

R3107

Kawachi, P. (2006). The will to learn : Tutor's role
In P.R. Ramanujam (Ed.),
Globalisation, education and open distance learning. (pp.197-221)
New Delhi, India : Shipra
ISBN : 8-175-41272-0

The Will to Learn : Tutor's Role

Original Title

Affect and the Tutor's Role :
towards a theory for how to initiate the will to learn

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ABSTRACT :

Of the four dimensions – cognition, affect, metacognition, and the environment - associated with learning, the role of the tutor has focused on cognition – developing the students' knowledge and abilities to perform, with relatively little attention to intervening in the affective domain. Much less attention has been paid to bring students to understand how they learn - metacognition. And the attention paid to environmental aspects has largely focused on studies describing the various barriers. The present chapter develops the author's work in the affective domain on how to initiate the intrinsic motivations to learn and extends this to the tutor's role to intervene to initiate or modify desirable affect in the student. A self-monitoring model is constructed here to show how emotion arises, to how this produces mood, and then - through internal innate or external social force driving learning activity - how self assessment results in positive or negative affect. The opportunities for tutor intervention are then explained. The important message in this chapter is that the tutor can intervene rationally, purposively and successfully to create or modify affect, and the theory proposed here can be utilised easily in practice by the tutor.

INTRODUCTION :

“Teacher skills in motivating learners should be seen as central to teaching effectiveness”

Dörnyei (1998, p.131)

This chapter investigates the affective domain of learning to see how the tutor in open and distance learning can successfully intervene to initiate and nurture learning in a student. Learning has traditionally been considered as the accumulation of knowledge and skills – both practical skills and critical thinking skills - and the proficiency to use these appropriately. In other words, learning has traditionally been associated with the cognitive domain. In open and distance learning, the openness has meant marginal students are reached and this may be related to the high drop-out rate, while the distance aspect has brought in a broader diversity of faraway students – so the environment domain receives some attention in open and distance learning. And theories and new ways of teaching have opened up the metacognitive domain. However, the affective domain has been relatively little explored beyond surveys of students’ motivations. Tutor intervention into the affective domain has so far remained minimal. Traditionally, the tutor’s role has been understood mainly limited to intervening in the cognitive aspects in their role of interpreting the content to be learnt and assessing the quality and quantity of learning. This chapter is the first report of how the tutor can and should intervene in the affective aspects. This chapter details the motivations to learn and the tutor’s role in cognitive and affective interventions.

There are four interrelated dimensions associated with learning. These are cognition, affect, metacognition, and environment (Hartman 2001). These are defined as follows – though it should be kept in mind that they are not entirely distinct entities : they share some overlapping characteristics – for example, prior knowledge within cognition is also a basis for academic interest in affect, and in understanding in metacognition, as well as being part of resources in the learning environment. And for example learning style, while largely in the affect dimension, is also in cognition in prior educational experience, in metacognition in awareness, and in the environment dimension as a task-dependent variable. Cognition is defined as the aptitude, prior knowledge and skills necessary for performing a task or test. Affect is the motivation, attitude and decision to initiate performance, Metacognition is understanding how the task is performed, and the ability to self-monitor, evaluate and plan own learning. And the environment dimension is defined as the social or physical forum in which learning occurs. Affect is defined in more detail later on in this chapter.

Student surveys have confirmed these four dimensions are involved as facilitating learning or as the case may be as barriers to learning. Rezabek (1999) found that barriers to learning in distance education could be categorized as situational, institutional, or dispositional. The first two are in the environment dimension, and the third is in the affect dimension. Garland (1993) found a fourth category of epistemological barriers concerning the technical difficulty, prerequisite knowledge and academic interest or relevance, and this category would

be in the cognitive dimension. And Leggett & Persichitte (1998) found a fifth category concerning student support and study skills, which would be in the metacognitive dimension. Dispositional aspects are therefore well known to be important and include the student's approach to learning, attitude to learning, preferred learning style, and motivation to learn. These dispositional aspects of the affect dimension have generally remained beyond the reach or outside the role of the tutor and institution. Most reports have dealt with only how to foster these affect aspects, rather than how to initiate them.

The present author has however recently reported how to initiate the intrinsic motivations to learn (Kawachi, 2003a). Basically, there are four intrinsic motivations to learn ; - vocational, academic, personal, and social. These and the corresponding extrinsic motivations are given in TABLE 1. The social intrinsic motivation to learn was recently added to bring into account the social interactions within an online community of learners, where these interactions are intrinsic to the course (Kawachi, 2003a).

Further research in the past several years has yielded more details on these and additional evidence that they constitute a fully comprehensive set of the motivations to learn. In particular, studies by others in which they apply Boshier-type survey questionnaires on anonymous groups have resulted in multifarious factors that are then assigned yet new designations. These surveys are easy to perform, popular and quite decorative but lack transmissibility to other groups and so are not particularly useful or helpful. There has been one study on the motivations of a group of pre-service teachers on a certification course that discovered the leading factors were vocational desire to be a teacher and an academic interest in their subject. I wonder whether this information was not already available on their course application forms.

