

Motivation in action: Towards a process-oriented conceptualisation of student motivation

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Background. This paper focuses on the temporal dimension of student motivation; that is, rather than considering motivation a stable emotional or mental state, the emphasis is placed on portraying motivation processes as they happen in time.

Aims. 1. To account for the dynamic development of motivation in prolonged learning processes such as the mastery of school subjects. 2. To discuss the practical implications of a process-oriented approach for professional practice.

Method. Theoretical analysis and model building, drawing on the findings of empirical investigations.

Analysis. It is argued that the ‘time’ dimension is relevant to the study of motivation in at least two crucial areas: to account for (a) how motivation is generated and (b) how it fluctuates and further develops over time. A focus on the temporal dimension is particularly important for the understanding of student motivation because in prolonged learning activities such as mastering a school subject a major motivational function is to maintain the motivational impetus for a considerable period (often several years) against a number of distracting influences. In order to illustrate the temporal conception of motivation, a ‘Process Model of Student Motivation’ is presented and various theoretical pros and cons are discussed. Finally, practical implications are demonstrated by providing a taxonomy of motivational strategies rooted in the process-oriented approach, with one specific aspect, the students’ action control and self-motivation, specially highlighted in order to show the compatibility of the approach with current research on student self-regulation.

If motivation were a straightforward concept it would be uninteresting. The challenge is to find ways of conceptualising it which help teachers to understand children’s progress and behaviour, thereby helping them to evaluate their classroom practice and teaching methods. (Galloway, Rogers, Armstrong, & Leo, 1998, p. 42)

Conceptualisations of motivation in the psychological literature show considerable variation both in terms of their scope and their level of analysis, but most researchers would agree that motivation theories in general attempt to explain three interrelated

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aspects of human behaviour: the *choice* of a particular action, *persistence* with it, and *effort* expended on it. That is, motivation is responsible for *why* people decide to do something, *how long* they are willing to sustain the activity, and *how hard* they are going to pursue it. There is far less agreement on the actual mediating factors and processes by means of which motivation achieves its impact on human behaviour, and the field of motivational psychology is characterised by a great number of competing or partially overlapping theories. This is, of course, no accident. Motivation theories attempt to explain nothing less than why people behave and think as they do, and human nature being as complex as it is, there are simply no cut and dried answers to be offered.

If we consider the history of motivation research during the 20th century, we can identify four principal challenges scholars have had to face which have played an important part in preventing a consensus. These are the challenges of: (a) *consciousness vs. unconsciousness* (i.e., distinguishing conscious vs. unconscious influences on human behaviour; cf. Sorrentino, 1996); (b) *cognition vs. affect* (i.e., explaining in a unified framework both the cognitive and the affective/emotional influences on human behaviour; cf. Weiner, 1992); (c) *context* (i.e., explaining the interrelationship of the individual organism, the individual's immediate environment and the broader socio-cultural context; cf. Goodenow, 1992; Wentzel, 1999); and (d) *time* (i.e., accounting for the diachronic nature of motivation, that is, conceptualising a motivation construct with a prominent temporal axis; Heckhausen, 1991; Husman & Lens, 1999). These challenges feature prominently in Eccles, Wigfield, and Schiefele's (1998) recent summary of the field:

The view of motivation has changed dramatically over the last half of the 20th century, going from a biologically based drive perspective to a behavioural-mechanistic perspective, and then to a cognitive-mediational/constructivist perspective. The conception of the individual as a purposeful, goal-directed actor who must coordinate multiple goals and desires across multiple contexts within both short- and long-range time frames currently is prominent. As we approach the 21st century, the role of affect and less conscious processes is reemerging as a central theme. Complementing this more complex view of the psychology of motivation, researchers interested in the contextual influences on motivation are also adopting more complex and multicontextual frameworks. (p. 1074)

In this paper, I will focus on one of these challenges, the *challenge of time*, and discuss its particular relevance to the understanding of motivation in educational contexts. First I will provide an overview of past research on the temporal dimension of motivation and analyse the distinction between 'volition' and 'choice motivation'. Then I will describe an attempt at conceptualising a construct of student motivation with a featured temporal axis. Finally I will discuss the practical implications of a process-oriented conception of student motivation.

The temporal dimension of motivation

In a comprehensive overview of motivation, German psychologist Heinz Heckhausen (1991) points out that a big problem in motivational psychology is the manifold meanings carried by the concept 'motivation', as the term is associated with phenomena

as dissimilar as wishes, decision-making and action. He argues that one possible approach to restricting this manifoldness is to try to ‘separate the sequence of events involved in being motivated into “natural”, i.e., discrete phases’ (p. 175), that is, to organise the various motivational factors and components along a temporal axis, reflecting the motivational process as it happens in time. Although motivation has traditionally been treated as a relatively stable emotional or mental state (measurable by tapping into it at one point of time, e.g., by administering a questionnaire), such a process-oriented view has been expressed by other researchers as well. For example, in their summary of motivation in education, Pintrich and Schunk (1996) argue that motivation involves various *mental processes* that lead to the initiation and maintenance of action; as they define the term, ‘Motivation is the process whereby goal-directed activity is instigated and sustained’ (p. 4). Similarly, goal theorist Martin Ford (1992) has also adopted a dynamic conception of motivation in his comprehensive system of goals, emotions and personal agency:

Historically, motivation has been viewed either as a variable state that has little enduring significance (e.g., a state produced by a temporarily aroused drive or set of environmental contingencies) or as a stable trait representing a relatively fixed part of an individual’s personality (as illustrated by concepts such as need for achievement and locus of control). A major objective of this book is to add a *developmental orientation* to these traditional perspectives on motivation. (p. 15)

