The Fundamentals of a Potentiating Learning Milieu: Expanding Capacity for Student Internalisation and Self-Regulated Learning

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Abstract

In learning communities, academic and social education of students require teachers, as significant and influential role models, to create learning contexts that promote self-regulation, while attending to the psychological needs of competence, autonomy and relatedness. Environments that promote the appropriate balance of autonomy and support enhance rather than undermine an individual's intrinsic enjoyment and desire for learning. In these potentiating learning milieux, self-regulated learners systematically activate and sustain processes towards attainment of goals they personally value. Therefore the challenge for the researchers in this study was to identify the fundamentals of a potentiating learning milieu to provide a practical framework for teachers to expand student learning capacities.

This case study draws conclusions from participatory observations within a primary school setting and links the data to social cognitive and social psychological research. Student actions underpinning this social context were interrogated and patterns emerged. The fundamentals of *collective values*, *connected learning*, *student centred organisation* and *interpersonal relationships* became evident, as common elements were clustered. A pragmatic model was constructed by identifying and implementing these substantive codes, enabling teachers to build capacity to create environments that expand student capacity to learn. This chapter reveals these capacity building fundamentals that provide the opportunity for students to readily self-regulate and internalise their learning towards self-determination.

Introduction

The inspiration for this research project originated from our personal experiences while teaching and living within a rural residential community. Through a feeling of pride, we observed our past students transition from primary to high school and then into the broader community. At the time of this study, past students were repairing our cars, cutting our hair, implementing trade work on our homes, managing our groceries, and even teaching alongside us in our workplace. These interpersonal transactions stimulated an awareness of the ongoing obligation to our students as they journey towards adult community participation and citizenship.

A sense of responsibility initiated a pedagogical reflection upon a classroom community that balanced autonomy and support. This balance fluctuated according to a student's capabilities and efficacy within specific learning contexts. In order to optimise learning, teachers created appealing and challenging environments to facilitate the extension of student capabilities, thus heightening efficacy and potentiating learning (Claxton, 2007). We questioned whether this *potentiating learning milieu* promoted opportunities to enhance *self-regulation* and *self-determination* for transformational learning.

Our vested interest in the community also enabled us to ascertain the needs, values, interests and goals of our students and integrate these into the structure of our classroom context. As teachers we clearly articulated at the beginning of each year the overarching goal of strengthening student capacity to learn through explicit teaching of self-regulation strategies, increasing the levels of self-determination. With the acquisition of skills, an appetite to know and a capacity to learn, it was our assumption students confidently progressed towards productive citizenship within the local community and beyond.

To conceptualise data within this study, we drew upon Deci and Ryan's *Self Determination Theory* (Deci & Ryan, 1985, 2002) and the theory of *Self-Regulated Learning* through a social cognitive perspective (Zimmerman, 1986, 1989, 2011). In this case study we explored, through observation, the ways in which students' psychological needs of *competence*, *autonomy* and *relatedness* were met through the three phase self-regulated learning process of *forethought*, *performance* and *self-reflection* (Bandura, 1997; Schunk, 2001; Zimmerman, 2000). Student voice and initiative were highly valued. Within the environment of our case study we identified students' development of internalisation of learning and self-regulation strategies, where they planned, monitored and redirected their own learning.

Self Determination Theory

The notion of *motivation* is of central concern to teachers and students in all education contexts. As teachers we battle with how to motivate those we mentor, and our students distinctively struggle to locate energy, muster effort and persevere with contemporary school demands. Of our experience, students were regularly stimulated by external sources such as rewards, grades, assessments, or the judgements they feared others might have of them. Just as frequently individuals were motivated from within, by interests, curiosity, values and conscience. These inner motivational resources were not necessarily externally rewarded or supported, but regardless, they maintained passion, spawned creativity, and sustained performance. The dynamic between the extrinsic forces acting on persons and the intrinsic motives and needs inherent in human nature is the domain of Self-Determination Theory (SDT; Deci & Ryan, 1985; 2002).

SDT has origins from the view of human development whereby people are assumed to contain an active tendency toward psychological growth and integration to one's self (Deci & Ryan, 2002). According to Deci and Ryan's SDT, persons possess an innate desire to exercise and grow their interests, naturally pursue challenges, explore diverse perspectives and actively internalise and convert cultural practices. The integration of this active growth with an inclination toward synthesis and organisation of knowledge and personality; provides the foundation for a transparent sense of self. Through expanding capacity and expressing talents and propensities, people actualise and optimise their potential (Deci & Ryan, 2002).

