growth in skills and knowledge 2. Maintain a highly structured and supportive policy framework to cope with a teaching workforce characterised by frequent change and large numbers of beginning teachers 3. ICT pedagogical license & ICT certificate 4. Cluster assessment moderation & bank of assessment standards 	88.2%
CQ 3	<ol style="list-style-type: none"> 1. Attending external and internal professional development and training conferences, seminars and workshops 2. Internal induction and training programs 3. Membership of professional associations 4. Peer Learning Circles 	100%.
CQ 4	<ol style="list-style-type: none"> 1. Middle Phase Learning Strategy: Preparation and ongoing implementation of QCAR and Essential Learnings 2. Cross Cultural Awareness Training 3. Literacy development through Support-a-Reader and Support-a-Writer 4. Senior Phase of Learning: Emphasis on Set Plans, QCE and other QSA subject based training; TAA04 Certificate 4 in Training and Assessment for VET teachers 	96 %.
CQ 5	<ol style="list-style-type: none"> 1. QCARF & the Essential Learnings 2. QSA – Curriculum development – trial pilot syllabuses 3. QCS Marking & QSA Panel accreditation; Functional Grammar; Gifted Education Mentor program 4. QCE & CPCSE Training 5. Senior First Aid 6. Student Protection Training 7. Code of Conduct 8. New School reporting & student management software 9. State purchasing policy 	89 %

	10. Various professional body state conferences	
CQ 6	<ol style="list-style-type: none"> 1. leadership tool-kiting 2. team building 3. conversational coaching 4. ICT training 5. contemporary teaching and learning styles 	83%
SQ 1	<ol style="list-style-type: none"> 1. first aide Cert 2. ICT Cert 3. young women's leadership and mentoring 4. drama conference, P-10 Maths Syllabus 5. literacy and Numeracy conference 6. web design 7. professional standards for teachers 8. QSA workshops 9. interactive whiteboards 10. whole school literacy workshop 11. behaviour management for school leaders 12. panel training 13. rural guidance training 14. DTLTD conference 15. Ed helper 16. rehabilitation recertification 17. purchasing training 	100%
SQ 2	<p>Staff development priorities for 2008:</p> <ol style="list-style-type: none"> 1. Expansion of college-wide policy on Inclusive Practice 2. Literacy Framework 3. Strengthening Teacher Leadership 4. Cross-Cultural Training 5. Development of strong Beginning Teachers' Program 	NG
SQ 3	<ol style="list-style-type: none"> 1. literacy 2. ICT 3. middle years of schooling 4. success for boys 5. indigenous education 6. gifted and talented education 7. Queensland Certificate of Education 	87%.
SQ 4	<ol style="list-style-type: none"> 1. LTLTR, Leadership, Leadership program for HODs, GO, HOSE, DPs and Principal, Leadership program for teachers, Crossing Cultures, ICTs in the classroom 2. Individual teacher requirements 3. Curriculum-Specific requirements 4. First Aid Course 5. Faculty Requirements 	90%.

The total funds expended on teacher professional development in 2007 for each school is different. Most schools expended \$20,000 to \$40,000 on teachers' professional development, but three of them spent less than \$20,000 and one school spent over \$90,000. In the major professional development initiatives, only one of the thirteen schools had VETiS related offerings. There were only three schools in which all teachers were involved in professional development of one kind or another. In one school, only 74% of the teachers were involved in activities initiated by the school. The schools' professional development learning focused on ICT, leadership, and

curriculum development. Very few schools provided professional development relating to VETiS.

Key student outcomes from the senior phase of learning

For the key student outcomes in the senior phase of learning, one fourth of the twelve schools had a retention rate of over 80%, while for another one fourth, it was around 60%. This retention rate is lower or much lower than the 90% aspired under the Melbourne Declaration (2008). NQ1 had the lowest retention rate (59%). 46% of the students in this school has a Senior Certificate and VET qualification, but more students chose to be apprentices and trainees or work full time. Only 11.2% of the students went to university. NQ2 has the highest retention rate (85%), but only 68% of the students have both a Senior Certificate and VET qualification. The percentage of the students who go to university (22.4%) is the same as that of students who are apprentices and trainees (22%), and similar to those who work full time (25.4%).