The unique feature of the approach Heckhausen, Kuhl and their associates (Heckhausen, 1991; Heckhausen & Kuhl, 1985; Gollwitzer, 1990; Kuhl, 1985, 1986, 1987, 1992; Kuhl & Beckmann, 1994) have proposed is the conscious attempt to distinguish separate, sequentially ordered phases within the motivated behavioural process, introducing a ‘temporal perspective that begins with the awakening of a person’s wishes prior to goal setting and continues through the evaluative thoughts entertained after goal striving has ended’ (Gollwitzer, 1990, p. 55). A central feature of their theory (often referred to as ‘Action Control Theory’) is the separation of the ‘*predecisional phase*’ associated with the intention-formation process and the ‘*postdecisional phase*’ associated with the action implementation process within the motivated behavioural sequence:

- The *predecisional phase* can be seen as the decision-making stage of motivation (or ‘choice motivation’), involving complex *planning* and *goal-setting* processes during which initial wishes and desires are articulated and evaluated in terms of their desirability and chance of fulfilment.
- The *postdecisional phase* is the implementational stage of motivation (or ‘executive motivation’), related to the *volitional* aspects of goal pursuit, involving motivational *maintenance* and *control* during the enactment of the intention. Key issues to be examined here are the phenomena of action initiation, perseverance, and overcoming various internal obstacles to action.

Heckhausen and Kuhl believe that these two phases are energised and directed by largely different motives. ‘Why one wants to do something and that one wants to do it is one thing, but its actual implementation and successful completion is another’

(Heckhausen, 1991, p. 163). Indeed, only by assuming such a division of motives can we explain, for example, the frequent phenomenon of someone deciding to enrol in a voluntary language course (motivated by 'choice motivation'), then soon dropping out (because the 'executive motives' fail to sustain the instigation force), and then again re-enrolling in the course (since after the action engagement has been terminated, the predecisional forces become activated again).

In their comprehensive summary of affective and conative functions in the *Handbook of educational psychology*, Snow, Corno, and Jackson (1996) highlight the significance of Heckhausen and Kuhl's approach because, as the authors argue, the primary concern of most theories of human motivation in the past has been the 'choice' rather than the 'volitional/executive' aspect, with little concern for analysing the motivational processes that underlie the progress from plans/goals to outcomes. Indeed, even the few motivation constructs which do include certain time elements typically focus on how broad issues such as past attributions or future goals affect the predecisional phase, rather than detailing sequences or patterns of motivational events and components (cf. Husman & Lens, 1999; Karniol & Ross, 1996; Raynor & Roeder, 1987). We must note that currently there appears to be a marked shift in this respect in motivational psychology, and this ongoing change of priorities has been initiated primarily in the domain of educational psychology. In the spirit of Heckhausen and Kuhl's (1985) 'Action Control Theory', a number of researchers both in Europe and North America have recently highlighted the importance of volitional/executive factors to understanding the conative foundation of learning within educational settings (e.g., Boekaerts, 1994; Corno, 1993, 1994; Corno & Kanfer, 1993; Kanfer, 1996; Snow & Jackson, 1994; Snow *et al.*, 1996; Wolters, 1998), an issue that will be discussed below.

The significance of a process-oriented approach to understanding student motivation

A basic assumption underlying this paper is the belief that a focus on the temporal dimension of motivation is particularly important for the understanding of student motivation, and a process-oriented approach can also have considerable practical implications. This view has been supported by an increasing amount of research in various educational domains during the past decade, targeting two main topics: (a) motivational maintenance and volition, and (b) motivational evolution and fluctuation.

Motivational maintenance and volition

In a recent neurobiological account of foreign language learning, Schumann (1998) argues that 'sustained deep learning' processes, that is, extended processes during which the learner gains expertise in a field by means of skill/knowledge acquisition (e.g., the study of foreign languages, mathematics, or cooking, etc.), show different motivational characteristics from short-term activities or simple learning tasks, partly because in prolonged learning situations a major motivational function is to maintain the motivational impetus for a considerable period (often several years). Arguing in a similar vein, Kanfer (1996) contrasts the motivational basis of complex 'skill acquisition' processes with that of simpler activities that do not require task learning and which, once the commitment has been made, can be carried out swiftly and without difficulty (e.g., choosing between two job offers):

When goals can be accomplished without task learning, the influence of motivation on behaviour is often largely a matter of choice. For example, the decision about which of two job offers to accept depends primarily on the individual's evaluation of the costs and benefits associated with each offer. Once a decision is made, however, the actions involved in implementing the goal of accepting the job are straightforward . . . However, this is *not* the case in skill acquisition. During skill training, goal accomplishment proceeds slowly, as the individual develops an understanding of the task and proficiency in skills relevant to performance . . . Continued task practice (i.e., persistence) is necessary to yield improvements in task performance. But for practice to have a positive effect on performance, additional motivational mechanisms are required to sustain attention and effort over time and in the face of difficulties and failures. (p. 405)

In other words, complex learning contexts reduce the role of the motivational influences associated with the initial decision to pursue the goal, and highlight the importance of motivational influences that affect action during actual task engagement.