SDT expresses a meta-theory for framing motivational studies that defines varied extrinsic and intrinsic sources of motivation, and a description of the respective roles in cognitive and social development (Deci & Ryan, 2002). It seeks to theoretically reduce the difference often expressed between extrinsic and intrinsic motivation via a continuum of increasing internalisation toward absolute autonomy or self-determination.

Deci and Ryan's SDT propositions also focus on how social and cultural factors enhance or suppress people's sense of volition and initiative, in addition to their well-being and performance quality. Learning environments supporting and meeting the student's experience of the psychological needs (autonomy, competence, and relatedness) are argued to promote the most volitional and high quality forms of motivation and engagement for activities, including enhanced performance, determination, and creativity.

SDT research in educational settings reveals the benefits of autonomy supportive environments versus controlling. Students taught by autonomy supportive teachers achieve higher academic results (Flink, Boggiano, & Barrett, 1990), increased perceived confidence (Grolnick & Ryan, 1989), raised greater positive emotions (Patrick, Skinner, & Connell, 1993), elevated self-esteem (Deci, Schwartz, Sheinman, & Ryan, 1981), enhanced conceptual understanding (Boggiano, Flink, Shields, Seelbach, & Barrett, 1993), increased flexibility in thinking (McGraw & McCullers, 1979), engendered active information processing (Grolnick & Ryan, 1987) and developed superior levels creativity (Koestner, Ryan, Bernieri, & Holt, 1984). This encapsulates and embodies the expansion of student's capacity to learn.

Although this long standing research is conclusive, what were the behaviours teachers enacted to construct these environments to achieve these outcomes? According to Reeve (2002) both teacher personality and social psychological factors impact upon an instructors willingness to exhibit autonomy support. Research findings indicate autonomy supportive teachers distinguish themselves by the following qualities: active listening to students, providing time and space for investigations and offering hints rather than answers to problems students confront (Deci, Spiegel, Ryan, Koestner, & Kauffman, 1982; Reeve, Bolt, & Cai, 1999). These teachers also value student voice, acknowledge student effort, resist criticising, embrace student generated inquiry, display empathy, encourage learning pathways and risk taking. Students self-report that autonomy supportive teachers facilitate and support internalisation and are less demanding (Deci et al., 1982; Reeve et al., 1999).

Within SDTs dialectical framework, the inner motivational resources such as the psychological needs, interests, values and aspirations can either be enriched or disrupted within specific classroom contexts (Reeve, 2006). Teachers that implement strategies to enhance these inner resources adopt a motivational approach aimed at optimising academic and developmental outcomes for students (McLennan & Peel, 2011). Conversely, SDT proposes that the extent to which the above three psychological needs are thwarted within a social context, will have a detrimental impact on a persons' internalisation in that context.

Of the three psychological needs, relatedness is fostered through building interpersonal relationships within a culture of care, empathy and collective values. Competence is enhanced via a structured and connected environment providing optimal challenge and informational performance feedback. Autonomy is promoted and internalisation nurtured through student centred organisation initiatives such as choice and shared decision making. (Deci & Ryan, 2002; McLennan & Peel, 2011; Reeve et al., 1999). As Brophy (2004) asserts,

teachers that establish contexts that facilitate the satisfaction of these psychological needs will have students who feel self-determined and autonomously motivated. Significantly, teachers who do not support this are more likely to have students who feel controlled and pressured.

Self-Regulated Learning

The focus in this section of the literature review is on the significance of self-regulation within the social learning process. Firstly the concept of self-regulation in terms of learning is defined. The social aspects of a learning community are then reviewed, exposing the interdependence of socially shared-regulation and co-regulation conducive to developing strategies for self-regulation. Finally, the three phase cyclical model of forethought, performance and self-reflection is utilised as a structure to explore the classroom's potential for teaching the processes of self-regulation (Bandura, 1997; Schunk, 2001; Zimmerman, 2000).

Zimmerman and Schunk (2011) define self-regulation as processes systematically directed towards accomplishment of personal goals, where the learner activates, modifies and sustains cognitions, behaviours and affects. This social cognitive perspective evolved in the late 1980s from an integration of research within cognitive/metacognitive, motivational, behavioural and developmental domains (Zimmerman & Labuhn, 2012). The extent to which students self-regulate their learning is determined by their ability to independently set goals, select and use strategies, self-monitor their progress and make adjustments to enhance their learning in particular contexts (Zimmerman, 2011). Self-regulated learning theory provides a valuable organising framework for educators to create learning environments, where learners take responsibility and control as active participants to expand their learning capacity.