TABLE 1 : The Motivations to Learn

MOTIVATION		COVERAGE
Vocational	Extrinsic	: seeking qualification for a better job
	Intrinsic	: acquiring skills for own future desires
Academic	Extrinsic	: want to pass exams, get good grades
	Intrinsic	: pursuing own intellectual interests
Personal	Extrinsic	: prove one's capability to others
	Intrinsic	: desire for self improvement
Social	Extrinsic	: extracurricular sports, club activities
	Intrinsic	: integrative, affiliative online and lifelong learning

The main problem with the findings from applying Boshier's Education Participation Scale questionnaire is that it seeks to categorize student motivation qualitatively through applying a quantitative survey using Likert-type responses and then Factor Analysis (Boshier, 1971 ; 1982). A Likert response (that ranges from very negative through to very positive) is inappropriate for determining affect (mainly motivation), because both positive affect and negative affect are each experienced during a period spanning the recent past few weeks – more so if the past period is unbounded – and either-or responses are disinformative. Exploratory Factor Analysis can find dimensions but without path analysis is by-and-large inappropriate in educational settings where the expressions of affect and personality attributes are in a simplex (Bynner & Romney, 1986) or circumplex structure (Plutchik & Conte, 1996). In educational settings for example learning style affects of adopting a deep approach and adopting a surface approach are not orthogonal independent factors but are in a simplex structure flowing from one to the other. In a single task, they may be orthogonal, but nevertheless dependent. Moreover they are not in an either-or relationship for a Likert scale when taken over a sufficient period of experience since they are task-dependent strategies flexibly adopted by optimal adult learners. Boshier-type findings are discussed further in terms of the model presented later here of motivation and affect.

The four motivations to learn of vocational, academic, personal, and social stand as a top-level categorization of the motivations to learn. This categorization was first proposed by Taylor (1983) who performed a longitudinal second-order phenomenological qualitative study listening to individual students. In her doctoral thesis, she divided each of the four categories “into two sub-types according to whether the student was directly interested in the content of the course or whether they were studying the course merely as a means to an end. These sub-types were labelled intrinsic and extrinsic, respectively” (Gibbs, Morgan, & Taylor, 1984, p.170). The students then under study were all in face-to-face contiguous conventional education. Taylor had identified the social motivation with extracurricular club and sports activities outside of the students' academic work, leading Gibbs et al. to derive that “social orientation appears to be extrinsic almost by definition ; as it cannot be related to the course itself” (p.177). Later on, Morgan (1993, pp.39-40) recognized a social dimension, which he suggested was probably intrinsic, as a motivation in the face-to-face components (in group tutorials or residential weekends) of correspondence or open learning courses. Kawachi (2003a) in an analysis of student reports from participants in asynchronous online learning in a group, where a community of learners developed and their exchanges were assessed as part of the course, concluded that in such online learning there is social intrinsic motivation. See for example Wegerif (1998) for a discussion on the need for building a sense of community in asynchronous online learning. Recently these same four intrinsic motivations (and only these) were confirmed by Lee et al. (2004). They performed a long-term longitudinal study following student motivations in more than 400 students in a face-to-face contiguous statistics course, over four years and over two institutions to find the four ; a) goal or career orientation, b) academic interest, c) value or personal development orientation, and d) social and environmental orientation. They found curiosity to be in b) rather than in c), but this may be simply a matter of interpretation of how curiosity is expressed. Academic interest is often

confused with curiosity – for example Williams & Burden use these terms interchangeably (1997). The four intrinsic motivations to learn are here further sub-divided below in order to address how each sub-type can be initiated in the student by the tutor.

Several other authors have alluded to this differentiation between the extrinsic and the intrinsic motivations to learn. Lewis (1995, p.27) for example has defined four purposes for tutor interventions, to be differentiated as summative (to explain a grade, discuss and link the student's work to the institutional criteria) versus formative assessment (intended to further the student's learning), and summarising what has been done versus comment to help the student plan future learning. The first and third of these may be viewed as extrinsic, and the second and fourth as intrinsic motivations to learn. And on the tutor's role to prevent student attrition, Tinto (1982, p.697) advocated fostering formal and informal academic and social interactions. His terminology should be interpreted as referring to social interactions as those which are outside of the course, i.e. the extrinsic motivations, and to the academic interactions as those related to the course itself, i.e. the intrinsic motivations – of Gibbs et al. (1984) and Kawachi (2003).

Tutors have of course their own extrinsic and intrinsic motivations to teach. For example, tutors will likely have some vocational extrinsic motivation to establish and maintain dialogue with a student to fulfil their contractual obligations and perhaps obtain promotion, and have some own vocational intrinsic motivation to engage a student to develop their own skills for future purposes. Such extrinsic motivation of the tutor, though suggested as a rationale for tutor intervention by Lewis (1995, p. 27), may be questionable in terms of promoting learning.

Next how to initiate each of the specific intrinsic motivations to learn is given, followed then by the construction of a model of affect and discussion on how to initiate affect to learn.