The significance of motivational influences that affect learning *during* action engagement rather than *prior to* action initiation in educational settings becomes even more obvious if we consider that in instructional contexts many of the decisions and goals are not really the learners' own products but are imposed on them by the system. This restricted student involvement in designing their own learning schedules or choosing which activities to engage in limits the importance of the 'choice' aspect of student motivation; instead, key motivational issues in the context of instruction involve maintaining assigned goals, elaborating on subgoals, and exercising control over other thoughts and behaviours that are often more desirable than concentrating on academic work (Corno, 1993). Thus, as Corno and Kanfer (1993, p. 305) summarise:

The point is that motivation, conceptualised as a choice process, can be a necessary but insufficient condition for enhancing learning and performance in many school and work endeavours . . . During pursuit of difficult or long-term goals, effective volitional control over action can enhance learning and performance, as well as sustain motivation for goal striving.

Motivational fluctuation and evolution

During the lengthy process of mastering certain subject matters, motivation does not remain constant but is associated with a dynamically changing and evolving mental process, characterised by constant (re)appraisal and balancing of the various internal and external influences that the individual is exposed to. Indeed, even within the duration of a single course, most learners experience a fluctuation of their enthusiasm/commitment, sometimes on a day-to-day basis. In Ushioda's (1996) words, 'within the context of institutionalised learning especially, the common experience would seem to be motivational flux rather than stability' (p. 240). In order to account for the 'daily ebb and flow' of motivation (i.e., the level of effort invested in the pursuit of a particular goal oscillating between ups and downs), an adequate model of student motivation needs to have a featured temporal dimension that can accommodate systematic patterns

of transformation and evolution in time. Berliner's (1989) observation summarises this position well:

The emphasis by school people, focused as one might expect on daily life in classrooms and schools, almost always leads to an emphasis on the process of motivation and not on motivation as a product. The daily ebb and flow of motivation, while of crucial significance to the classroom teacher, charged as they are with the need to maintain a heterogeneous group's interest in learning, is of only mild interest to the parents, school researcher, and society at large. Teachers and school administrators focus on motivation as process, because they have to; the rest of us more often focus on motivation as product. (p. 326)

Interim summary: Motivation and time

Although motivation theories have traditionally viewed motivation as a rather stable construct, the 'time' dimension is relevant to motivation in at least two crucial areas:

1. Motivation to do something usually evolves gradually, through a complex mental process that involves initial planning and goal setting, intention formation and task generation, and finally action implementation and control.

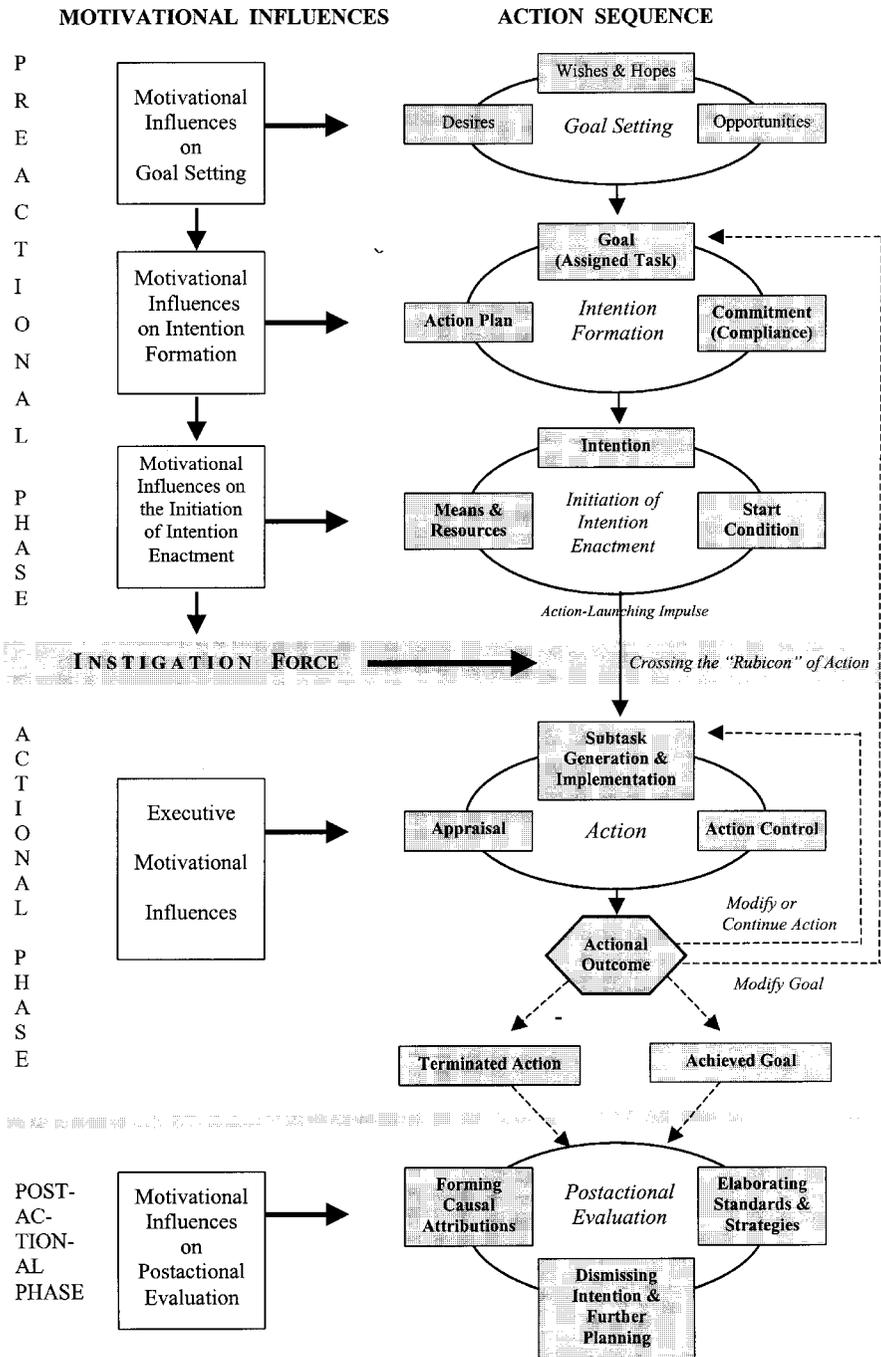
2. In sustained, long-term activities, such as the mastering of a school subject, motivation does not remain constant but is characterised by regular (re)appraisal and balancing of the various internal and external influences that the individual is exposed to, resulting in a somewhat fluctuating pattern of effort and commitment.