Extensive research in the past three decades highlights the environmental and behavioural influences on students' self-regulatory functioning (Zimmerman, 2011). Styles of teaching and learning within the social environment of the classroom influence the development of self-regulated learning (Perry & Rahim, 2011; Perry, VandeKamp, Mercer, & Nordby, 2002). Students build self-regulatory capacities for goal attainment through independent and social forms of learning. Self-regulated learning strategies are learnt through an interactive social learning system within the sociocultural nature of the classroom (Hadwin, Jarvela, & Miller, 2011; Vygotsky, 1978). Instructional support scaffolds learning and external sources of motivation are gradually and systematically reduced, as choice and autonomy are increased (Perry, 2002; Reeve, Ryan, Deci, & Jang, 2007). Recognised in the fundamentals of the

potentiating learning milieu is the value of the collective learning community in modelling skills, practising adaptive strategies, providing feedback, performing shared purposeful actions and cognitively co-constructing goals and values; all aimed towards achieving personal goals (Perry & Rahim, 2011; Pressley, 1995; Schunk & Zimmerman, 1997). Volet, Vauras, and Salonen (2009) acknowledge interpersonal relationships within a social construct, emphasising how the environment creates affordances and constraints to develop self-regulation.

Seminal works from Vygotsky and Piaget indicate the significance of others in the development of self-regulation strategies (Fox & Riconscente, 2008). Within a social learning environment, co-regulation and shared-regulation are distinct social processes that reciprocally interact with self-regulation processes for learning to be internalised (Hadwin et al., 2011; Perry & Rahim, 2011; Volet et al., 2009; Zimmerman, 1990). These social interactions emphasise the importance of conducive relationships between teachers and students, as well as among students, in developing self-regulation through cooperative and collaborative tasks (Perry & Rahim, 2011). As self-regulatory practice becomes increasingly self-directed and students perceive personal control, with support from the teacher, they internalise the strategies. These enhanced self-regulation capacities can then be maintained and appropriately transferred to other situations (Reeve et al., 2007).

Self-regulated learning capacities involve self-monitoring, personal strategy selection and self-motivation, but as explained it is a misconception to think that these should be developed in an isolated environment. Socially shared regulation of learning involves controlling and monitoring cognitions, behavioural strategies and motivational beliefs to achieve a collaborative goal. Regulated learning is social within an environmental context where students collectively plan, perform and evaluate. (Hadwin et al., 2011). During co-regulation students interact with teachers and peers, learning from scaffolding and modelling. This is considered a transitional phase, as learning focuses on acquiring and adapting regulation strategies for potential self-regulation (Perry & Rahim, 2011). A rich learning community includes social learning where students share prior knowledge and experiences, seeking assistance from others when required. During collaborative learning it is inevitable that co-regulated, shared regulated and self-regulated learning are interdependent and are concurrently influenced by environmental and behavioural conditions. Within a student centred classroom, participants feel connected to their learning, maintain interpersonal relationships and appreciate collective values. The interactive and shared activity of group

members creates and sustains motivation, monitors metacognitions and models appropriate behavioural strategies to attain goals and develop self-regulation.

The strategies of self-regulated learning are the purposeful actions and proactive processes directed at achieving predetermined goals. Extending beyond self-discipline and self-control, a self-regulated learner effectively organises ideas, time, resources, and monitors performance, while remaining positive about one's capability (Pintrich, 2000; Zimmerman, 2000). The proactive strategies of self-regulation improve with practice and are positively connected with academic achievement and performance at school (Duncan et al., 2007; Zimmerman, 1990, 2001, 2011). Self-regulation strategies enhance a student's perceived efficacy to achieve in academic learning (Zimmerman, Bandura, & Martinez-Pons, 1992) and make a positive contribution towards self-assured social behaviour (Grolnick, Gurland, Jacob, & Decourcey, 2002). Through experiences within a supportive environment, learners build upon a repertoire of strategies and beliefs to autonomously initiate and direct their efforts for knowledge and skill acquisition in diverse contexts. Knowing when, where and how to appropriately apply these skills to achieve a desired goal extends a student's capability to learn.