HOW TO INITIATE VOCATIONAL INTRINSIC MOTIVATION

Vocational intrinsic motivation can be initiated in the student by the tutor illustrating some future state that the student desires to attain. The tutor must early on in the course (or even before the course) elicit the current and future wants from the student. These wants or needs are going to change during the course, so continuous needs analysis should be carried out by the tutor. This is best done informally but purposively through email – since email as an asynchronous medium allows time for the student to pause and reflect on wants and needs. Understanding the student's context and wants, the tutor is then in a position to give examples which are perceived by the student to be relevant. Here the tutor should keep in mind that the student may not know what future opportunities are possible. The tutor must have experience from which to draw in order to illustrate imaginatively some point of interpretation arising in the course, in such a way that the student can make a cognitive leap to see the vocational relevance of the example being illustrated. This leap connecting where the student

is now to where the student could be at some time in the future constitutes the construction of a new want in the mind of the student. The tutor should notice this newly created want arising during the later emails concerning the changing and developing needs and wants of the student. Upon noticing this new want, the tutor should proffer advice and reinforcement. The tutor will need to recognize and acknowledge the new want, and then try to nurture this with gentle rain and sunshine. This can be done, preferably from drawing out instances from the student to support the idea and to give credence and substance to the idea, so the student is brought to believe that this new want is desirable and achievable by the student. If the student knows where they are, where they want to be and how to get there, then the tutor's role to initiate vocational intrinsic motivation is much less required, and careful monitoring may be all that is necessary. Intrinsic vocational motivation is well known to be the most common form that an adult student brings to their learning (Duke, 1996). Usually this is derived from recent or current dynamic tension between the adult and work environment, for example the adult has a need to keep abreast of changes in laws or in technology. In these cases, the student shows high intrinsic vocational motivation initially, but nevertheless the tutor should still closely monitor and re-initiate at times during the course.

HOW TO INITIATE ACADEMIC INTRINSIC MOTIVATION

Academic intrinsic motivation can be initiated by the expressiveness of the tutor (Hodgson, 1997). Such expressiveness is demonstrated through the tutor's enthusiasm towards the academic content under study. The student in this second-hand way experiences the tutor's enthusiasm vicariously. Especially in online discussion rooms, the tutor's email to one student posted up for all to read can be an effective vehicle to convey vicariously to others the tutor's interest and love of the subject. The tutor should be mindful therefore and utilize to the full the opportunities whenever they arise to demonstrate their own passion and feelings towards the subject – for example by adding personal anecdotes into their feedback email, to inspire the student's love towards the subject under discussion. Alternative techniques here could include inserting into the course an audiotape recording of two or three leading experts in the field discussing with fervour some point that is still controversial, or a recording of an interview with the coursewriter. Naturally, here too, the tutor will be assisted by any indication of the student's academic interests, so online rapport should keep some focus on the material to be learned, so the tutor is abreast of the student's academic feelings and interests.

HOW TO INITIATE PERSONAL INTRINSIC MOTIVATION

There are three sub-types of personal intrinsic motivation to learn, of (a) challenge - the will to achieve mastery, (b) curiosity - choosing the most informative rewarding context, and (c) fantasy - assimilating the given information using schema from other contexts (Kawachi, 2003a). Briefly, personal intrinsic challenge requires pre-task presentation of fixed learning objectives, or early

negotiation of these with each student, or of close moderating by the tutor in the case of emergent objectives. Personal intrinsic curiosity can be initiated through the senses utilizing an optimal combination and complexity of audio and visual effects and multimedia technology, or cognitively through measured feedback by the tutor which reveals deeper complexity in the task hitherto unforeseen by the student and to facilitate how the student might proceed to deeper understanding. And personal intrinsic fantasy pre-requires the course-writer to convey explicitly the rationale for any course group activity (such as non-authentic online debate).

(a) HOW TO INITIATE PERSONAL INTRINSIC CHALLENGE MOTIVATION

To initiate 'challenge', the objectives specifying what the student will be able to do, or do better, as a result from learning should be stated explicitly at the outset. These objectives could be discovered and then agreed upon through negotiations with the student. Since these objectives need to be personally meaningful to the student, the student's own context should be elicited and involved, or one to which the student can sufficiently relate to and identify with. While objectives in the early stages of a course may be fixed in order to assure the course quality, objectives or goals in the later stages may be emergent – that is, they develop from the student's interactions with the early content and are moderated by the tutor (as may be the case for an externally-examined thesis). This close monitoring with frequent and timely feedback from the tutor as guide and moderator tailors the difficulty level to the student who might otherwise challenge an over-ambitious and thus unattainable goal. (As well as moderating the difficulty level for 'challenge' in emergent goals, feedback also tailors the complexity for 'curiosity' – discussed below.) An emergent goal could involve the student disseminating and publishing her/his own research findings in a suitable forum of appropriate difficulty level advised by the tutor.

In cases where the course is pre-designed and pre-packaged, and there is low interactional dialogue provided between the student and tutor, then multiple levels of difficulty must be offered from which the student can choose in order to assure that the difficulty level of the learning task is at an optimal level for the student. Individual choice is necessary here to self-protect against loss in self-esteem and to stimulate growth in self-esteem through self-tailored achievable successes. Moreover, multiple levels of difficulty would be required for accommodating the diversity among a range of students.