Thus, a process-oriented model of motivation should be able to account for both the generation and further development of motivation. Past research by Heckhausen, Kuhl, Corno, Kanfer and their associates suggests that an adequate process model should address the pre-actional and the actional phases of the motivational sequence separately, with the former being associated with 'choice motivation', the latter with 'volition' or 'executive motivation'. In order to account for both of these dimensions, motivation can be defined as *the dynamically changing cumulative arousal in a person that initiates, directs, coordinates, amplifies, terminates, and evaluates the cognitive and motor processes whereby initial wishes and desires are selected, prioritised, operationalised, and (successfully or unsuccessfully) acted out.*

A process model of student motivation

In order to draw together the results of past research on motivational processing, István Ottó and the author of this paper have devised a model of student motivation that follows through the motivational process from the initial wishes/desires to the completion of action and the subsequent retrospective evaluation (Dörnyei & Ottó, 1998; cf. also Dörnyei, 2000). The model was originally developed within the field of second language education, where, due to the long-lasting nature of mastering a foreign language, accounting for the time element is a particularly pressing issue (cf. Williams & Burden, 1997). It must be noted that our construct does not offer any radically new insights or identify novel motivational factors but rather attempts to synthesise various influential conceptualisations of motivation in a systematic process-oriented framework. Although the purpose of this paper is not to describe this model in detail, because

Figure 1. Schematic representation of Dörnyei and Ottó's (1998) process model of student motivation



it illustrates the strength and the limitations of the temporal conception of motivation, a brief description of its main components will follow.

Figure 1 presents the schematic representation of our process model of student motivation, which contains two main dimensions: *Action Sequence* and *Motivational Influences*. The first dimension represents the behavioural process whereby initial wishes, hopes, and desires are first transformed into goals, then into intentions, leading eventually to action and, hopefully, to the accomplishment of the goals, after which the process is submitted to final evaluation. The second dimension of the model, motivational influences, includes the energy sources and motivational forces that underlie and fuel the behavioural process.

Following Heckhausen and Kuhl's Action Control Theory, the action sequence process has been divided into three main phases: *preactional phase*, *actional phase*, and *postactional phase*.

Preactional phase

The first stage of the motivated behavioural process is made up of three subphases, *goal setting*, *intention formation*, and the *initiation of intention enactment*. In some cases these follow on from each other very rapidly, almost simultaneously, but often there is a serious time lapse between them and the sequence can also terminate before reaching action. The antecedents of *goal setting* in our model are broad *wishes/hopes*, *desires* and *opportunities* (this last component is included because on occasions the starting point of the motivated behavioural process is not the individual's fantasy land but rather an emerging opportunity). However, it is assumed that every individual entertains a great number of wishes, hopes and desires, and comes across several action opportunities that, for some reason or another will not be further pursued. Therefore, the first key component of the action sequence in our model is when the goal setting process reaches a concrete outcome, an actual *goal* – it is at this point that the motivated behavioural process begins in earnest.

Because it represents the first concrete decision the learner has taken, the goal is an important element in the motivated action sequence but it does *not* directly initiate action. The immediate antecedent of action in our model is the *intention*, which we see as being qualitatively different from a 'goal' in that it already involves *commitment*. This is an important distinction and it has been made in order to account for the huge difference which exists between the multiple goals and long-term plans the individual may harbour at a given point of time and the far fewer concrete intentions the individual will make actual resolutions to carry out. Commitment making can be a highly responsible personal decision, staking personal prestige and even material resources on the goal, and it may also involve foregoing other possible goals or pastimes, along with the rewards that might have attended them (Baumeister, 1996).

Adding commitment to a goal is a crucial step in the motivational process but it is not sufficient in itself to energise action if the goal is not translated into concrete steps the individual needs to take. Thus, a final necessary step in generating a fully operational intention is to develop a manageable *action plan* which contains the necessary technical details regarding the planned action, namely the

- *action schemata* (i.e., concrete guidelines such as subtasks to implement, and a number of relevant strategies to follow),

- *the time frame* (i.e., temporal specifications regulating the actual timing of the onset of action, e.g., a concrete time – ‘I’ll get down to it tomorrow’ – or a condition – ‘I’ll do it when I have finished this’).

Although a plan of action does not have to be fully completed before initiating an act – it may be (and usually is) finalised while acting – there must be at least a general action plan before one is able to act at all.

An intention is the immediate antecedent of action, but it is important to realise that action does not follow automatically from it. The right opportunity for starting the action may never materialise, or the means and resources may not be made available, leaving the intention unfulfilled. Thus, our model suggests that there are two necessary conditions for issuing an ‘action-launching impulse’ (Heckhausen & Kuhl, 1985, p. 137):

- the availability of the necessary *means and resources*,
- the *start condition*.

Actional phase

The onset of action results in significant qualitative changes in one’s motivation. Following Heckhausen (1991), we believe that it can be compared to crossing a metaphorical ‘Rubicon’: by actually embarking on the task (e.g., enrolling in a language course) the individual has committed him/herself to action and now the emphasis shifts from deliberation and decision-making to the implementation of action. In other words, ‘choice motivation’ is replaced by ‘executive motivation’.