Self-regulation is determined as a set of learnt processes, which are responsive to contextual conditions and are adaptable to changing situations (Duncan et al., 2007). Degrees of self-regulated learning are dependent on how metacognitively, motivationally and behaviourally active participants are in their learning process (Zimmerman, 1986). Importantly being self-regulated is not viewed as a fixed trait that individuals possess or lack. Potentially all students hold capacities to manage cognitions, control emotions and direct behaviours through the cyclical self-regulated learning processes (Zimmerman, 2002, 2011). A sense of self-efficacy continues the healthy learning cycle, when the environment provides and guides performance feedback judgements based on task mastery. This is where learners are attentive to achieving goals rather than focused on being seen by others as capable of performing (Kitsantas & Zimmerman, 2006; Schunk, 1990). Perpetuating the self-regulatory cycle, self-efficacy judgements stem from one's belief in their ability to achieve the desired outcome and relate specifically to learning conditions and feedback.

The "forethought phase" of the cyclical self-regulated learning process proactively sets the stage for learning. Goals are created and attainment strategies are mapped during task analysis. Self-motivational beliefs are integral to the forethought phase. As discussed, these beliefs are influenced by prior experiences and the subsequent appointment of causal

attributions, whereby students interpret feedback and attribute prior failures and successes. The attributions heavily influence the setting of future goals (Covington, 2000; Weiner, 1985). Tasks that are attainable, yet challenging and valued, increase students' perceived self-efficacy. Students are more likely to be motivated to engage in the forethought phase and maintain effort in the next phase when the expectant social and academic outcomes are positive (Eccles & Wigfield, 2002; Schunk & Usher, 2011; Vroom, 1964).

During the "performance phase" of self-regulated learning, task strategies are initiated and metacognitively monitored through self-observation, where students think about and understand what they are doing and why they have chosen particular strategies. (Flavell, 1979; Hacker, 1998; Zimmerman, 1998). Processes are monitored for effectiveness and the feedback provides evidence for future selection consideration (Schunk & Zimmerman, 2007). Students systematically track their learning, both cognitively and physically so they can appropriately vary or enact new strategies and seek assistance where needed (Butler, 1998; Karabenick, 2011). Engagement is enhanced when attention is focused on the task, with the self-controlled learner taking actions to eliminate distractions and establish a productive environment for learning (Kuhl, 1985; Zimmerman, 2011). Complex tasks are separated into manageable parts, visualised and verbalised. The self-control processes of attention focusing, self-instruction, imagery, time management, help seeking, environmental restructuring and task strategising, optimise perceptual and behavioural functioning (Zimmerman, 2011).

Essential to maintaining efficacy and ensuring productive learning opportunities in the future, the "self-reflection phase" focuses on self-judgement for personal improvement and future goal mastery. Feedback from goal achievement successes is to be acknowledged and attributed to skilful selection and strategy application. Similarly, learning is attained when reasons for failures are focused on casual attributions that are controllable and amendable rather than on a perceived lack of ability (Weiner, 2000; Zimmerman, 2000). Misdirected attribution leads to dissatisfaction of task, waning motivation and reduced efficacy for setting future challenging personal goals. As Zimmerman (2000) reveals, these adaptive rather than defensive behavioural inferences guide the learner to a more effective self-regulatory performance during subsequent efforts.

This cyclical process of self-regulated learning recognises the interactional influences of environmental, behavioural and personal determinants (Bandura, 1986). Prior experiences within these determinants regenerate the self-regulatory cycle and a mindset that ideally

supports rather than thwarts self-efficacy and motivation for students valuing their future learning (Zimmerman, 2008; Zimmerman & Labuhn, 2012).

The classroom environment has the potential to provide a balance of autonomy and support to encourage self-regulatory dispositions. Enhancing the opportunities for self-regulatory learning are potentiating learning milieux, where learning is collaborative and interactive. Students make choices and engage in open ended activities, which are structured to challenge but not overwhelm. In environments such as these, self-regulated learning processes are modelled and explicitly taught to enhance learning and one's perceived capabilities for performing. Skills and processes are transferable to other learning situations so students feel they have control and responsibility for their learning. Self-regulatory dispositions expands students capacity to learn by internally motivating them to set goals, monitor learning, adapt to conditions in response to their needs and engage in future worthwhile challenges with self-efficacy.

Methodology

To enable us to understand and to articulate what was distinctive about our learning milieu we needed to conceptualise what supported students' social and academic growth. These general observations of students' actions and responses during varied teaching learning situations provided the data. The structure of our multi-age teaching environment provided an opportunity for long term participant observations in a single setting. The student group for the case study consisted of 30 males and 25 females from years 5, 6 and 7 with a diverse range of interests and abilities. We were advantaged to teach some of the students for three consecutive years, enabling us to monitor growth throughout this duration.

