Productive Pedagogies for E-learning Environments

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While the term e-learning is rather recent in educational literature, it points to a long history of discourses on the relationship between electronic media and learning, education and training. The term itself is vague and does not refer to a single approach to learning or teaching – hence generalisations about its advantages and disadvantages are wrought with difficulties. In this talk I will argue that different e-learning environments can be based on a wide diversity of learning theories all the way from behaviourism to constructivism. Similarly, the rationale for e-learning cover various (and sometimes conflicting) concerns all the way from democratisation of education to its commercial interests. This talk uses Productive Pedagogies to provide a cohesive scheme to reflect on the assumptions and practices of e-learning environments.

Undoubtedly one of the main features of society in our 'new times' (Giddens, 2006) is the wide spread use of technology which is intrinsically linked to the age of cultural, economic and political globalisation. Since the wide spread availability of personal computers in the 1980s and the internet in 1990s, there is hardly any aspect of life, including education, in many evolving economies that was not affected by technology. For some, technology is the promise for solving many problems – while for others it is itself the cause of other problems.

I start by making the claim that even though E-learning is a relatively new term, it points to a wide range of related terms such as web-base education; online teaching, blended environments, learning objects, learning management systems. This is not to say that all these terms are interchangeable. However, the practices discussed under them by different authors are often similar and different authors refer to the same practices under different names. In this paper I will attempt to make general observations about E-Learning that will apply to its different understandings and practices – hence I will not attempt to favour one particular definition.

Not only the terms themselves are still contested, reading the literature on the use of technology in mathematics education and on E-learning in particular, points to the fact that controversy still remains about thier promises and effects. Supporters of these practices point to the power of the technology to 'deliver' education efficiently and to serve the purposes of life-long learning. Arguments about the democratisation of education point to the belief that technology enhances access to education by making knowledge available to everybody at 'any time' and 'any place'. Others provide evidence that it can transform teaching; leading some to question whether it can replace the traditional classroom (Zhang, Zhao, Zhou & Nunamaker, 2004). Further, to silence the sceptics once for all, the competitiveness argument asserts that when it comes to technology in education, we are in ‘swim or sink’ situation. In other words, no educational system can afford neglecting the integration of technology at all levels if the society it supports is to remain globally competitive (Burbeles & Callister, 2000).

In contrast, other educators point to the dangers of the uncritical reliance on technology by pointing out that it may lead to a system of “education marked with increasing social stratification and inequality” (Cox, 2005). Similar concerns are often raised about whether the quality of education is being sacrificed for the sake of a competitive market. Nobel (1998) talks about the ‘digital diploma mill’ to describe some practices in higher education institutions to attract students at any cost. Even E-learning advocates question whether e-learning is technology driven rather than educationally determined and whether it can continue to flourish with no theoretical, and sometimes no empirical, basis (Nicols, 2003).

The assumptions behind the argument developed in this paper, is that both stances are somehow justified. Undoubtedly, the heavy use of technology does empower educators to effectively manage many of the problems of teaching and learning in the classroom. However, not every attempt to use technology guarantees such empowerment. Further, uncritical use of technology can be at best ineffective and wasteful and at worse detrimental to what it claims to accomplish.

This paper has two aims. Firstly it attempts to examine the different imperatives for the use of E-learning and technology in general. Based on the writings of Basil Bernstein (2000), it discusses two general (and often conflicting) sources of imperatives for the use of E-learning that educators need to manage in order for E-learning to be effective. Secondly, it refocuses the argument about E-learning on consideration of pedagogy.

Competing Imperatives of E-learning

In Sing, Atweh and Shields (2005) we argue that educators in the 21st Century are increasingly subjected to external imperatives based on government policies and regulations. Through specific policies, funding initiatives and awards and other regulatory frameworks (such as benchmarks and national testing) are imposing new demands on educational institutions and individual educators that determine not only content to be taught but often the means of its teaching (Coaldrake & Stedman, 1999). According to Bernstein (2000) these imposition are projecting a particular pedagogical identities encouraging practitioners to behave in certain ways.