During the *actional phase* three basic processes come into effect:

1. *Subtask generation and implementation*. This refers to learning proper. Action initiation starts with implementing the subtasks that were specified by the action plan; however, as mentioned earlier, action plans are rarely complete (particularly not with sustained activities such as school learning) and during the course of action one continuously generates (or is assigned) new subtasks/subgoals.

2. A complex ongoing *appraisal* process. One continuously evaluates the multitude of stimuli coming from the environment and the progress one has made towards the action outcome, comparing actual events with predicted ones or with ones that an alternative action sequence would offer.

3. The application of a variety of *action control* mechanisms. These mechanisms, closely linked with the appraisal process, refer to ‘knowledge and strategies used to manage cognitive and noncognitive resources for goal attainment’ (Corno & Kanfer, 1993, p. 304). That is, action control processes involve self-regulatory mechanisms that are called into force in order to enhance, scaffold, or protect learning-specific action; active use of such mechanisms may ‘save’ the action when ongoing monitoring reveals that progress is slowing, halting, or backsliding.

On the basis of the interplay of the appraisal and control processes, the ongoing action will lead to some kind of *actional outcome*: the optimal scenario is that the actor achieves his/her goal, whereas the other extreme is terminating the action completely.

However, arriving at a dead end during the actional phase does not necessarily lead to action abandonment:

- If the motivational foundation of the initial wish or desire was sufficiently powerful, the individual may mentally step back to the preactional phase, revise the concrete goal to be pursued and form a new intention (e.g., by lowering the level of aspiration).
- Alternatively, by maintaining the original intention, the individual may fine-tune or modify the strategies and subtasks applied in the pursuit of the goal during the actional phase.
- Finally, in case of a temporary interruption, action can be continued at a later time.

Postactional phase

The postactional stage begins after either the goal has been attained or the action has been terminated; alternatively, it can also take place when action is interrupted for a longer period (e.g., a holiday). The main processes during this phase entail evaluating the accomplished action outcome and contemplating possible inferences to be drawn for future actions. Postactional evaluation is different from the ongoing appraisal process in that here the actors are not engaged in the actual behaviour any longer (that is, they are no longer in an implementation-oriented mind set), which allows them to adopt a broader perspective on the whole of the motivated behavioural process and its effect on their self-esteem (Heckhausen, 1991). During this phase, the actor compares initial expectancies and plans of action to how they turned out in reality and forms *causal attributions* about the extent the intended goal has been reached. This critical retrospection contributes significantly to accumulated experience, and helps to elaborate on the learner's *internal standards* and the repertoire of *action-specific strategies*; in fact, as Boekaerts (1988) emphasises, it is through this process that an individual can develop a stable identity as a successful learner.

The formation of adequate standards to compare actual and potential performance, and the extension of the repertoire of personalised action-control strategies already serve to prepare the ground for the future, but before further action can be taken, the initial intention has to be *dismissed* to give way to new wishes, goals, and intentions. An accomplished intention may clear the way for a subsequent intention leading to a more distant superordinate goal – in this case the postactional motivation process evolves into a preintentional phase and the cycle begins anew.

Motivational influences on the different action phases of the model

The action sequence dimension described above outlines the sequential pattern of the motivated behavioural process but it is incomplete without a second, complementary motivational dimension which is made up of the various *motivational influences* that fuel the actional sequence. These energy sources can be enhancing or inhibiting, depending on whether they contribute to the successful implementation of the goal or dampen the actor's endeavour. As such, motivational influences encompass the various motivational factors discussed in the motivation literature, including cognitive, affective, and situational variables, conditions, and processes.

As indicated in Figure 1, motivational influences form five clusters, according to the five specific phases of the motivated action sequence they affect (i.e., goal setting, intention formation, initiation of intention enactment, action, and postactional evaluation). The motivational influences associated with goal-setting are linked with an arrow to the determinants of intention formation, which are in turn linked to those of the initiation of intention enactment. This indicates that in the preactional phase the relevant motivational influences are assumed to have a cumulative effect, with the preactional motivational system operating like a series of interlinked filters: only those initial wishes/desires will lead to the eventual issue of an action launching impulse which are associated with sufficient cumulative energy sources at each stage of the preactional process to exceed the necessary threshold for stepping further. The overall resultant motivational force associated with the preactional phase is labelled in the figure as the *instigation force*, which determines the intensity of the initial action. Moving further ‘down’ Figure 1, however, the motivational influences associated with the actional phase are seen as not being *directly* related to the motives affecting the earlier and later stages of the process. This is in line with Heckhausen and Kuhl’s ‘Action Control Theory’, which emphasises that ‘executive motives’ are largely different from the motives making up ‘choice motivation’. Similarly, the motivational influences associated with the postactional evaluation phase are also assumed to be relatively independent of the forces affecting earlier phases of the model.

For space limitations the actual motivational influences cannot be elaborated on here (cf. Dörnyei, 2000) but from the perspective of the topic of this paper these are of less importance than the Action Sequence process. In general, motives related to the preactional phase involve factors ranging from the learner’s subjective norms and the perceived values associated with the task, through the expectancy of success and various goal characteristics, to various environmental effects and the perceived behavioural control. Executive motives related to the actional phase concern, among other things, the appraisal of the learning experience, a sense of autonomy, the type of the classroom goal structure and the influences of the teacher and the peer group. The main postactional influences include attributional styles, self-concept beliefs and the effects of feedback and other evaluational cues. That is, a process model of the sort presented above can accommodate a variety of motives discussed in different motivation theories.