In the first three weeks of the school year these students experienced an intensive socialisation teaching program, where they explored collective values and expectations through narratives and expressive arts. Within this collaborative environment the purpose of our teaching approach was to unite the group, establish organisational routines and connect learning beyond the walls of the classroom.

Through recurring observations and subsequent synthesis we sought to answer the following research questions:

What are the fundamentals and their multifaceted elements of a potentiating learning milieu?

How might teachers expand their capacities to provide the opportunities for students to enhance their capacities for self-regulated learning and increased self-determination?

The purpose of our study was to identify the "fundamentals" of our supportive classroom milieu and to explain why it provided opportunities for students to expand their self-regulated learning capacities. Data analysis from the case study provided evidence of how teachers can build capacity to construct an autonomy supportive classroom that enhances student capacity to self-regulate their learning and advance self-determination.

As a case study, our research sought to understand the actions of the participants and how meaning was made through observations of classroom practice. The method of case study, as a research approach, has diverse theoretical influences (Somekh & Lewin, 2005). In this specific social science case study, perspectives were viewed from the inside of the social structure of the classroom through subjective observations. The social actions of our student participants were observed, identified and described before they were analysed and theorised. The researchers interrogated academic and social behaviour of students by pinpointing the environmental stimuli and pedagogy that preceded these actions.

As pragmatists in this research project we made purposeful use of applicable motivational theories and explored their utility (Wicks & Freeman, 1998). Rather than beginning with a theory or hypothesis, the research questions lead an inquiry into the development of a pattern of meanings that evolved as substantive codes through the research process itself (Mackenzie & Knipe, 2006). Motivated by the inquiry, this research approach highlighted the impact of our own experiences, judgements and interpretations as researchers. This interaction between teachers and students ensured practical relevance and utility (Marshall, Kelder, & Perry, 2005).

The aim of our research project was to create knowledge, implement change and improve practice. As experienced class teachers we researched within our setting, created a plan to investigate practice, implemented this plan, reviewed the literature and analysed the resultant data. Ultimately this enabled us to make informed judgements and articulate implications.

This practical approach was closely linked to reflective practice, as hypotheses were formed and tested in practice (Schön, 1983). Reflexivity is a feature of sound social science research, providing an opportunity to critique one's own work and engage in self-critical analysis (Kirkpatrick, 1995). As process participants we examined our own educational practice systematically and carefully, using the rigours of research. Based on the assumptions that as

teachers we build capacity best on situational problems, we were more effective when examining and assessing our own work, and collaboratively supporting each other (Ferrance, 2000).

The study was based on observations when exploring the relationships of student behaviours and teacher pedagogy. Reflective practice provided a context for investigating the identified emerging behavioural patterns. Subsequently, this case study was implemented to identify and describe the social interactions observed from the pedagogy pertaining to the fundamentals of a potentiating learning milieu. To present this phenomenon representative of what we observed, we systematically analysed and theorised from the data.

Data and Data Analysis

The observations of the students' behaviours in our classroom context created the data, which was recorded as anecdotal notes in preparation for in-depth data analysis (see Table 1). These observations were coded to match commonalities. The students' actions were clustered into four substantive codes that we described as the fundamentals of the classroom milieu. The fundamentals identified were *collective values*, *connected learning*, *student centred organisation* and *interpersonal relationships*. Within the overarching fundamentals emerged synergies that were contained together under sub headings, labelled as "elements". An example of this was within the fundamental of 'collective values' from which emerged *boundaries, success, common language, purposeful spaces leadership and respect* as the elements.

Through the process of data analysis, it was recognised that all students' actions were contained within the identified elements. It was consequently acknowledged that we had reached saturation when no further elements were required. Subsequent to this, judgements were made to align these elements with environmental characteristics and teachers' pedagogical practices that were identified as provoking the students' actions. Our case study assisted us in building a pragmatic model to expand teacher capacity to create a potentiating learning environment grounded by fundamentals.