In a curriculum in which there is a series of tasks designed into the courseware usually of increasing difficulty in that they must be done in the set order - such as involving a series of tutor-marked-assignments – the level of challenge needs to be raised each time to initiate intrinsic motivation. Pacing by pre-setting deadlines for each assignment in the series is a customary technique for controlling the difficulty level, and this is usually with some individual flexibility for the tutor to more-finely tailor (that is, reduce to match) the difficulty to the individual student. There are four sub-types of challenge – 'steady', 'recurrent', 'sporadic', and 'one-shot'. For optimal 'steady' challenge, the initial difficulty is raised and the outcome raised. For less-than-optimal 'recurrent' challenge, the initial difficulty is raised but the outcome is kept at the same level. For (less

effective as motivating) ‘sporadic’ challenge, there is low initial difficulty and a fixed outcome. Student-to-materials interaction using a surface approach to studying would fall into this category. And for ‘one-shot’ challenge such in a dissertation track where the student is not expected to re-visit the course, the initial difficulty is set very high and the outcome is fixed (as institutionally criterion referenced). When ‘one-shot’ challenge is set by the courseware, the initiated personal intrinsic motivation may quickly be dissipated and lost (for example through lack of institutional support to the student), with extrinsic (achieving) motivations being the only substitute preventing drop-out (extrinsic academic to get the qualification, or extrinsic personal to prove one’s worth to others). Needless to say, educational providers would seek to negotiate with the individual student the difficulty level at the outset, and then utilise tutor feedback regularly to initiate (and promote) personal cognitive-curiosity intrinsic motivation (discussed below) to best support the student in a dissertation track.

(b) HOW TO INITIATE PERSONAL INTRINSIC CURIOSITY MOTIVATION

Previously (Kawachi, 2003a), two sub-types of curiosity were inadequately described as ‘sensory’ and ‘cognitive’. Sensory curiosity was at that time related to the tutor or institution deploying a full range of audio and visual multimedia technology – including for example careful design of web-pages to have more white-space than normally found in books. (The use of an audio-tape or video-tape of the tutor in action could also help to initiate academic intrinsic motivation.) However, research since then now suggests that students prefer and benefit more from a less-than-full combination of sensory stimulation for optimal curiosity (Kawachi, 2004). For example, the addition of text to a multimedia presentation of animation and narration has demonstrated poorer learning outcomes (Doolittle, 2001). For a comprehensive review see Najjar (1995). Sensory curiosity can be correlated to ‘diversive’ exploration (Berlyne, 1966), where the student is restless when experiencing little or no sensory input, is also restless when experiencing too much, and prefers to explore objects that provide an optimum level of sensory stimulation. This optimum level could vary among students.

Cognitive curiosity on the other hand derives from past experience in which a desired goal was unreached because of inadequate knowledge. Adults often bring such own inconsistencies with them to their learning. They come seeking to make sense of prior experiences to reorganize and understand (for example see Merriam & Clark, 1991). The resulting drive is ‘specific’ exploration (Berlyne, 1966) to acquire the knowledge that was discovered to have been needed and was missing. To initiate cognitive curiosity, feedback from the tutor to the student should reveal an outcome from the student’s thinking unforeseen by the student that cognitively surprises the student, and which on self-reflection can be accepted by the student. Surprise occurs when the received feedback is not consistent with the student’s expectation. In the following self-reflection, the student needs to accept their own knowledge structure was incomplete, or perhaps inconsistent. The tutor’s feedback is measured tailored to the student’s cognitive profile to reveal inconsistency and to facilitate how the student might move to improve their understanding. The educational feedback must be constructive. This technique

systematically to expose gaps in learning and then to facilitate reparative further learning has been identified as an important tutoring strategy by Collins and Stevens (1981). The role of the tutor is to reveal increasingly deeper complexity to guide the student to discover deeper understanding. The tutor can through carefully moderating feedback reveal inconsistencies in the student's thinking and guide the student towards discovering new understanding. As a consequence, the student will learn to specifically explore new objects to acquire knowledge about them for improving future performance. Novelty therefore induces cognitive curiosity motivation to learn. The issue that now arises is what constitutes novelty. There will need to be some conceptual conflict between current perceptions received and prior knowledge or expectation. Too much novelty – that is, too much conceptual conflict – may cause the student's level of curiosity to decrease, since they need some points to be familiar in order to make cognitive associations to the new perceptions, to learn. Bringing the student to discover a greater number of alternatives from which to choose will heighten the student's level of curiosity, and more so if these alternatives are relatively close in meaning. If there are only two choices and they are widely different, the student if wrong in the first choice will simply choose the second, with minimal or no curiosity aroused. In online groups of students in which there is going to be some diversity in ideas, there is some advantage therefore to having some diversity among the students for collaborative learning, but not too much : the students should be at the same or fairly similar level academically for the group dynamics to benefit from cognitive curiosity motivation to learn.

(c) HOW TO INITIATE PERSONAL INTRINSIC FANTASY MOTIVATION

Generally, education is concerned with only intrinsic fantasy – that is, fantasy in which the student's activity brings about the learning objectives - rather than with extrinsic fantasy in which the result is outside the course content.