Government priorities for education are clear: effective, efficient and low cost education for large numbers of diverse students; increased relevance of training for the job market, and research that connects with and addresses community problems (Zubrick, Reid & Rossiter, 2001). These priorities are consistent with a heavy reliance on technology and mass delivery of education. An example of this is the newly elected federal government in Australia that came to power with a promise of an ‘educational revolution’. A major component of this policy was the provision of a large number of computers to every school - an offer that was often rejected by schools that did not have the facilities to house the additional computers or could not provide for sufficient professional development for its effective use.

Closely allied with these imperatives are those arising from technological advancements themselves. Since the first appearance of computers in Australian schools, a handful of 'innovators' have sought to find ways in which they can use them at a time prior to the availability of adequate software that supported the traditional curriculum. Most of these early applications of computers in education were in the form of teaching programming that became as a separate school subject by itself. This story was repeated whenever a new computer application came into existence, leading some to raise the question whether E-learning is itself technologically driven (Nicols, 2003). Nicols goes on to argue that "In general it is breakthroughs in teaching practices that will make eLearning more useful and not breakthroughs in technology, although the latter can provide opportunities for the former". We will return to this theme in the following section of the paper. Cox (2005) points out the difficulty in making these 'innovations' as main stream practices in education due to the often missing intensive professional development of teachers and other institutional changes and priorities required to support them.

According to Bernstein, these imperatives for the development of the use of technology in education and of E-learning in particular, are external demands on the profession. The resulting professional identity on educators is one that is focused is on extrinsic, short term market needs, and thus the exploration of vocational applications rather than the intrinsic, long-term disciplinary needs through the exploration of knowledge (Bernstein, 2000).

By contrast, educators are often motivated by internal or intrinsic imperatives from the learners themselves and the content knowledge in their area of expertise. Educational decisions, from this perspective may lead to a learner-centered curriculum, where students may play a larger role in determining what they learn, how they learn, and how they progress through the course of learning. Teaching in this approach is focused on the fulfillment of the inner competence or potential of individual students. Students may be encouraged to work on assessment tasks directly related to their personal interests, and hand in drafts of work for regular feedback from lecturers and fellow students. It encourages students to be inwardly oriented, introspective, focused on personal development and their personal educational journeys.

Closely allied to these intrinsic imperatives are concerns about the discipline itself. Here instructional practices are selected and sequenced based on the discipline taught. The aim here is to socialize students into the intrinsic worth of mathematics through induction into key concepts. The selection and organization of knowledge is strongly regulated by the lecturer who is responsible for ensuring that students achieve performance outcomes associated with induction into the disciplinary knowledge. Curriculum units are likely to be organized hierarchically so that students need to complete pre-requisite subjects before moving onto intermediate and advanced subjects. This hierarchical organization aims to ensure that students progressively build up a repertoire of knowledge and skills associated with disciplinary knowledge.

According to Bernstein, these intrinsic imperatives complement market pedagogies, in that they offer inner stability and coherence to learners. By contrast, market pedagogies are based on short-term market defined skills and knowledge and therefore outwardly oriented and unstable. Because they are regulated by the fluctuations of market-demands they offer little internal coherency in terms of regulating the selection and organization of skills and knowledge.

In designing curricula/pedagogy, education workers now have to manage the tensions between these two positions – the outwardly oriented, prospective identities constructed by market forces and state regulatory frameworks; and the inwardly oriented, introspective identities of disciplinary knowledge and sound pedagogical principles. We have a new pathological position at work in education 'the pedagogic schizoid position' (Bernstein, 1999). This pedagogic position is Janus-faced – with one face always looking outwards to market and state regulatory forces, and the other face looking inwards to the introspective demands of disciplinary knowledge (Bernstein, 2000).