Theoretical pros and cons

From a theoretical point of view, the main strength of a process-oriented approach is that it offers a potentially fruitful method of interpreting and integrating the manifold motivational factors that affect the student’s learning behaviour in classroom settings. Using *time* as an organising principle offers a ‘natural’ way of ordering the relevant motivational influences into various distinct stages of the motivational sequence along a temporal axis. In fact, because the different sub-phases of the motivation process may be associated with different motives (as was argued earlier), ignoring ‘time’ in motivation models can (and often does) result in a situation when two theories are equally valid and yet contradict – simply because they refer to different *phases* of the motivation process.

A second area where a process-oriented approach might be fruitful is the study of the motivational basis of *learning tasks*. Although from an educational point of view understanding the motivational processes that fuel the quantity and quality of learners' on-task behaviour is particularly relevant, motivational psychology in the past has not generated substantial research on task motivation. Instead, human behaviour has been typically treated in a 'macro-sense', emphasising general action tendencies and their relationship with basic motivational influences rather than the specific motives that underlie the completion of particular tasks. As Winne and Marx (1989) explain in a pioneering study on task motivation, task researchers have traditionally viewed the key factor in task performance to be the 'students' *capability* to exercise cognition rather than the selection, temperament, or persistence of cognition' (p. 227). A process-oriented model of motivation, with its inherent emphasis on volitional/executive aspects of goal attainment, offers a useful research paradigm for the micro-analysis of the various factors, conditions, constraints and processes that determine student success in learning tasks, and such a task-based approach also provides an interface for discussing cognitive and affective mechanisms in an integrated manner (Winne & Marx, 1989).

The main weakness of a process-oriented approach as outlined above is that it implies that the actional process in question is well-definable and occurs in relative isolation, without any interference from other ongoing activities the learner is engaged in. Regrettably, this is rarely true in the strict sense. First of all, where exactly does 'action' start in an institutional context? Consider, for example, a first-year college student: where would be the 'Rubicon', that is, the borderline between pre-action and action in his/her case? At the point when he/she decides to study in higher education? Or enrolls in a particular university? Or selects his/her specific courses? Or attends a particular class? Or engages in a particular activity within this class? It seems logical that taking all these steps would result in somewhat different, increasingly action-oriented contingencies or 'mind sets' in the student. This, however, means that the 'choice' phase of one actional step might happen simultaneously to the executive phase of another, resulting in complex interferences: for example, with regard to the choice of specific courses, a student is already in the executive stage in terms of having started his/her university studies and thereby facing the needs to carry out the various tasks associated with the official requirements, but the same student is still in the predecisional phase in the sense that he/she is still involved in contemplating the reasons for and against particular courses.

The second factor that complicates the picture concerns multiple engagement in a number of different activities at the same time, an issue already highlighted by Atkinson and Birch (1974) in their 'Dynamic Action Model' over two decades ago. Although it is true that people pursue only a limited number of actions at a time, various action episodes can be simultaneously active. For example, a new action may be initiated while the success of the previous action is still being evaluated. This is particularly valid for classroom contexts where student motivation and achievement are the product of a complex set of interacting goals and intentions of both academic and social nature (Juvonen & Nishina, 1997; Wentzel, 1999). However, hardly any research has been done to examine how people deal with multiple actions and goals, how they prioritise between them and how the hierarchies of superordinate and subordinate goals are structured. Recently, Boekaerts (1998) has proposed a pioneering action hierarchy

framework for studying the complex of student motivation, but as she concludes, such research is still in a rather preliminary stage:

Interdependent learning situations . . . require students to balance many goals and tasks simultaneously. In these social settings students may feel that they have to satisfy incongruent or even mutually exclusive goals, such as acquiring a new cognitive skill (mastery goal), coping with the threat of losing face (well-being goal), pleasing one's friends and pleasing the teacher (social goals). It should be noted that these two social goals may or may not be congruent. We know very little about how students determine goal priority and how they change their learning strategies and goal commitment in function of perceived goal conflict. We also know next to nothing about students' capacity to regulate divergent goals in terms of top-down and bottom-up goal processes (movement in their goal hierarchy) and about the tradeoffs that students make in terms of investing resources. Future research should address these issues. (Boekaerts, 1998, p. 21)

It is likely that a purely cognitive approach will not be adequate for understanding how learners prioritise amongst multiple goals. Although most of the contemporary motivation literature takes it for granted that human behaviour can be explained by factors that the individual is aware of, it requires little justification that this is *not* always so. In fact, early theories of motivation were strongly influenced by Freud's (e.g., 1966) emphasis on deep, pervasive drives and instincts as being powerful directive influences on human behaviour. Classroom learning is an intensely interpersonal process, and psychoanalytic theory has provided ample evidence that interpersonal relations are often affected by unconscious 'scripts' (such as transference, projections, defence mechanisms, etc.; for a review, see Ehrman & Dörnyei, 1998); thus, within classroom contexts unconscious relationship patterns inevitably influence the students' ongoing on-task and social behaviour. In a review of the conscious/unconscious issue, Sorrentino (1996) acknowledges the significance of non-conscious forces and concludes that behaviour *can* happen without reference to conscious thought, although conscious cognitions can inhibit or further instigate such behaviour and can also strengthen or weaken other competing action tendencies.