Table 1: Categories of elements and student indicators

Potentiating Learning Milieu Fundamentals			
Collective Values	**Connected**	**Student Centred**	**Interpersonal**

|	Learning	Organisation	Relationships
Boundaries - follow instructions - situational behaviour - remember & follow routines - know where to be when - monitor & accept behavioural limits - recognise rights & responsibilities - ignore distractions - meet demands of the task **Success** - sharing the 'limelight' - celebrating events & achievements of self & others - proudly share work with others - pride in their class identity - positive body language - desire to be 'the best I can be'	**Engagement** - interests & needs promote curiosity - attend class regularly - see learning as fun **Making links** - use prior knowledge - connect school to real life learning **Resource rich** - purposeful use - concrete learning - materials brought from home - contribute to class aesthetics **Synthesis of learning** - reflect through journal writing - represent knowledge visually - answer questions - create tables, diagrams, graphs **Metacognition** - redo and repair parts of a task	**Inquiry learning** - locate, organise process information - make assumptions & inferences - questioning & experimenting - choose topic pathways - hands on approach - take risks & offering answers even when unsure **Competency** - proximal challenges - attribute success & failure to controllable variables - accept explanations & rationales - maintain persistence to task - complete tasks **Monitoring progress** - record task	**Interacting with diversity** - celebrate others birthday - laugh at oneself and with others - find the various fun perspectives - sing together - compete together for win-win - value others' opinions **Collaboration** - question & discussion - peer mentor - shared cognitions - role models - sharing resources **Communication** - represent information through multimodal - contribute to natural conversation - share ideas - provide & use feedback from self & others - request assistance

- accept praise - strive for valued rewards **Common language** - class code - engage in narratives to support social literacy - visual cues - positive **Purposeful spaces** - find & define work areas - adapt conditions in response to needs - organise & maintain areas - remain in areas expected for the task **Leadership** - promote culture of peer group, class, school - endorse initiate **Respect** - care for own & others belongings - empathy for others reflected with actions - wear uniform	- find and use alternative ways - verbalise & visualise learning - set personal goals - compare what is known & what is being learnt - plot course & use guides for learning pathways - identify strengths & weaknesses - mind maps constructed to graphically organise thinking - select appropriate strategies - self-evaluation on task accuracy	completion - respond to self-assessment criteria - correct actions - make informed decisions to direct learning **Student control** - store books & belongings - choose resources, presentation mode & style - behaviour choices - accept consequences - 'tools of trade' are accessible - design & use mnemonics - regulate noise levels of actions & speech	when required - offer opinions - inform parents enthusiastically of classroom activity - initiate relevant discussion with teacher **Group management** - aware of time - allocate roles - reinforce procedures - take turns **Significant others** - stimulate interests in learning - promote values - mimic exemplary actions

with pride			

The researchers sought to interpret the dynamics between the identified fundamentals, SDT and Self-Regulated Learning Theory with regards to its utility and purposefulness in the practical context. Identifying the theories as meeting these criteria, the links were investigated between the constructs of the theories to the four fundamentals. As a conclusion to our analysis we merged the data with the triangulation of the theories of Self Determination and Self-Regulated Learning. Students' capacities to self-regulate their learning and increase self-determination were enhanced when these fundamentals were in place. Therefore the model builds capacities for both teachers and students.

Our findings, supported by the theory, illuminated how teachers' pedagogy and environmental stimuli promotes student regulation and internalisation of learning. The construction of the potentiating learning milieu model served to provide answers to our initial proposed questions. These answers identify the multifaceted fundamentals of a potentiating learning milieu and in turn how teachers might expandt their own capacities to provide opportunities for students to enhance their capacities for self-regulated learning and increased self-determination (see Figure 1).