The tension between the two types of imperatives is experienced by many designers of E-learning environments and is evidenced in research studies that point to the gap between institutional policy that attempts to inscribe external imperatives, and the actual pedagogical practices in many institutions. For example, Cox (2005) reports on a study of the implementation of E-Learning at15 community colleges in the USA. The study involved interviews with hundreds of administrators, practitioners and support staff. The main result from this study was the identification of the disconnection between the representation of E-learning by the administration and the teaching staff of the colleges. Many staff indicated that they were paying lip service to the use of technology in their teaching. Likewise the rhetoric of democratization of education was not matched by the reality of students' access to course material. Further, the efficiency of technology use if measured by financial savings was exposed as a myth. Colleges that did not invest sufficient funds in course development and student support did not achieve a cohesive and successful integration of technology at all college courses. Lastly, teaching staff complained that the institutional policies and practices did not support their own plans to use technology effectively.

Refocusing on Pedagogy

In the literature during the past few decades there has been a shift in type of research on the use of technology in mathematics education. For example at the centennial celebration of the International Commission of Mathematics Instruction in Rome, Laborde (2008) examined the presentations at four International Congress of Mathematics Education conferences in the period 1996-2008. First, the author noted a surprising trend in the decline in the number of Working Groups, Topic Groups and Discussion Groups dealing specifically with technology and mathematics education. Further, she noted that this decline was not compensated by an increase in number of presentations about technology in the other groups (i.e. those dealing with content areas, such as algebra and geometry; or educational level groups, such primary, secondary and so on). Laborde also identified shifts in the type of issues dealt with in the presentations at those conferences. At the start of the period under review, there was great optimism - where technology was discussed primarily as a "catalyst for change". In the middle of the period, there was less focus on "catalyst for change" and "innovations" and more on the use of technology in normal classrooms. At the end of the period, the author noted a trend of a move from the effect of technology on individual students doing mathematics with software to research attempting to identify issues with the use that teachers have made of the technology. She concluded by a call for more research that places the teacher as the central point of discussion on technology use in mathematics education.

This call for putting the teacher at the centre of computer applications is supported by Celia Hoyle (2008) in a keynote address to the last ICME in Mexico where she argued:

> [if the] potential [of technology] for transforming mathematical practice for the benefit of all learners to be realised, teachers must be part of the transformative process:
> i) to do mathematics for themselves with the digital tools (before and alongside thinking about pedagogy and embedding in practice) thus allowing teachers, regardless of experience, the time and space to take on the role of learner,
> ii) to co-design activity sequences that embed the ICT tools and make explicit appropriate didactic strategies,
> iii) to try out iteratively in classrooms as a collective effort and debug together.

These calls are consistent with an argument presented by Papert (1990) who introduced the term *Technocentrism* as the naïve believe that some technology devotees that seem to assume that technology is itself educational, in that better technology will lead into better education.

I now turn to some principles of effective pedagogy that can contribute to powerful implementations of E-learning and argue that E-learning, if properly designed, can enhance the achievement of these principles. I will refer to one framework developed recently in the state of Queensland in Australia, called Productive Pedagogy[1] is an example of an attempt to integrate research findings on effective teaching from a variety of areas of research within education. The framework was based on the previous work of Newman and his colleagues (Newmann & Associate, 1996) at the University of Wisconsin on Authentic Pedagogy and based on a longitudinal study conducted in that state (Queensland School Reform Longitudinal Study, 1999). It is worthwhile to stress that the Productive Pedagogy model does not provide ready made techniques for teaching. Rather, it

> *is an approach to creating a place, space and vocabulary for us to get talking about classroom instruction again. It isn't a magic formula (e.g., just teach this way and it will solve all the kids problems), but rather it's a framework an vocabulary for staffroom, inservice, preservice training, for us to describe the various things we can do in classrooms – the various options in our teaching 'repertoire that we have – and how we can adjust these … to get different outcomes…* (Luke, 1999, pp5-6).