A further aspect of the conscious/non-conscious issue has been highlighted by Bargh (1990), who argues in his 'auto-motive' model that humans do a lot of things as a matter of routine, and such habitual actions are often not under direct motivational control but are automatically linked with mental representations of the social environment without the individual being aware of the source of goal-directed action. The 'purely cognitive' picture is further muddled if we consider the impact of the individuals' *mood states*. In a thought-provoking article, Schwarz and Bohner (1996) draw attention to the fact that depending on what mood people are in, they tend to find goals more or less attractive, tend to assess their own resources and the situation in a more or less favourable way, and tend to evaluate their performance as more or less satisfactory. This phenomenon is well-known to many classroom practitioners, yet little controlled research has been done to understand the exact nature of such mood-related biases.

The above considerations point to the need to extend cognitive paradigms in future research by including various motivational influences that are not under the

individual's direct control. In addition, motivational psychology has recently placed an increasing emphasis on presenting student motivation in a developmental framework (for a review, see Wigfield, Eccles, & Rodriguez, 1998) and, in accordance with this, an adequate process model will also have to incorporate a developmental aspect.

Practical implications of a process-oriented conception of student motivation

As argued earlier, a process-oriented approach can be particularly fruitful with regard to the understanding of student motivation, which is why this line of enquiry has been pursued primarily within the domain of educational psychology during the 1990s. There are two areas where such an approach can have considerable practical implications: (a) the systematic development of *motivational strategies* that the teacher can apply to generate and maintain motivation in his/her learners, and (b) the formulation of *action control* or *self-motivating strategies* that enable learners to take personal control of the affective conditions and experiences that shape their subjective involvement in learning.

Devising motivational strategies

With motivation being a key factor in learning success, teacher skills in *motivating* learners should be seen as central to teaching effectiveness (Galloway *et al.*, 1998). However, as Good and Brophy (1994) summarise, this practical aspect of motivation has not received much scholarly attention until recently, 'so that teachers were forced to rely on unsystematic "bag-of-tricks" approaches or on advice coming from questionable theorising' (p. 212). One reason for this neglect may have been that 'pure' theories of motivation, that is, models that represent a single theoretical perspective and are therefore anchored around a few selected motivational aspects (e.g., around a key concept or process), while largely ignoring research that follows different lines, do not lend themselves to effective classroom application. Several researchers have pointed out that the intricate motivational life of actual classrooms can be best accounted for only by means of detailed and most likely eclectic constructs that represent multiple perspectives. For example, Graham (1994) states that 'classroom motivational life is complex. No single word or principle such as reinforcement or intrinsic motivation can possibly capture this complexity' (p. 47), and the same belief was expressed by Weiner (1984) as follows:

A theory of student motivation ... will have to include many concepts and their interrelationships. Any theory based on a single concept, whether that concept is reinforcement, self-worth, optimal motivation, or something else, will be insufficient to deal with the complexity of classroom activities. (p. 18)

In accordance with these claims, in the *Handbook of educational psychology* Stipek (1996) extends the need for comprehensiveness to classroom teachers' motivational practices:

Although different factors have been emphasised at different times in the history of research on achievement motivation, all are assumed to play a role. Thus, teachers who want to provide an educational program that maximises student motivation must attend to all of these sets of factors. (p. 86)

A process-oriented framework can offer a solid theoretical background to devising *motivational strategies* because of its comprehensiveness: following through the motivational process from the initial arousal of the motivation to the completion and evaluation of the motivated action allows researchers to integrate various lines of research in a unified construct, with a special emphasis placed on executive motives that energise the implementation of various learning tasks. Taking this approach, I have drawn up a taxonomy of motivational strategies (Dörnyei, in press) that contains the following main classes:

- *Creating the basic motivational conditions* (appropriate teacher behaviours and a good relationship with the students; a pleasant and supportive classroom atmosphere; a cohesive learner group with appropriate group norms).
- *Generating initial motivation* (enhancing the learners' subject-matter-related values and attitudes; increasing the learners' 'goal-orientedness'; increasing the learners' expectancy of success; making the curriculum relevant for the learners; creating realistic learner beliefs).
- *Maintaining and protecting motivation* (setting 'proximal subgoals'; presenting and administering tasks in a motivating way; increasing the quality of the learning experience; increasing the learners' self-confidence; allowing learners to maintain a positive self and social image; creating learner autonomy; promoting self-motivating learner strategies).
- *Rounding off the learning experience: Encouraging positive self-evaluation* (promoting attributions to effort rather than to ability; providing motivational feedback; increasing learner satisfaction, and the issue of rewards, grades and punishment).

Formulating action control/self-motivating strategies

Besides providing a comprehensive framework to guide practical work on devising motivational strategies, a process-oriented approach has a further, somewhat related feature that makes it beneficial for promoting effective, self-regulated learning: its emphasis on *action control mechanisms*. These mechanisms, as conceptualised originally by Kuhl (1985), can be seen as a subclass of *self-regulatory strategies* concerning the learners' self-motivating function. As its name also implies, a central component of Heckhausen and Kuhl's Action Control Theory is 'action control', which has been explained by Kuhl (1986, p. 424) as follows:

We know from everyday experience that we do not always carry out our intentions. Choice of a goal and persistence in striving for it do not guarantee that goal-related intentions will be actually performed. In many cases, a certain amount of effort is needed to enact an intention. It takes effort to maintain an intention, to shield it from the press resulting from competing action tendencies, and to strengthen it if necessary until it has been carried into effect. I assume that this kind of self-regulatory effort is required not only for enacting 'difficult' intentions (e.g., to quit smoking) but also for enacting seemingly easy intentions (e.g., to make a phone call). Since 'effort' is a phenomenal summary term that probably refers to a variety of mechanisms, our task is to investigate the specific mechanisms that mediate the

enactment of intentions. I have proposed the term ‘action control’ to refer to these self-regulatory mechanisms.