Figure 1: A Potentiating Learning Milieu model
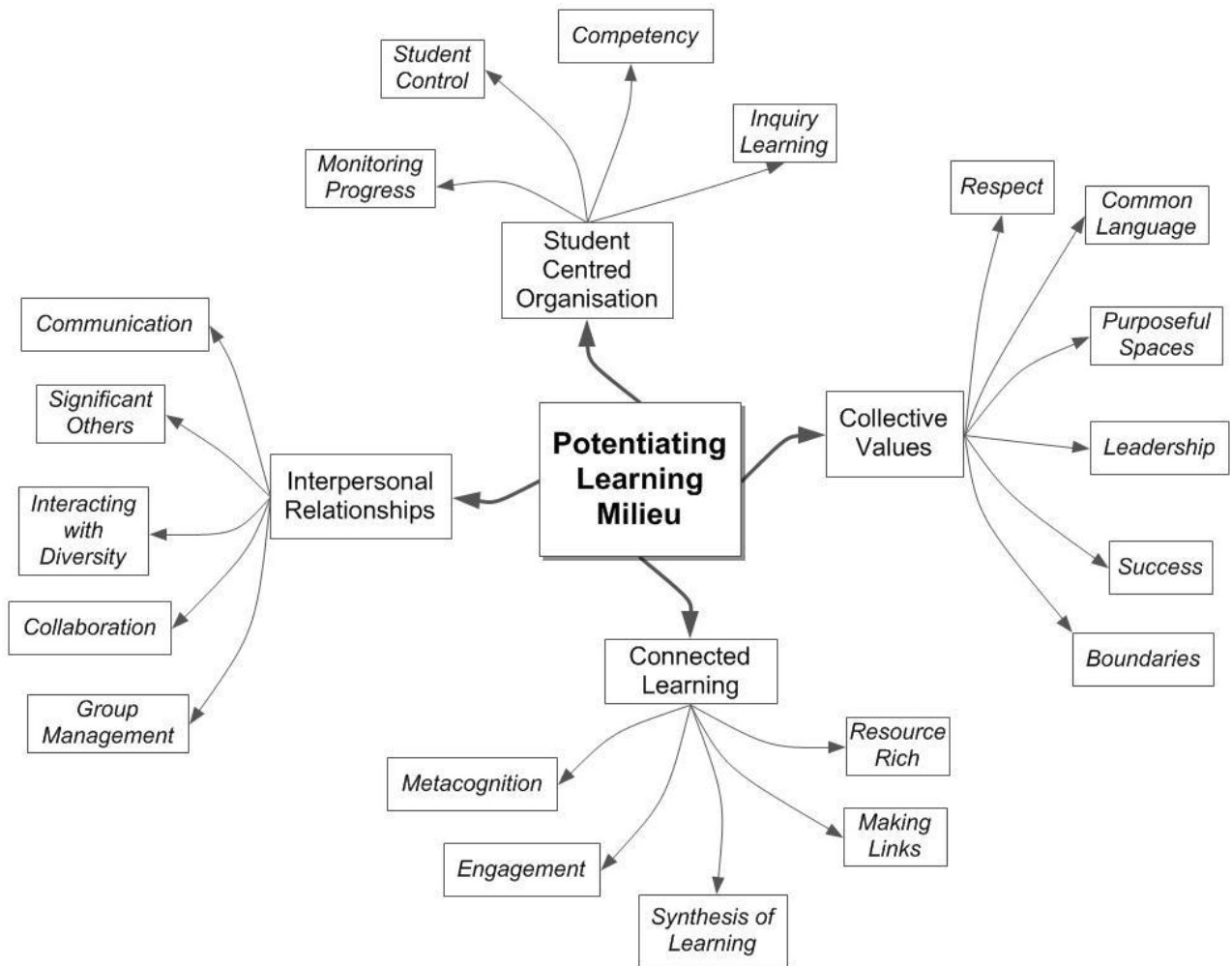
Research Findings

Within the fundamental elements of collective values, autonomy supportive teachers utilize *common language* to develop a class code, taking every opportunity to praise student mastery, actively listen and avoid unnecessary criticism. Modelling *success* through shared celebrations establishes an environment that fosters the internalisation of this value, as students seek to relate *respectfully* to each other. Attending to the psychological need of relatedness ensures collective values are accepted, integrated and internalised. To set the stage for learning, *boundaries* are explicitly taught so expectations are established and students make goal orientated behavioural choices that have cognitively understood consequences. Explicitly teaching appropriate task behaviour expectations ensures students have flexibility to optimise task focus. Provided with *purposeful spaces* with inherent and specified parameters, students regulate the appropriate volume to match their learning activity. The teacher, embracing student *leadership*, organises the learning tasks, considering locations that are adjacent to other tasks of similar actions and noise levels in order to minimise distractions. A careful balance between autonomy and support ensures heightened

self-efficacy and reduced anxiety. In our potentiating learning milieu, collective values were represented by the African saying 'Ubunto Botho', we can only be human together. The class code of 'positive, prepared, proactive, polite' was explicitly taught, as the expected behaviours, providing the boundaries that ensured success to strengthen individual leadership and group unity.