To initiate intrinsic fantasy, the courseware must show how the learning or skills achieved in the fantasy can be applied to the student's advantage in new contexts in the student's real world. This translates to a need for the course-writer to share with the student(s) the rationale for each activity (for example, the rationale why the students should participate in a non-authentic group online debate). Providing a rationale is especially important in the case of the isolated distance student who does not yet have a fully developed own context in which to test out and apply immediately the learning achieved by the activity. There are close and far transfers to future worlds. Usually in young students and in faraway students transfer may be far transfer. While in adult older students, transfer may be close transfer to their present needs and usefulness now for immediate application in their life. Showing relevance to future prospects serves as bridging or far-transfer that is needed in particular for isolated students who may be physically, psychologically and emotionally alone and for whom their learning interactivities constitute the total environment for their learning (without any local social context for support).

Also, in the case of faraway students, their context for learning (for constructing personal meaning with the content materials) can be considerably

different from that envisioned by the courseware writers. No initiation of intrinsic fantasy – a lack in the perceived relevance of the learning task, or a very low ratio of perceived benefit to expended effort – can lead to the student slowing down or dropping out. It is important for the sake of initiating personal fantasy intrinsic motivation, therefore, that the faraway students' needs be elicited and brought into the materials at the outset and during the course (since needs develop and change) for courseware quality assurance. It is also to be remembered that eliciting the faraway student's needs can help to inform the tutor choosing relevant examples or illustrations to include into feedback to give vicarious experience to the student and thereby initiate vocational intrinsic motivation (discussed above).

HOW TO INITIATE SOCIAL INTRINSIC MOTIVATION

How to define and interpret the concept of social motivation is next considered. One of the avowed aims of higher education is to induct the student into the formal culture of the discipline under study. Here the tutor acts as a role model for the student. And through various media, the tutor brings up the student as a disciple. The student learns how to act, and express himself through written and spoken language (including silence), to eventually become enculturated to the discipline of the tutor. This sub-type of social intrinsic motivation may be abbreviated to that expressed through student-to-and-from-the-tutor transactions ($S \leftrightarrow T$).

A common-or-garden definition is that social motivation entails acculturation to become a member of a group involving a process from being initially an outsider to eventually becoming an insider. This would have been the original situation when Morgan (1993, pp. 39-40) first suggested there was social intrinsic motivation in distance education courses when the students were keen to attend face-to-face summer residential classes where they became familiarized with each other and bonded in a way that promoted their learning. This sub-type of social intrinsic motivation may be abbreviated to that expressed through student-to-and-from-other-student(s) transactions ($S \leftrightarrow Ss$).

Also, it is fairly well recognized that as a student reads adopting a deep approach then the student is engaged in a dialogue with the author, taking a questioning approach to uncover meaning that relates to the student personally. The student may also question his own pre-existing understanding as new information is presented by the text. In this way the student learns through cognitive de-construction and co-construction – through a dialogue between the student and the author(s) of one or perhaps several texts in the same task. This sub-type of social intrinsic motivation to learn may be abbreviated to that expressed through student-to-and-from-content transactions ($S \leftrightarrow C$). The content under study might be written material, or it might be other forms of content such as sculpture or a painting. It might seem that the content is fixed, but on second-look the student will usually see something new and different, so the effect of the student's focus or questioning will be to change the object under study.

There is one other type of transaction involving the socializing of the student to learn, and this when activated drives lifelong learning. This sub-type is present in a person doing a hobby. It is not so much that one particular book is involved, but it is the process of reading that imbues pleasure and joy to learn, and to continue learning. The process may be reading, or gardening, or sailing, writing music, or even collecting postage stamps – where the process is one of learning and acquiring knowledge and expertise. If the person adopts a surface approach here, (for example sailing just to go from A to B, or gardening just to build up a picture of colourful flowers) then the interaction may be largely one way only from the student, and termed expressive motivation. When the process interacts back to the student, the two-way transactions will be the aesthetic motivation to learn.

Thus there are at least four different sub-types of social intrinsic motivation to learn, each related to one of the student interactions. In both the cognitive and social constructivist views, information content can be derived from interacting with the tutor, from interacting with one or more other students, or from interacting with some product or process. Here product or process refers for example to the non-efferent pro-active negotiation of meaning through reading, that has been termed aesthetic interaction (Rosenblatt, 1994, p.27). Other activities besides reading could construe the process from which learning is derived, for example writing music. Also other objects aside from a book can deliver learning, for example a painting or sculpture. A student-technology interface interaction has been postulated (Hillman, et al., 1994), and also a vicarious interaction from the interactions occurring among others (Sutton, 2001). However, recent studies have cast doubt on there being any effective vicarious interaction for learning (Kawachi, 2003b). Four sub-types, therefore, of social intrinsic motivation to learn are available for initiation by the tutor. The four sub-types of social intrinsic motivation along the lines of interaction are a) encultural, through student-to-and-from-the-tutor transactions, b) affiliative, through student-to-and-from-other-students, c) material, through the student-to-and-from-content, and d) aesthetic, through the student transactions with the learning process.

Of these, the aesthetic motivation is the most desirable as it drives lifelong learning (Kawachi, 2005). Student learning pleasure should be a central goal of education. Barthes (1976) developed a theory of pleasure distinguishing between pleasure and joy. Pleasure is the gratification usually previously experienced and therefore within the known world of the student. The student knows what brings pleasure and can look forward to experiencing it again by re-visiting similar circumstances. Joy on the other hand occurs at the boundary of the student's world. When the boundary is momentarily and unexpected broken. At that instant of ecstasy, the student experiences the joy of learning. The tutor can bring the student to within reach of this by moving the student towards his limit and then present surprising new information. "The penny drops" in the student's mind – sometimes immediately, sometimes much later unexpectedly, and sometimes never. The aesthetic experience derives from the process of the learning, and is addictive.