Table 4
Key outcomes in the senior phase of learning

<i>Schools</i>	<i>Retention</i>	<i>Senior Cert + VET qualification</i>	<i>University (degree)</i>	<i>VET Cert III & IV</i>	<i>Apprentice & Trainee</i>	<i>Working FT</i>	<i>VET total</i>
<i>NQ1</i>	59%	46%	11.2	3.0	47.9	24.5	52
<i>NQ2</i>	85%	68%	22.4	6.9	22	25.4	31
<i>CQ1</i>	70%	74%	12.3	6.7	49.3	13.8	56.9
<i>CQ2</i>	70 %	66%	10.9	6.2	23.5	31.3	31.3
<i>CQ3</i>	75%	64%	8.3	12.5	29.2	20.8	41.7
<i>CQ4</i>	66%	98%	12.8	5.2	41	12.8	48.7
<i>CQ5</i>	61 %	52%	16.2	5.8	29.4	27.9	41.2
<i>CQ6</i>	70%	49%	23.2	3.6	20.5	23.2	25.9
<i>SQ1</i>	84%	58%	14.1	7.0	18.3	26.8	32.4
<i>SQ2</i>	62%	56%	16.5	13.9	12.7	13.9	31.6
<i>SQ3</i>	70%	54%	30.9	11	15.7	20.9	30.4
<i>SQ4</i>	82%	29%	30.9	6.7	13.4	24.7	22.2

Most of the students in CQ1 have both a Senior Certificate and a VET qualification, but more students are apprentices and trainees. A similar percentage of students who go to university (12.3%) also work full time (13.8%). In CQ2, 66% of the students are eligible for both university and work, but many more students chose either apprenticeships and traineeships or working full time, fewer students (10.9%) went to university. The case for CQ3 and CQ5 is similar to that in CQ2. 98% of the students in CQ4 have both a Senior Certificate and a VET qualification, which indicates that students have more choices for their study/work future. However, the

percent of students who choose to go to university (12.8%) is the same as the number of those who work full time (12.8%). More students choose to be apprentices or to do traineeships (41%). CQ6 is similar to CQ4.

Of the four schools in Southern Queensland, SQ3 and SQ4 have similar outcomes, that is, some students chose to go to university, some get work full time, and some become apprentices and traineeships. In SQ1, more students (26.8%) work full time, some students (18.3%) choose to be apprentices and trainees. Some students (14.1%) went to university. For SQ2, more students went to university (16.5%), while the percentage of students doing a Certificate III and IV (13.9%), apprenticeships or traineeships (12.7%) or working full time (13.9%) is close.

In Northern Queensland, the situation of the two schools is quite different, but in Central Queensland, there are two patterns for the six schools. CQ1, CQ4 and CQ6 are similar, in that more students are apprentices or trainees and the numbers of students who go to university and work full time are similar. The other three schools (CQ2, CQ3 and CQ5) have a similar pattern of outcomes, that is, more students are apprentices or trainees, or work full time, while less students go to university. In Southern Queensland, SQ3 and SQ4 have a similar pattern of student outcomes with more students going to university, more students work full time and less students are apprentices or trainees. SQ1 and SQ2 have no similar patterns in outcomes. Of the twelve schools, CQ1 has the highest percentage in VET outcomes, and SQ4 has the lowest, with most of the schools having between 30% and 50% securing VET related outcomes.

Senior learning and earning

The relationship between education and production is evident in the rigidity or flexibility of the classification of these two. Rigid classification means that the principles, contexts and possibilities of education are not integrated with those of production. This study suggests that the QMEA's educational mission is an integrator between the relationships of work, learning and research. However, there appears to remain a rigid between the schools which constitute the QMEA, which seem to be "insulated from each other" (Bernstein, 1977, p. 188). There exists a separation between QMEA's schools so that the control of education lies not with the Academy,

but remains with individual schools. Of course, this may be as intended, field work will ascertain this.