Connected learning satisfies the psychological need of competency in potentiating learning milieux. Students' levels of internalisation increase when teachers design learning programs *linking* curriculum requirements with student prior learning. Through an awareness of perspectives both within and outside school, tasks are creatively implemented to stimulate natural curiosity for *engagement*. Careful selection and purposeful use of *rich resources* leads to a perception of fun and enjoyable learning. This optimises *engagement* and increases the willingness of students to embrace challenge and develop further competency. Task analysis is modelled by teachers thinking out loud to externalise their thoughts and explicitly identify, simplify and rationalise problem solving strategies for specific purposes. Instructions for tasks are represented as parts of a whole. These are visually and verbally communicated to students to afford *metacognition*, where they learn about their learning. Modelling visualisation as a thinking strategy in a variety of situations, including setting out bookwork, designing presentations and comprehending written texts, assists students to metacognitively recognise what they are doing and how they plan to achieve the desired goal. Teaching the salient features of self-reflective journals permits students to cognitively track their progress so they can *synthesise their learning*. Consequently students provide written samples of both formative and summative assessment ready for student and teacher feedback. Teaching the specific skills to create mind maps and graphic organisers provides students with the tools to represent and recall information utilising their visual memory skills.

Student centred organisation provides opportunities for students to exercise the psychological need of autonomy and is best implemented through a guided *inquiry learning* approach. Designing investigations for knowledge and skill acquisition encourages students to locate, organise, process and synthesise relevant information in response to their self-constructed questions. This empowers students to develop self-directed learning, take cognitive risks and utilise a hands on approach to solve pertinent problems. The provision of open ended tasks effectively caters for diverse abilities, enabling students to set proximal challenges and complete tasks for personal *competency* and goal attainment. New learning is introduced through reflecting positively on past knowledge and skills from previous tasks. Inquiry learning frames a collaborative, student centred and participatory structure that enables

students increased freedom of choice and volition. Guided tasks where students are metacognitively aware of the stages involved in the learning process, such as the inquiry learning model, also include explicitly teaching the affective states that are experienced. Teaching what to expect emotionally at particular stages enables students to redirect their learning and avoid disengagement or amotivation. Our customised 'Code of Learning' inquiry model utilised a 'preview, plan, prove, perfect' framework to satisfy curiosities. In our practice we peaked curiosities by making the uninteresting, interesting. Rather than studying topics that on the surface could appear bland such as 'deserts' we stimulated interest by framing the learning as 'dying of thirst' to inquire as to how animals and plants adapt to dry, hot climates.

Potentiating learning milieux provide opportunities for personal choice allowing students a specific topic, interest or presentation mode. This inspires students to competently utilise their individual strengths, identified by previous causal attribution of success. Proximal task and goal reflections through class discussions recognise personal competency. Group success guides students' efficacy for future tasks when encouraged to reflect on both positive and negative experiences. Students focus on their personal performance, attributing their achievements to how and why they selected their strategies to attain their goal. They rationalise failures to amendable causes such as time management and resource selection strategies to ensure future personal improvement and investment. Utilising formatted checklists to track personal task completion and collate work sample portfolios, students *monitor progress*. Joint construction of self-assessment criteria checklists ensures students understand expectations of the task and take responsibility for meeting established goals. Providing locations and space for accessible storage of individuals' belongings, ensures *student control* of these learning materials. A time requirement is allocated for students to manage and maintain these belongings and where necessary, modelling resource organisation occurs.

A desire for students to have belonging or relatedness within the class context is a psychological need that can be satisfied through designing opportunities for individuals to *interact with the diversity* of their cohort and extend interpersonal relationships. Celebrating birthdays and community achievements, learning to laugh at oneself and with others, bonding in a range of class unity activities and seeking win-win outcomes engenders empathic views and tolerance to accept others' opinions and individual difference. An autonomy supportive teacher who promotes and models values through their actions becomes a *significant other* and this environment nurtures strong interpersonal relationships that form the cornerstone of

the learning milieu. *Communicating* and *collaborating* with others by verbalising thoughts and listening actively to suggestions provides affirmation and *group management* to reinforce procedures. Knowing when to seek assistance to overcome barriers and when and how to utilise effective questioning to solve problems independently, can be guided by providing structured question and answer sessions and using mixed ability peer groups.

Conclusion

Individualising the balance autonomy and support within our dynamic classroom milieu, we were intent on academically and socially educating our students to enable them to transform their learning beyond the classroom walls. The potentiating learning milieu model was designed with four overarching fundamentals, each inclusive of related elements that describe the properties of the environmental and pedagogical practices. It can be utilised by teachers to guide their practice and build a learning environment that is a prerequisite for teaching self-regulation and increasing self-determination. This is identified as critical in building internal resources for students to successfully extend their capabilities to enhance their capacities to manage and attain goals with increased self-efficacy.

As a result of these research outcomes the primary implication is that this model could be implemented, examined and extended upon by other educators in their distinctive learning contexts.

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