THE PROCESS OF MOTIVATION

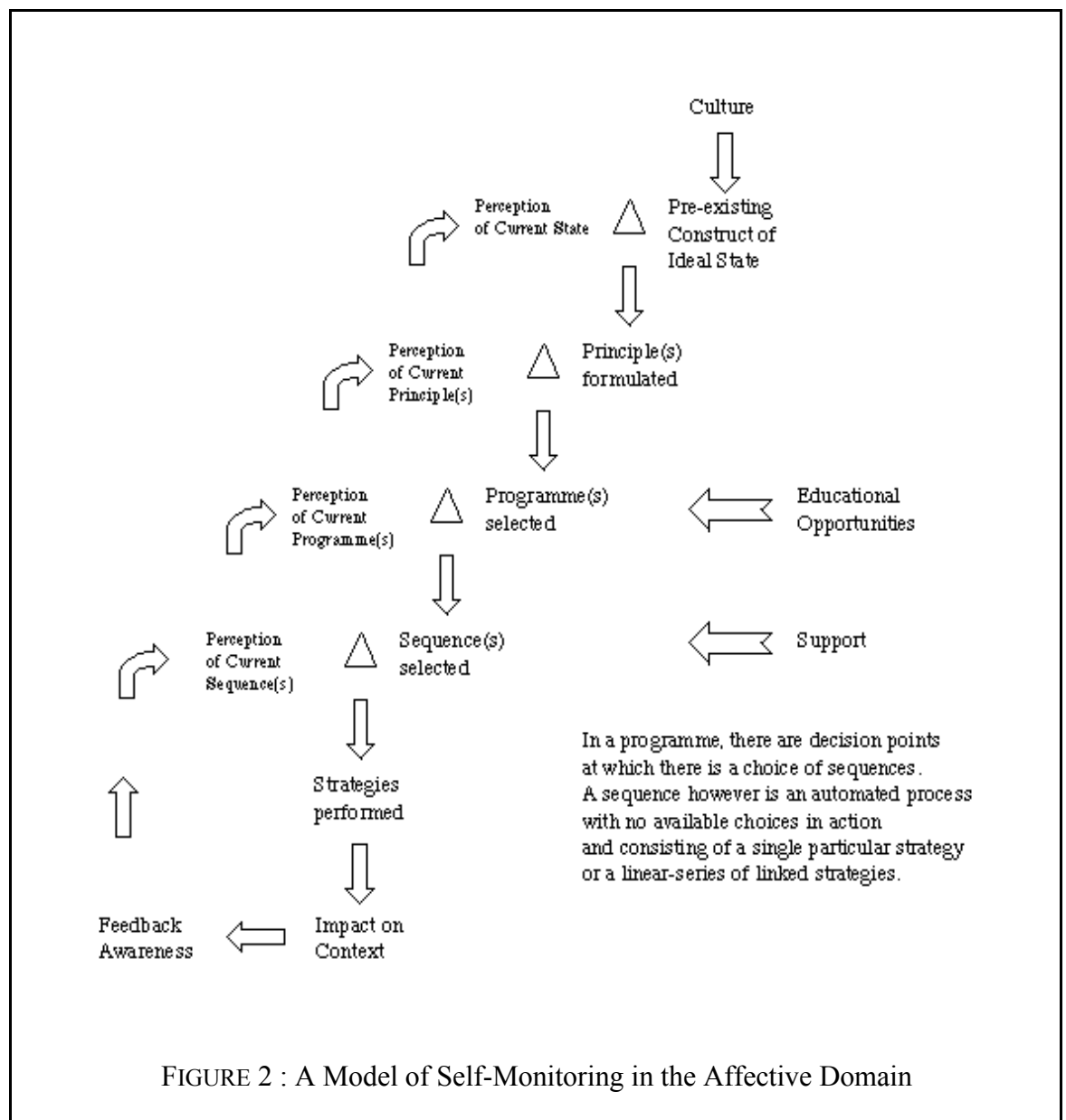
Here a model is constructed to show how motivation and affect drive learning activity, and then how the tutor can intervene purposively to initiate wants and positive affect to learn in the student. This model is essentially a hierarchical map of interconnected negative-feedback loops. In each loop, motivation to learn occurs when a student compares his or her own perception of her current state with some reference goal value, when the observed gap (constituting a want or need) drives the student to act to reduce the discrepancy. In this way, the process can be described as a negative-feedback loop. The reference values are culturally formulated in a hierarchical embedded structure with an over-riding top-level of a desired ideal state of life with next lower level of principles to be followed, then lower ranges of programmes that offer choices and opportunities for actions. Each programme has decision juncture points and choices of sequences, where these lowest-level sequences are fully automated without decision points and consist of a single strategy or fixed sequence of strategies to be performed. After performing a sequence, the student re-assesses the discrepancy between higher-level perception and the corresponding higher-level reference goal to see how much the discrepancy was reduced. It is important to note that the perceived rate of reduction is the determining measure of motivation. This rate of achieving a goal is given in the time-benefit ratio, in FIGURE 1 as expended time x expended effort / perceived-as-achievable benefit. It is also important here to note that it is the perception rather than the actual benefit that is considered by the student.