The Productive Pedagogy framework consists of four main categories:

- Intellectual Quality
- Connectedness
- Supportive Classroom environment, and
- Recognition of difference

[1] Further information about the Productive Pedagogy can be available from the Website of the Queensland Department of Education and the Arts at http://education.qld.gov.au/corporate/newbasics/

Each component is divided into 4-6 dimensions. See Table in the appendix for an exploration of the meaning of the various dimensions based on the website mentioned above. Here I will discuss what each of the major characteristics of the Productive Pedagogy may imply for the design of E-learning design.

Intellectual quality: E-learning environments that are simply based on 'delivery' of information to learners to replace printed materials may make traditional knowledge more accessible to students, yet they fail to achieve the full potential of the power of technology and to achieve high quality education. Technology can also provide opportunities for learners to interact with each others in more ways than is possible in traditional classroom and face to face interactions. This particularly applies to students at a distance. But also it applies to students who may need to share their learning based on research outside the classroom. Kapitzke and Pendergast (2005) discuss these two possible modes of technology use as 'distributive' and 'interactive'. Similarly, E-learning environments that focus on providing simple retrieval of information or drill and practice on low level skills fall short of developing high level cognitive abilities of their students. On the other hand, E-learning systems that focus on the big issues of their discipline and provide for opportunities for their students to develop and share their learning with others may contribute to intellectual quality of education.

The challenge to obtain high intellectual quality in E-learning environments points to the need of designers to have a deep knowledge of the discipline under consideration as well as deep knowledge of what the technology can provide and the limitation of the technology. Planning for high intellectual quality environments may be more resource intensive than those that develop low intellectual quality.

Connectedness: Properly designed E-learning environments should aim to provide opportunities for learners to integrate their previous learning and their out of school knowledge with the new learning they are developing. This is a particular challenge where E-learning is designed to serve the needs of mass education where the student in seen as an abstract general learner. In other words, there may be a tension between developing general system that concentrates on the discipline itself to be used by a large population of learners and those that deal with learners with unique background knowledge and needs.

While intellectual quality may imply a focus on rigor and abstraction in mathematics, the focus on connectedness is more on modelling of mathematically-based problems- usually from areas such as physical reality, engineering, and the economy, often in which there is a unique or best fit solution. In particular there is a resistance by many mathematics teachers and curricula developers to deal with controversial social issues as a source of examples of mathematical problems. Perhaps because of the common belief that mathematics deals with objective reality, less often does school mathematics deal with issues of socio-political aspects in society such as distribution of wealth, disadvantage and demographical changes. These social issues are often seen by mathematic teachers and curriculum designers as belonging to other subjects in the curriculum. This demarcation is consistent with the separation of the realm of the *know-how* of science and technology and questions of values and morality dealt with in the social sciences and philosophy.

Seen in this way, intellectual quality of mathematics is measured primarily from within the discipline itself rather than the usefulness of that knowledge for the current and future everyday life of the student. In other words, intellectual quality may be measured by the level of decontextualisation and abstraction of the discipline and in isolation from social questions and issues into which it can be applied. Atweh and Brady (under review) have argued for an alternative understanding of quality that is based more on the power of mathematics to enable learners to understand their world and to change it. Seen in this way, quality and connectedness are intrinsically related concerns in mathematics education.

E-learning environments should provide the learners with opportunities to engage in real 'real world' problems, share their solutions and engage in a discussion about the power as well as limitations of mathematics. Technology can assist in dealing with real world data and can allow students to concentrate on the concepts and applications of mathematics rather than be bogged down with unnecessary complicated calculations that may be beyond the reach of the students at that level.

Supportive Learning Environments: I have pointed above to the balance in E-learning environments between catering for a large number of students and the provision for the needs of a particular student. Effective learning environments should provide individual support to the student to deal with the demands of the course to maximise their individual learning. This is even more so in case of E-learning environment since students are not only at different levels of knowledge but also have various expertise with the technology. Several authors (e.g. Cox, 2005; Kapitzke & Pendergast, 2005) have pointed out the problems faced by many lecturers in E-learning environments due to having to provide scaffolding for the learners in the use of the technology. Hence, student support both in content, pedagogy and the use of technology are necessary for successful implementation of E-learning.