While the 'hub and spoke' model of the QMEA might lead us to think that the Academy regulates its constituent schools, their self-representations in Annual reports indicate their apparent autonomy. There are connections and contradictions between the two parties. In terms of connections, the QMEA provides scholarships for students and awards for both students and teachers in its constituent schools. For example, in QMEA monthly newsletter for November/December (2008) it states:

These scholarships apply to students in Year 11 with scholarships awarded at the beginning of Year 12. The six scholarships support students wishing to pursue trade or professional employment in the minerals and energy sector... The teacher award acknowledges a teacher who has provided demonstrated leadership and innovation in the teaching and learning of minerals and energy in and across QMEA schools.

The QMEA also offers projects for teachers, including training in school; school-based traineeships and apprenticeships; work experience; special events and programs; OP eligible student support, teacher support, and career advice for students. The Academy encourages students to access employment in minerals and energy sectors, by creating flexible links between education and production, school and work. The evidence above indicates that students in some schools take part in the activities and programs conducted by QMEA. For example, in the QMEA's monthly newsletter October (2008), there is a report on its workshop for students to discuss world energy policy, which developed a:

consciousness in students of the challenges of a low emission future, taking into account the many competing interests in terms of energy alternative, costs and energy security in different countries including Australia.

In the schools' core or extra curriculum, there is evidence that schools offer some courses related to VETiS in the minerals and energy sector. However, even though QMEA makes efforts to be engaged in VETiS through its schools, the analysis of the schools self-reports reveal little about their involvement in the QMEA. Of course, this is the first year of the QMEA's operations; much more has to be done for this connection has to be fully developed. The analysis of the core and extra curricula offerings could not find any courses which are identified by these schools as related to

QMEA. For instance, the professional development offered by each school for their teachers, there are not records indicating QMEA's offerings in this regard. It seems that there is an apparent autonomy of these schools; they construct their reports in ways which the QMEA is absent and thus signal their independence from the Academy. These are areas in which the Queensland Government, as the key driver for such 'hub and spoke' organisational modes needs to invest further resources and energy in order to grow the potential of the QMEA.

This contradiction between the regulation of schools and them working as part of the QMEA is a sign of the apparent autonomy which schools as organisational units have acquired since their invention in the nineteenth century (Hamilton, 1989), an organisational mode that sanctioned its relative independence of production. If this apparent autonomy maintains its rigidity, then it is likely to diminish the direct penetration of the power of the QMEA and of the production associated with mines and energy. Given the role of these industries – and their workers – in global climate change this is a significant issue, as it keeps in the realised codes of education, not necessarily addressing what is now required (Bernstein, 1977, p. 192). It is in the context of global climate change that the question has to be asked about whether the incorporation of education with production as aspired by the 'hub and spoke' model of the QMEA, and which would reduce the apparent autonomy of schools, is to increase the efficiency of production or to change the *social and environmental* relations of minerals and energy production.

In jurisdictions and school where VETiS, including work placement are more closely connected to future career identities, and meets the needs of young adults in terms of their interests through the investment they can make in their career path (Stokes & Wyn, 2007, p. 505). Those who participate in VETiS find that "schools were more accepting of their identity as a worker because the work placement was seen as part of the school curriculum" (Stokes & Wyn, 2007, p. 506).

Conclusion

It is necessary to note that the results presented here are from the first year of the QMEA's operation of this innovative 'hub and spoke' model. This paper has provided a preliminary insight into what is being done to gain involvement of the two

parties in the organisational innovations through which work-integrated education and training is implemented in QMEA schools. From analysis of the evidence it was found that QMEA has a platform for furthering the implementation of this 'hub and spoke' model of organisational innovation. The QMEA schools have VETiS courses and/or activities which await further integration into the Academy. To be involved in VETiS via QMEA, schools might do two things for both teachers and students. For students there is the possibility of explicitly reporting, under a designated QMEA heading, on all those courses and/or activities which are related to QMEA, and to encourage their students to seek training or employment through the Academy. Because students' outcomes are to some extent influenced by teachers' quality/qualifications, schools might provide professional development which relates directly to the QMEA. Teachers' perception and satisfaction with their job is more or less influence students' choices or orientation for their future. For the QMEA, further integration of its constituent schools into the Academy seems desirable.

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