$$\frac{(\text{Expected Expended Time}) \times (\text{Expected Effort Required})}{(\text{Perceived Benefit Achievable})}$$

FIGURE 1 : The Time-Benefit Ratio

This discrepancy-reducing negative-feedback loop was first proposed by Powers (1973) as the model of self-regulating behavior, and has since been employed in Control Theory by Carver & Scheier (2000) and others. However, I would suggest that the tutor can intervene in this process at all levels – for example through being seen as a role model for the student at the highest levels, or through offering guidance in choice of achievable programmes as new intermediate reference goals, or referring the student to support services for study skills and strategies to be used at the lowest action levels. So the feedback loop can be applied to understand not only self-regulated behavior but also education in which teaching can influence the student's learning motivation. This multi-level structure of feedback loops is given in FIGURE 2.

The student holds a hierarchy of reference values or goals that are set by culture – either personally or socially – and especially at the lower levels concerning day-to-day activities there are multiple programmes often being attended to fairly simultaneously. Programme goals though set can be adjusted or over-ridden in certain conditions, but some may be so important – as are the higher-level principles – that change is not easy. Students compare their current standing with the respective goal and notice the difference which is a measure of want. Attending to this aspect, students then engage learning activity to reduce the want and assess the rate of reduction as positive or negative affect. If their achieved rate of reduction is faster than the standard rate then a positive affect will be experienced, and if slower then a negative affect. The tutor can intervene in the student's experience of affect through adjusting the intervals of the student's self-assessment and through co-constructing or adjusting the reference values.



In FIGURE 2, a series of interconnected loops is shown. When a student makes a self-assessment, he formulates his own perception of current status drawing on the results from recent (lower-level) activity, and then compares this status with the reference goal – that has been selected as his focus of attention. The difference (Δ) between these brings an awareness which is defined as an emotion. Having an emotion does not imply that subsequent action will precipitate. Other conditions are required such as opportunity, as well as some expectation of likely success (either based innately on prior experience, or derived externally from others in particular here from the tutor). Higher-level emotions are stronger than lower-level emotions. To fulfill a higher-level emotion, a student might wait patiently for a good opportunity. In most cases, the student will hold a range of options and choose from among them. Adult students especially can be expected to have more competing options (such as family commitments) that might give the appearance that the student has halted learning. Given an opportunity and expectation of success, a student will likely engage the lower loop – for example engage a sequence constituting a new object to be learnt, and with tutor guidance if necessary will choose to perform various (lower-level) strategies, to achieve the sequence. After completing the strategies and relevant activities, the student is in a position to self-assess the result in terms of how well he has fulfilled his goal. The tutor can intervene to bring about self-assessment by giving feedback, or by eliciting the self-assessment findings. The rate of achieving the goal, being attended to, is defined as affect. And affect then informs the student as to how much he can expect further sequences to be successful.

Affect can accordingly be visualised in terms of the above model. When the student self-assesses their current state in comparison to some prior constructed reference value or goal, then this assessment results in awareness that is defined as emotion. Emotion as such was defined by Heise (2002) as this “transient affective state involving a particular physical countenance [the reference goal] and a transient affective meaning [feedback result from the activity] for the self.” In turn, an emotion - or as is more often the case several emotions - when considered by the student in terms of achieving a higher-level goal then constitutes a mood.

In the past, when a student is in a depressed or anxious mood, the tutor offers simple encouragement and exhortation to get the student to move toward learning. For example Lewis (1995) advocates that the tutor should encourage students through comments to reinforce their strengths and to help in addressing their weaknesses (p.26). It is more constructive if the tutor intervenes to initiate affect. Lewis (1995) also gave four purposes for tutor intervention (discussed earlier). Two were extrinsic and summative in nature – explaining the institutional criteria when awarding a summative grade, and notifying some reference standards by summarizing what has been done so far. These would be better given in the earliest stages of a course to establish the conditions optimizing affect to learn. It is interesting to note that Schroeder (1993) has found a general mismatch between the delivered teaching style and the preferred learning style, because teachers teach in the way they themselves learn and this is generally not the way non-teachers prefer to learn. The student may well prefer to learn (and learn successfully) in an introverted non-social way. Affect has been defined as being self-efficacy by Hartman (2001), but this should not translate into tutor non-intervention. The

intervention needs to be carefully considered in order to be successful. While this student certainly has a set of emotions and an effective mood towards learning, the tutor should not perceive this just to be a mood that needs to be changed unless some other factor is important such as course pacing. Many teachers traditionally see some distinction or barrier between the teacher and the student. This is often enhanced by the institution putting the teacher into a position of authority. The teacher then deals with content up until the border, and beyond that is the student's territory. The teacher stays on the one side of the border sending over content and receiving back assignments, and so on across this conceived border somewhat like in a tennis game. It is now time for the tutor to sit side-by-side with the student and help the student learn through influencing the student's most personal inner-attributes such as emotions, feelings, attitudes and all other constituents of affect.