Recognition of difference: Similarly, students have different preferences for learning styles and mode of study. Singh, Atweh and Shield (2005) demonstrated that some students in their blended learning course preferred studying at a distance with minimum support from other students and their lecturers, while others preferred attending 'virtual' classes that provided for direct student-teacher interactions. Similarly, some students preferred asynchronous communications due to their heavy and erratic workloads, while others found this too unreliable and unsatisfactory and preferred synchronous chat rooms. Hence, the more varied the learning experiences provided for in E-learning environments the more they are likely to meet the needs of a diverse body of learners.

Recognition of difference dimension of the Productive Pedagogy also refers the development t of group identity of students. This is particularly relevant in the tendency in E-learning to import complete systems developed in overseas countries. Often these systems have developed in totally different educational systems, with different educational values and student expectations and students. Transporting these systems uncritically from one context to another not only is doomed to failure but acts against the development of systems that meet the needs of the local market. Preference should be given to locally developed systems that are sensitive to local values and practices. Naturally minor surface adaptations such as change in names of characters and changes in their appearance are not type of adaptations I am talking about here. At times the very epistemological and pedagogic assumptions behind the imported E-learning systems need to be carefully examined.

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Example of program to teach mathematics for rural areas using Elluminate environment (Evans et al, 2008).

Intellectual quality	**We want to ensure that students manipulate information and ideas in ways which transform their meaning and implications, understand that knowledge is not a fixed body of information, and can coherently communicate ideas, concepts, arguments and explanations with rich detail.**	
	Higher-order thinking	*Higher-order thinking* requires students to manipulate information and ideas in ways that transform their meaning and implications. This transformation occurs when students combine facts and ideas in order to synthesise, generalise, explain, hypothesise or arrive at some conclusion or interpretation. Manipulating information and ideas through these processes allows students to solve problems and discover new (for them) meanings and understandings. When students engage in the construction of knowledge, an element of uncertainty is introduced into the instructional process and makes instructional outcomes not always predictable; i.e., the teacher is not certain what will be produced by students. In helping students become producers of knowledge, the teacher's main instructional task is to create activities or environments that allow them opportunities to engage in higher-order thinking. *Lower-order thinking* occurs when students are asked to receive or recite factual information or to employ rules and algorithms through repetitive routines. Students are given pre-specified knowledge ranging from simple facts and information to more complex concepts. Such knowledge is conveyed to students through a reading, work sheet, lecture or other direct instructional medium. The instructional process is to simply transmit knowledge or to practise procedural routines. Students are in a similar role when they are reciting previously acquired knowledge; i.e., responding to test-type questions that require recall of pre-specified knowledge. More complex activities still may involve reproducing knowledge when students only need to follow pre-specified steps and routines or employ algorithms in a rote fashion.
	Deep knowledge	Knowledge is deep or thick when it concerns the central ideas of a topic or discipline and because such knowledge is judged to be crucial to a topic or discipline. Knowledge is deep when relatively complex connections are established to central concepts. Knowledge is shallow, thin or superficial when it is not connected with significant concepts or central ideas of a topic or discipline, and it is dealt with only in an algorithmic or procedural fashion. Knowledge is also shallow when important, central ideas have been trivialized by the teacher or students, or when it is presented as non-problematic. This superficiality can be due, in part, to instructional strategies such as when teachers cover large quantities of fragmented ideas and bits of information that are unconnected to other knowledge.

	Deep Understanding	For students, knowledge is deep when they develop relatively complex understandings of these central concepts. Instead of being able to recite only fragmented pieces of information, students develop relatively systematic, integrated or holistic understandings. Mastery is demonstrated by their success in producing new knowledge by discovering relationships, solving problems, constructing explanations, and drawing conclusions. Students' understanding of important concepts or issues is taken to be superficial when ideas are presented by students in a way which demonstrates that they only have a surface acquaintance with the meaning. Evidence of shallow understanding by students exists when they do not or can not use knowledge to make clear distinctions, arguments, solve problems and develop more complex understandings of other related phenomena.