In academic situations action control can be characterised, using Corno’s (1993) words, ‘as a dynamic system of psychological control processes that protect concentration and directed effort in the face of personal and/or environmental distractions, and so aid learning and performance’ (p. 16), and it is particularly important in prolonged learning situations as action control mechanisms help individuals to maintain their priorities in the face of temptation and adversity. Corno (1994) summarises the academic relevance of volitional (i.e., action control) strategies as follows:

The world is replete with enchanting distractions for even the most eager of students. Schools are complex social networks as well as places of work. Homes provide children with television, computer games, and compact discs. After-school clubs engulf what little spare time children have. To succeed academically, students must learn to cope with the competition between their social and intellectual goals and to manage and control the range of other distractions that arise. Volitional strategies have a promising role to play in achieving these goals. (p. 248)

Kuhl (1985, 1987) proposed a taxonomy of six main types of action control strategies and, being the first of its kind, this taxonomy has been influential in shaping subsequent research into the self-regulatory mechanisms related to self-motivation. Adapting this conceptualisation to educational contexts, Corno and Kanfer (1993, pp. 311–313) distinguish four large classes of ‘volitional control strategies’:

1. *Metacognitive control strategies*: intentionally ignoring attractive alternatives or irrelevant aspects and adopting a ‘let’s not ruminate and procrastinate any longer but get down to doing it’ attitude (e.g., ‘Think of first steps to take and get started right away’ or ‘Set contingencies for performance that can be carried out mentally, such as self-reward; self-imposed penance’).

2. *Emotion control strategies*: managing emotional states that might disrupt or inhibit action (e.g., ‘Generate useful diversions’ or ‘Recall your strengths and your available resources; remember, you’ve done this kind of thing before’).

3. *Motivation control strategies*: enhancing the motivational basis of intentions to pursue a goal (e.g., ‘Add a twist to make this project more interesting’ or ‘Escalate goals by prioritising and imagining their value’).

4. *Environmental control strategies*: manipulating aspects of the individual’s environment in a way that the resulting socio-environmental pressure or control makes the abandoning of the intention more difficult or by creating safeguards against undesirable environmental temptations (e.g., ‘Move away from noise and distraction’ or ‘Make a social commitment of doing something, e.g., preparing all your home assignments or not being late’).

The issue of motivational self-regulation has attracted increasing attention by other researchers as well during the past few years. Baumeister (1996), for example, emphasised action maintenance strategies that enable people to regulate the cognitive and emotional impact of ego threats. By consciously ignoring face-threatening stimuli, by adopting ‘defensive preoccupation’ (i.e., focusing on an alternative stimulus that can

absorb attention), by summoning positive feelings/happy memories to defuse the threat, or by constructing their narratives of events so as to place themselves in a more positive light, people may self-regulate cognitive processes and thus protect their self-esteem from threatening implications. Garcia and Pintrich (1994) highlight one particular strategy that serves to maintain self-worth: 'self-affirmation'. If an individual experiences a negative evaluation of the self in a valued domain, a self-affirmative process is initiated, and the individual will 'seek to affirm a positive global evaluation of the self by activating positive conceptions of the self (those in other, equally valued domains)' (p. 137).

In sum, the analysis of self-motivating strategies appears to be one of the most promising domains of applied motivation research. Much of past research on self-regulated learning has focused on students' knowledge and control of cognitive and metacognitive strategies, and work by Corno, Kanfer, Pintrich and their colleagues has evidenced that motivational self-regulation, or 'metamotivational skills' in Boekaerts's (1995) term, constitute an important aspect of academic self-regulation skills. Recent empirical support to this claim has been provided by Wolters (1998), who found that college students regulated their effort in academic tasks by using a variety of cognitive, volitional and motivational strategies.

Conclusion

In this paper I have argued that an increased attention to the temporal aspect of motivation (i.e., how motivational processes operate in time) can have important theoretical and practical implications for the study of student motivation. A process-oriented approach shifts the emphasis from preactional 'choice motivation' (which has been the traditional concern of motivation research) to volitional/executive aspects of goal attainment during the actional phase; that is, it addresses motivation in ongoing social activities such as classroom learning. The process model of student motivation that I have presented was intended to illustrate the potential of such an approach for integrating various, generally independent research trends into a unified framework, but it also highlighted a number of theoretical challenges that will need to be responded to in future research. I have argued that it is not at all clear at present where predecisional deliberation ends and 'action' starts in complex, prolonged learning activities such as mastering school subjects. In many learning situations there are various levels of increasingly focused task engagement (e.g., taking up studies in general, enrolling in a particular course, attending a particular lesson or carrying out a particular learning task) and the resulting action-oriented contingencies or mind sets interact with each other in an as yet unspecified manner. A related issue concerns how simultaneous action that the learner is engaged in affects task motivation, that is, how multiple goals are prioritised and how the hierarchy of superordinate and subordinate goals is structured. This question is unlikely to be addressed adequately from a purely cognitive perspective, because non-conscious motives and scripts, as well as automated action schemata and various mood states, appear to have a considerable impact on ongoing social behaviour.

Although the line of research presented in this paper is still relatively new, during the past decade it has been adopted by an increasing number of scholars within the field of

educational psychology. This reflects a growing awareness of the benefits of looking at motivation as being associated with a process that can account for the dynamic evolution of motivation and which can also fully accommodate the learner's and the teacher's active role in controlling and shaping the affective foundation of the learning process. This paper was intended to provide an integrative review of past research efforts along these lines and to demonstrate the educational relevance of a process-oriented conceptualisation of student motivation.

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