Tomkins (1984) distinguishes nine different affects – three positive (interest, joy, and surprise) and six negative (distress, fear, shame, contempt, disgust, and anger). The tutor should aim to maximise the positive affects and minimise the negative affects in the student. Each of these may be experienced depending on the rate of reduction in want. Interest for example could be experienced during vocational motivation, academic motivation, personal (as curiosity) motivation, or social motivation. Likewise joy or surprise could be experienced in each type of motivation or activity. And the tutor can initiate each of them, in each case. Affect is the primary source of intrinsic motivation. There are innate instinctive drives (such as the physiological drives to eat, breathe and to reproduce essential for maintaining life), and these may sooner or later incur self-assessment and awareness. In achieving any drive, there must be affect (positive, neutral, or negative). If there is no affect – ie no rate of reduction in want, then there cannot be any achievement, in other words affect does not depend on the drive, but rather the drive does depend on there being affect. The student cannot vary or control the instinctive drives. However, the student does explore and seek to control the circumstances that bring about affect. Affect controls decision-making and learning, and therefore cognition.

There are the three types of positive affect (according to Tomkins, 1984) of interest, joy, and surprise. Joy and surprise are related to aesthetic motivation – discussed above – and interest is discussed here below.

In order to learn, a student first formulates a perception of the object. Interest or mental focus is used to drive this process of building-up a perception - even in the immediate or short-term, and especially in the long-term during a prolonged activity. This perception can then be related to existing cognitive schema, and so become learnt. Interest must be activated for a certain amount of time, and possibly over a prolonged period – but not without control. If interest should lapse, the student may re-focus on some distraction. This is likely if the student self-assesses their current status and rate of achieving their goal – ie the rate of reduction in want – and becomes believing that the goal cannot be achieved. The tutor should monitor the student's interest in order to be able to notice if it is waning and needs stimulation, or if the interest has served its purpose and the student is ready to move on to focusing on a further perspective of the object

being learnt or move on to a new object. The duration should be moderated to avoid the student expending too much time on one perspective of the task, since some pacing is usually demanded by the institution, and since mastery requires the student to explore multiple perspectives.

Negative feedback from the tutor is quite effective to reduce the student's interest in order to move along to focusing on other perspectives or on a new object.

The tutor can and should intervene when the student experiences any of the negative affects. The negative affects can be utilized just as much as the positive ones. A negative affect for example of experiencing distress due to a poor rate of achievement given that much time and effort had been expended can induce the student to re-set their perceived current status as being much further from their set goal. This especially will happen after a series of repeated actions all drawing a negative affect. The result will be the student develops learned-helplessness, in a mood of distress or depression. No matter that the student appears to be very distraught and emotional, if the tutor can bring the student to try again then finding a change from the usual large negative affect to a more neutral affect can precipitate unexpected joy. A fast rate of reduction in want – an unexpected rapid change in either positive affect or in negative affect towards neutral - will cause joy. For example if pleasurable excitement has been completed then after the climax then joy will result. Similarly if distress is finally relieved then joy will result.

Among the various moods that concern learning, the leading two may be self-confidence and anxiety. Confidence can be related to a single self-assessment of affect, whereas anxiety is more likely a combination of several self-assessments either of the same activity repeated or of different activities which all happen to result in negative affects. Three sub-types of anxiety have been defined by Izard (1972) as 'trait' anxiety, 'state' anxiety, and 'situation-specific' anxiety. These three sub-types differ in their degree of permanence or transience. Being mood, anxiety is constructed from several experiences of affect at lower levels. If the lower-level affects can be re-engineered by the tutor, then anxiety can be prevented or if pre-existing then resolved.

The negative affect of distress is usually responsible for anxiety. A student experiencing distress is an unfortunate state of affairs. Nevertheless, if the student should somehow become aware of a possible solution, then there could occur a rapid decrease in that distress which would precipitate joy. The tutor's role here would be to facilitate the construction in the student's mind of some expectation or perception of possible future achievement. One easy way for the tutor to do this is for the tutor to re-set the level of the reference goal. It is customary to maintain the original institutionally set standard as the eventual goal, but the tutor can introduce or negotiate some halfway measures of intermediate sub-goals. For example the tutor could ask all students to send in a rough draft of the (previous, current or future – it doesn't matter which) assignment. The distressed student expecting as usual a large negative affect will be surprised to find he is exactly on target (experiencing rapid change to neutral), or even better than others at producing such a rough copy (experiencing very rapid change to positive affect).

This will produce joy. The tutor can respond with close feedback that carefully exposes the student to realize some inconsistencies in their draft, or allow peers (preferably in a tutor-moderated online forum) to point out inconsistencies and ways forward to improve the rough draft, thus arousing curiosity to further stimulate the student to learn.

The negative affects of fear-of-failure and shame can be treated similarly through introducing sub-goals followed by careful feedback.

Thus tutor interventions can be deployed strategically to initiate in the student the intrinsic motivations and affects to learn. These educative transactions will imbue a love of learning in the student. The resulting experience of joy is addictive and motivates lifelong learning.

It is also not overlooked that these same transactions will imbue in the tutor a love of teaching.

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