Intellectual quality	**Substantive conversation**	In classes with substantive conversation there is considerable teacher-students and student-student interaction about the ideas of a substantive topic; the interaction is reciprocal, and it promotes coherent shared understanding. This element describes the extent of talking to learn and to understand in the classroom. Features of substantive conversation include: 1. INTELLECTUAL SUBSTANCE: The talk is about subject matter in the discipline and encourages critical reasoning such as making distinctions, applying ideas, forming generalizations, raising questions. It moves beyond just the recounting of experiences, facts, definitions, or procedures (e.g., technical language, analytical distinctions and categories being made, levels of differentiations between types and arguments stated, grounds for disagreement stated). 2. DIALOGUE: The conversation involves sharing of ideas and is not completely scripted or controlled by one party (as in teacher-led recitation). Sharing is best illustrated when participants provide extended statements, direct their comments, questions and statements directly to others, redirect and select next speakers. 3. LOGICAL EXTENSION AND SYNTHESIS: The dialogue builds coherently on participants' ideas to promote improved collective understanding of a theme or topic. In short, substantive conversation resembles the kind of sustained exploration of content characteristic of a good seminar where student contributions lead to shared understandings (e.g., teachers and students may make principled topic shifts, may use linking words, make explicit references to pervious comments, and may summarise). 4. A SUSTAINED EXCHANGE extends beyond a routine IRE (initiate/response/evaluate). This can occur between teacher and students or student and student and involves several consecutive interchanges. Dialogue consists of a sustained and topically related series of linked exchanges between speakers. In classes where there is little or no substantive conversation, teacher-student interaction typically consists of a lecture with recitation where the teacher deviates very little from delivering information and routine questions; students typically give very short answers. Discussion here may follow the typical IRE pattern: with low-level recall/fact-based questions, short utterance or single-word responses, and further simple questions and/or teacher evaluation statements (e.g., 'yes, good'). This is an extremely routine, teacher centred pattern, that amounts to a 'fill in the blank', or 'guess what's in the teacher's head' format.
	Knowledge as problematic	Presenting *knowledge as problematic* involves an understanding of knowledge not as a fixed body of information, but rather as being constructed, and hence subject to political, social and cultural influences and implications. Multiple, contrasting, and potentially conflicting forms of knowledge are represented. *Knowledge as given* sees the subject content represented as facts, ie. a body of truth to be acquired by students. The transmission of the information may vary, but is based on the concept of knowledge as being static and able to be handled as property, perhaps in the form of tables, charts, handouts, texts, and comprehension activities.

Intellectual quality	**Meta Language**	*High metalanguage* instruction has high levels of talk about talk and writing, about how written and spoken texts work, about specific technical vocabulary and words (vocabulary), about how sentences work or don't work (syntax/grammar), about meaning structures and text structures (semantics/genre), about issues how discourses and ideologies work in speech and writing. Teachers tend to do a good deal of pulling back from activities, assignments, readings, lessons, and foregrounding particular words, sentences, text features, discourses, etc. *Low metalanguage* instruction has little explicit talk about talk and writing, about how written and spoken texts work, about their features, characteristics, patterns, genres and discourses. There is an emphasis on simply doing text-based activities, without any pulling back and talking about curriculum and evaluation of texts.
Connected-ness	**We want to ensure that students engage with real, practical or hypothetical problems which connect to the world beyond the classroom, which are not restricted by subject boundaries and which are linked to their prior knowledge.**	
	Knowledge integration	*Integrated school knowledge* is identifiable when either: a) explicit attempts are made to connect two or more sets of subject area knowledge, or b) when no subject area boundaries are readily seen. Topics or problems which either require knowledge from multiple areas, or which have no clear subject areas basis in the first place are indicators of curricula which integrate school subject knowledge. *Non-integrated school knowledge* is typically segregated or divided in such a way that specific sets of knowledge and skills are (relatively) unique and discrete to each specified school subject area. Segregated knowledge is identified by clear boundaries between subject areas. Connections between knowledge in different segregated subject areas are less and less clear the stronger the dividing knowledge boundary. In the extreme, such boundaries prevent any interrelation of different subject areas.

	Background knowledge	*High-connection* lessons provide students with opportunities to make connections between their linguistic, cultural, world knowledge and experience and the topics, skills and competencies at hand. Background knowledge may include community knowledge, local knowledge, personal experience, media and popular culture sources. *Low-connection* lessons introduce new content, skills and competencies without any direct or explicit opportunities to explore what prior knowledge students have of the topic, and without any attempts to provide relevant or key background knowledge that might enhance students' comprehension and understanding of the 'new' material being offered.

<table>
<tr><td rowspan="2">Connected-ness</td><td>Connectedness to the world</td><td>Connectedness describes the extent to which the lesson has value and meaning beyond the instructional context, making a connection to the larger social context within which students live.

Two areas in which student work can exhibit some degree of connectedness are:

• a real-world public problem; i.e., students confront an actual contemporary issue or problem, such as applying statistical analysis in preparing a report to the City Council on the homeless;
• students' personal experiences; i.e., the lesson focuses directly or builds upon students' actual experiences or situations. A high level of connectedness can be achieved when the lesson entails one or both of these.

In a low-connectedness lesson with little or no value beyond the classroom, activities are deemed important for success only in school (now or later), but for no other aspects of life. Student work has no impact on others and serves only to certify their level of competence or compliance with the norms and routines of formal schooling.</td></tr>
<tr><td>Problem-based curriculum</td><td>A problem-based curriculum is identified by lessons in which students are presented with a specific practical, real, or hypothetical problem (or set of problems) to solve.

Problems are defined as having no specified correct solution, requiring knowledge construction on the part of the students, and requiring sustained attention beyond a single lesson.</td></tr>
<tr><td></td><td colspan="2">We want to ensure that students influence the nature of the activities they undertake, engage seriously in their study, regulate their behaviour, and know of the explicit criteria and high expectations of what they are to achieve.</td></tr>
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Supportive classroom environment	**Student direction**	*Student direction* sees students influence what specific activities or tasks they will do in the period, or how these will be realised. Such activities are likely to be student-centred, as in group work or individual research or investigative projects. In this way the students assume responsibility for the activities with which they engage, or how students complete them. A *low level of student direction* is exhibited where students do not influence the class activities and the teacher, or some other educational/institutional authority, explicitly determines what activities students do, and hence how they will meet the specified objectives required within the period. The appropriateness of an activity towards meeting these criteria is thus decided by the teacher and/or external authority.

Supportive classroom environment	**Social support**	*Social support* is present in classes when the teacher supports students by conveying high expectations for all students. These expectations include: that it is necessary to take risks and try hard to master challenging academic work, that all members of the class can learn important knowledge and skills, and that a climate of mutual respect among all members of the class contributes to achievement by all. Mutual respect means that students with less skill or proficiency in a subject are treated in ways that continue to encourage them and make their presence valued. If disagreement or conflict develops in the classroom, the teacher helps students resolve it in a constructive way for all concerned. A *lack of social support* will be evidenced when teacher or student behaviour, comments and actions discourage effort, participation and taking risks to learn or express one's views. For example, teacher or student comments that belittle a student's answer, and efforts by some students to prevent others from taking seriously an assignment serve to undermine support for achievement. Support can also be absent in a class when no overt acts like the above occur, but the overall atmosphere of the class is negative due to previous behaviour. (Note: Token acknowledgments by teacher of student actions or responses do not constitute evidence of social support.)
	Academic engagement	*Academic engagement* is identified by on-task behaviours that signal a serious psychological investment in class work; these include attentiveness, doing the assigned work, and showing enthusiasm for this work by taking initiative to raise questions, contribute to group activities and help peers. *Disengagement* is identified by off-task behaviours that signal boredom or a lack of effort by students; these include sleeping, day dreaming, talking to peers about non-class matters, making noise or otherwise disrupting the class. It is assumed these behaviours indicate that students are not taking seriously the substantive work of the class.
	Explicit quality performance criteria	*Explicit quality performance criteria* are frequent, detailed and specific statements about what it is students are to do, to achieve. This may involve overall statements regarding tasks or assignments, or about performance at different stages in a lesson. *Implicit criteria* are identified by lack or absence of written or spoken reference to criteria, requirements, benchmarks or levels of acceptable performance expected of students. This may not be an indicator of neglect but a deliberate strategy for students to discover or construct their own outcomes.

	Self-regulation	*High implicit control* is identified by teachers not making or not having to make statements that aim to discipline students' behaviour (e.g., 'you're not being good today, put your pens away') or to regulate students' bodily movements and dispositions (e.g., 'sit down', 'stop talking', 'eyes this way'). *Low implicit control* is identified by teachers who devote a substantial amount of verbal work to disciplining behaviour and regulating student movement.

Recognition of difference	**We want to ensure that students know about and value a range of cultures, create positive human relationships, respect individuals, and help to create a sense of community.**	
	Cultural knowledges	*Cultures are valued* when there is explicit valuing of their identity represented in such things as beliefs, languages, practices, ways of knowing. Valuing all cultural knowledges requires more than one culture being present, and given status, within the curriculum. Cultural groups are distinguished by social characteristics such as gender, ethnicity, race, religion, economic status, or age. Thus, their valuing means legitimating these cultures for all students, through the inclusion, recognition and transmission of this cultural knowledge. *Devaluing of cultures* is apparent when curriculum knowledge is constructed and framed within a common set of cultural definitions, symbols, values, views and qualities, thus attributing some higher status to it.
	Inclusivity	*Inclusivity* describes the degree to which non-dominant groups are represented in classroom practices by participation. Non-dominant groups are identified in relation to broad societal-level dimensions of social inclusion/exclusion. *Lack of inclusivity* is apparent when the students' backgrounds are ignored and they are treated as a homogenous group. This often results in some groups being unable or unwilling to contribute.
	Narrative	*Narrative* is identified as a sequence of events chained together. The use of narrative in lessons is identified by an emphasis in teaching and in student responses on structures and forms. These may include the use of personal stories, biographies, historical accounts, literary and cultural texts. *Expository* is identified as an emphasis on written, non-fiction prose, scientific and expository expression both in lesson teaching and student responses. Examples are descriptions, reports, explanations, demonstrations, documentaries.

	Group identity	Group identity in contemporary social theory emphasises the need for schools to create learning communities in which difference and group identities are positively recognised and developed within a collaborative and supportive classroom community. This requires going beyond a simple politics of tolerance. A classroom which manifests this ideal is one where differences and group identities are positively developed and recognised while at the same time a sense of community is created. For example, in a given classroom, Aboriginal identities are given positive recognition in classroom practices and representations; Aboriginal students and teachers are given opportunities to pursue aspects of the development of Aboriginal identities and cultures; all class participants value this as a positive and legitimate aspect of their classroom community; and racism is challenged within the classroom, school, and wider communities.

Recognition of difference	**Active citizenship**	*Active citizenship* acknowledges that in a democratic society all individuals and groups have the right to engage in the creation and re-creation of that democratic society; have the right to participate in all of the democratic practices and institutions within that society; have the responsibility to ensure that no groups or individuals are excluded from these practices and institutions; have the responsibility to ensure a broad definition of the political includes all relationships and structures throughout the social arrangement. *Active citizenship* is present in any classroom in any subject domain when the teacher elaborates the meaning of such citizenship and facilitates its practice both within the classroom and outside.